

Video Game Values

Play as Human-Computer Interaction

by

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Abstract

Video games are a form of software and thus an obvious object of study in Human-Computer Interaction (HCI). Interaction with video games differs from the usual understanding of HCI, however, because people *play* video games rather than use them. In this dissertation we ask: "How can we analyse human-computer interaction in video games when the interaction in question is *play*?"

We propose *video game values*, defined as sustained beliefs about preferable conduct during play, as a basis for video game HCI. In order to describe and analyse play we use activity theory, focusing on how the interface mediates players' beliefs about preferable conduct. Activity theory allows us to address the multiple levels of context and detail in play as well as the role of conflict.

We employ a qualitative case study methodology to gather data about five popular video games: *Civilization III*, *Fable*, *Grand Theft Auto: San Andreas*, *Half-Life 2*, and *The Sims 2*. Our core data comes from observation and interview sessions with twenty-five experienced players of these games. We collected further data based on the games' interfaces, participant observation, and documentation such as manuals and walkthroughs.

We make three key contributions to video game HCI: 1) We introduce *video game values* as a means to analyse play as a form of human-computer interaction and show how the values of PAIDIA and LUDUS influence all aspects of play; 2) we develop a *video game activity framework* for describing and analysing video game play at multiple levels of detail and context; and 3) we extend the video game activity framework to include *contradictions and breakdowns* as a means to describe and analyse the role of conflict and challenge in video game play.

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Contents

1	Introduction	1
1.1	The state of play	2
1.2	Video game values	3
1.3	Contributions	4
1.4	Limitations and delimitations	5
1.5	Outline of dissertation	5
1.6	Publications	6
2	Background	9
2.1	Value and Human-Computer Interaction	10
2.1.1	Defining value	10
2.1.2	Value and interaction	12
2.2	Video games as software	14
2.2.1	Traditional HCI and video games	14
2.2.2	Video game HCI	16
2.3	Video games as games	18
2.3.1	Introducing game studies	19
2.3.2	Value and game studies	22
2.4	Activity theory	29
2.4.1	Introducing Activity Theory	29
2.4.2	The model of activity	30
2.4.3	The activity hierarchy	33
2.4.4	Contradictions and breakdowns	35
2.4.5	Activity theory and video games	37
2.5	Summary	39
3	Methodology	41
3.1	Qualitative research	42
3.2	Case study research	43
3.2.1	Definitions	43
3.2.2	Use of theory	44

3.2.3	Researcher bias	45
3.3	Research design	46
3.3.1	Case selection	46
3.3.2	The cases	47
3.3.3	Data collection	49
3.3.4	Data analysis	61
3.4	Pilot study	63
3.5	Verification strategies	64
3.6	Summary	65
4	Video Game Values	67
4.1	Video game values	68
4.1.1	Video game values and promotion	71
4.1.2	Video game values and execution	71
4.2	PAIDIA and LUDUS	73
4.2.1	PAIDIA	73
4.2.2	LUDUS	75
4.2.3	PAIDIA and LUDUS as antagonistic	77
4.2.4	PAIDIA and LUDUS in balance	79
4.3	Distinguishing play	81
4.3.1	Motives for play	82
4.3.2	Non-neutrality of interface	84
4.3.3	Goal origin	85
4.3.4	Conflict in play	87
4.4	Summary	88
5	A Video Game Activity Framework	91
5.1	A video game activity framework	92
5.2	Video gaming	94
5.2.1	Subject	95
5.2.2	Object	98
5.2.3	Motive	99
5.2.4	Artifacts	102
5.3	Generic activities	107
5.3.1	Subject	109
5.3.2	Object	111
5.3.3	Motive	116
5.3.4	Artifacts	119
5.3.5	Identifying generic activities	120

5.4	Summary	121
6	Specific Activities	123
6.1	The video game activity hierarchy	125
6.1.1	Relating the levels of hierarchy	126
6.1.2	Represented activity	127
6.2	Output	128
6.2.1	Activity-Motive	129
6.2.2	Actions-Goals	139
6.3	Input	143
6.3.1	Operations-Conditions	144
6.3.2	Actions-Goals	156
6.3.3	Preferable input	159
6.4	Summary	161
7	Contradictions and Breakdowns	163
7.1	Contradictions in play	164
7.2	Represented contradictions	168
7.2.1	Identifying represented contradictions	169
7.2.2	Resolving represented contradictions	171
7.2.3	Represented morals and ethics	172
7.3	Challenge contradictions	175
7.3.1	Opponent contradictions in <i>Civilization III</i>	176
7.3.2	Spatial contradictions in <i>Grand Theft Auto</i>	179
7.3.3	Avatar contradictions in <i>Fable</i>	183
7.3.4	Management contradictions in <i>The Sims 2</i>	185
7.3.5	Perfection contradictions in <i>Half-Life 2</i>	188
7.3.6	Cheating to resolve contradictions	191
7.3.7	Player-created contradictions	194
7.4	Oppositional play	196
7.4.1	Playing nice in <i>Half-Life 2</i>	197
7.4.2	Being weak in <i>Fable</i>	198
7.4.3	Staying small in <i>Civilization III</i>	199
7.4.4	Law enforcement in <i>Grand Theft Auto</i>	200
7.4.5	Misery in <i>The Sims 2</i>	200
7.5	Summary	201
8	Conclusion	203
8.1	Contributions	205
8.1.1	Video game values	205

8.1.2	A video game activity framework	205
8.1.3	Contradictions and breakdowns	206
8.2	Related work	206
8.2.1	HCI	206
8.2.2	Game studies	208
8.2.3	Activity theory	209
8.3	Limitations	210
8.4	Future work	210
8.5	Summary	211
A	Video Game Activity Framework	213
A.1	PAIDIA and LUDUS	213
A.1.1	PAIDIA	213
A.1.2	LUDUS	214
A.1.3	PAIDIA contradicts LUDUS	214
A.1.4	LUDUS contradicts PAIDIA	214
A.1.5	PAIDIA complements LUDUS	214
A.1.6	LUDUS complements PAIDIA	215
A.2	Video Gaming Activity	215
A.2.1	Subject	215
A.2.2	Object	215
A.2.3	Motive	216
A.2.4	Artifacts	216
A.3	Generic Activities	216
A.3.1	Combat	216
A.3.2	Mission	216
A.3.3	Spatial Exploration	217
A.3.4	Avatar/Interface Transformation	217
A.3.5	Interface Exploration	217
A.4	Specific Activities	217
A.4.1	Combat	218
A.4.2	Mission	218
A.4.3	Spatial Exploration	219
A.4.4	Avatar/Interface Transformation	219
A.4.5	Interface Exploration	220
A.5	Contradictions and Breakdowns	220
A.5.1	Represented Contradictions	220
A.5.2	Challenge Contradictions	221
A.5.3	Oppositional Play	221

B Generic information sheet	223
C Generic consent form	225
D Interview Schedule	227
D.1 Basic demographic information	227
D.2 Follow-up on observations	227
D.3 Structured interview questions	227
E Code List	229

List of Figures

2.1	The activity model applied to writing a Ph.D. dissertation	31
2.2	The activity hierarchy applied to writing a Ph.D. dissertation	33
2.3	Engeström’s four categories of contradiction [79]	36
3.1	The five video games studied in this dissertation: <i>Civilization III</i> , <i>Fable</i> , <i>Grand Theft Auto: San Andreas</i> , <i>Half-Life 2</i> , and <i>The Sims 2</i> . . .	48
3.2	The typical play screen in <i>Civilization III</i> showing the area of terrain the player is focused on. Four cities belonging to the player’s civilisation are visible along with their borders. At the bottom left is the full map of the world (largely black because it is unexplored). In the centre are various action buttons such as “mine” and “fortify.” At the bottom right is a panel giving status information.	50
3.3	The “city menu” in <i>Civilization III</i> where players manage individual cities such as “Thebes.” This menu allows players to choose what the city will build, to allocate where their citizens will farm or mine, and to assess the current status of the city.	50
3.4	The standard play screen in <i>Fable</i> showing the avatar in the centre as he moves through the game world. At the top left are measures of his health and magical power. At the top right is a map of the immediate area. At the bottom left are the current “expressions” he can make. At the bottom right are his current options for action, such as sprinting, attacking, or defending.	51
3.5	A typical menu in <i>Fable</i> showing a listing of the available Quests a player can undertake. Each Quest includes a title, a starting location, a brief description, and information about rewards. Quests are denoted as being either relevant to the main narrative (coloured gold), or auxiliary to it (coloured silver).	51

3.6	The standard play screen in <i>Grand Theft Auto: San Andreas</i> when the avatar, Carl, is on foot (seen here stealing a car). In the top right are indicators of the current weapon, time, health, and money. At the bottom left is a map of the immediate area. At the bottom right is the name of the current neighbourhood.	52
3.7	The standard play screen in <i>Grand Theft Auto: San Andreas</i> when the avatar is driving a vehicle. The same interface elements as in figure 3.6 are visible, along with an indicator for how “wanted” by the police Carl is (the two yellow stars at the top right).	52
3.8	The standard play screen in <i>Half-Life 2</i> showing the first person perspective of the avatar, Gordon Freeman, and his current weapon (a machine gun) directed outward. Indicators at the bottom of the screen show Gordon’s health, armour, and ammunition levels.	53
3.9	The standard play screen in <i>Half-Life 2</i> when Gordon Freeman is driving a vehicle, such as an air-boat.	53
3.10	The standard play screen in <i>The Sims 2</i> showing a Sim inside his house interacting with a computer. In the left-centre of the screen is the pie menu with which players select a Sim’s actions, in this case showing options for using a computer. At the bottom of the screen is the control panel which gives players information about the current status of their Sims, such as their Wants and Fears (bottom centre), Needs (bottom right), as well as the option to change to views such as “Buy Mode” and “Build Mode” (bottom left).	54
3.11	The Create-a-Sim screen in <i>The Sims 2</i> , showing a new Sim being created. The Sim being created stands in front of a mirror while the player manipulates options such as their name, skin-colour, and clothing using the menu at the bottom of the screen.	54
3.12	Data collected during qualitative research.	55
3.13	The physical set-up for observation sessions	58
3.14	The basic working view in <i>HyperResearch</i>	63
5.1	The video game activity framework applied to playing <i>Grand Theft Auto: San Andreas</i>	93
5.2	The video gaming activity for <i>Grand Theft Auto</i>	95
5.3	The generic activities as articulated in our case study data	107
6.1	Selected specific activities which implement the generic activities in <i>Grand Theft Auto</i>	124
6.2	The activity hierarchy as applied to <i>Grand Theft Auto</i>	125
6.3	The standard PlayStation 2 controller	145

6.4	Operations in <i>Grand Theft Auto</i> for PlayStation 2	145
6.5	The standard X-Box controller	147
6.6	Operations in <i>Fable</i> for X-Box	147
6.7	A standard mouse and keyboard	149
6.8	Operations in <i>Half-Life 2</i> for PC with a standard keyboard layout .	149
7.1	Three categories of contradiction in the video game activity framework: 1) Within a node; 2) Between nodes; and 3) Between activities	165
7.2	Example of a contradiction between the player's and opponents' specific activities of capturing territory in <i>Civilization III</i>	177
7.3	Example of a contradiction between the Subject and Object of the spatial traversal/exploration specific activity <i>Grand Theft Auto</i> . . .	181
7.4	Example of a contradiction between the spatial traversal/exploration and mission specific activities in <i>Grand Theft Auto</i>	182
7.5	Example of a contradiction between the player-avatar and an artifact in the combat activity of <i>Fable</i>	185
7.6	Example of a contradiction within the player-avatar node of the specific activities of <i>The Sims 2</i>	187
7.7	Example of a contradiction between the player and his value of PERFECTION and the specific combat activity of <i>Half-Life 2</i>	190

Chapter 1

Introduction: Press Start to Begin

Vincent and Mario go to EB Games in Cuba Mall in Wellington, New Zealand. They browse the shelves and see that *Grand Theft Auto: San Andreas* is on sale. Miraculously, neither of them has played it before and they decide to buy it. They catch a bus to Mario's house, discussing what they have heard about the game, such as its immense game world and the controversy surrounding its hidden sexual content. They speculate as to whether they will be able to access this content in the PlayStation 2 version of the game they have purchased. They talk about the past games in the series such as *Grand Theft Auto III* and *Grand Theft Auto: Vice City*, wondering about what will be new in this version. Vincent is excited about the possibility of speeding through open countryside on a motorbike, while Mario looks forward to overcoming the challenges the missions will provide. They both fervently hope the game will take a long time to complete. The bus arrives at their stop and they walk to Mario's house, opening the game box as they step into the living room where the PlayStation 2 is kept.

Video games are a form of software and are therefore a natural object of study for the study of Human-Computer Interaction (HCI). As is visible in Vincent and Mario's discussion of *Grand Theft Auto: San Andreas*, above, video games differ substantially from other forms of software. Other forms of software, for example, do not lend themselves to activities such as "speeding through the countryside," being challenged during the interaction, or wanting the interaction to take a long time. The fundamental point of distinction can be summed up as follows: people *use* software, but they *play* video games.

Compare, for example, the ubiquitous software application *PowerPoint* [171]

and *Grand Theft Auto: San Andreas* [211]. We can identify four key differences in interaction which help to characterise video game play as distinct. First, in using *PowerPoint*, a user's primary objective is the creation of a presentation and the interaction is a *means* to this end. In playing *Grand Theft Auto: San Andreas*, however, a player's primary objective is play and the interaction is an *end in itself*. Second, given this difference, users of *PowerPoint* expect the interface to be as unobtrusive as possible, while players of *Grand Theft Auto: San Andreas* are specifically focused on the interface as they play: the interface *is* the game. Third, while we generally think of *PowerPoint* as solely *facilitating* our work, *Grand Theft Auto: San Andreas* frequently assigns tasks such as killing gang members, evading the police, or navigating the world. Finally, in *PowerPoint* the ideal user experience is seamless and without error, but a successful playing of *Grand Theft Auto: San Andreas* will inevitably and acceptably include mistakes, challenges, and the frequent death of the player's avatar.

The above suggests that the traditional views of interaction with software such as *PowerPoint* do not easily apply to video games such as *Grand Theft Auto: San Andreas*. As such, it is unsurprising that the standard approaches to understanding interaction as use within HCI are not sufficient for understanding video game play. Conventional HCI wisdom, such as promoting efficiency and transparency while avoiding errors, is commonly disregarded in video game play where players are repeatedly obstructed, deceived, and forced into mistakes.

If traditional HCI does not sufficiently explain video game play as a form of interaction we must ask what is missing. Our focus in this dissertation is on exploring the following question:

How can we analyse human-computer interaction in video games when the interaction in question is play?

1.1 The state of play

Video games are one of the most influential forms of software today. The games industry makes more than seven billion dollars per year [84] and players devote huge amounts of time to games such as *Second Life* which has a "population" of almost 10 million people [217]. Further, video games have entered the public consciousness and frequently appear in the popular media in both positive and negative lights. Games are being used for far more than "just" entertainment, with applications including social marketing [184], education [76], and specialist training [223]. Meanwhile, the controversy surrounding incidents such as the "hot coffee" sexual content in *Grand Theft Auto: San Andreas* [253] and the game *VT*

Rampage based on the Virginia Tech shootings [203] have ensured games a dubious place in the spotlight.

Video game HCI is a young discipline. Although some work took place as early as the 1980s, most research has begun much more recently. A significant amount of time has been spent discussing the need for a specialised video game HCI, and less time has been spent creating it [131, 218]. While some excellent research exists, video game HCI often loses sight of the distinctions between video games and other forms of software.

Another area of research, game studies, provides a complementary viewpoint. Game studies has a primary focus on the nature of video games as *games* [86, 134]. Research areas include the psychology of players [261], the rhetoric of video game designs [249], and the primacy of either narrative or more formal descriptions of play [100]. Conversely to video game HCI, game studies research often neglects the nature of video game play as interaction with software specifically.

The current level of popular and academic interest in video games suggests that the time is right to combine video game HCI more fully with game studies. We believe that combining the insights and approaches of both disciplines will lead to a more complete video game HCI. Specifically, it will enable a focus on understanding play as a form of human-computer interaction, taking into account video games' nature as both games *and* software.

1.2 Video game values

In this dissertation, we adopt the concept of *value* as a means to connect the often separated understandings of video games as software and as games. Value is defined as “a sustained belief that one mode of conduct is preferable to other potential modes of conduct,” and concerns the question of what the preferable action to take is in a particular situation. Thus a value such as HONESTY¹ would lead to conduct such as “telling John I broke the vase” rather than “telling John that his cat broke the vase.”

We define the corresponding concept of a *video game value* as “a sustained belief that one mode of conduct is preferable to other potential modes of conduct during play,” and suggest that the mediation of such values in the interface are a defining feature of play. The value of AGGRESSION is a common one in games, for example, leading to conduct such as “shooting the Mafia boss” being regarded as preferable to conduct such as “baking a cake for the Mafia boss.” Our focus in this dissertation is on understanding why and how some conduct is promoted and

¹In this dissertation we use SMALL CAPITALS to denote a value.

regarded as preferable instead of other conduct in video game play

Using video game values as the central concept in approaching video game HCI allows us to view video games as both software and games. As we have stated above, the emphasis on *conduct* allows us to draw a strong connection to the interfaces of video games which *mediate* all conduct during play. The emphasis on *preferable* conduct, as we will see, is one way of capturing the nature of video game play as interaction.

In order to describe the conduct that takes place during video game play, we employ *activity theory*, a well-established psychological approach to describing human conduct with a history of use in HCI research. Activity theory enables us to focus on multiple levels of detail and relationships that exist between the different forms of activity that make up play.

In order to develop our theory in a grounded manner, we perform qualitative case studies of five popular video games: *Civilization III*, *Fable*, *Grand Theft Auto: San Andreas*, *Half-Life 2*, and *The Sims 2*. We focus on the play of 25 experienced players through detailed observation and interview sessions. Further, we engage in participant observation, analyse the game interfaces themselves, and also consider the online communities surrounding the games. Using this wide range of evidence, we develop a video game activity framework for describing and analysing video game play as human-computer interaction.

1.3 Contributions

In this dissertation we make three key contributions to video game HCI:

1. We introduce *video game values*, defined as players' beliefs about preferable conduct during play, as a means to describe and analyse play as a form of human-computer interaction. We define and analyse the two core video game values present in our case study games, PAIDIA and LUDUS, and show how they influence all elements of play.
2. We develop a *video game activity framework* for describing and analysing video game play at multiple levels of detail and context. We show how play can be analysed using activity theory to integrate diverse contexts, from the real world experience to represented actions in a game world to individual button presses.
3. We extend the video game activity framework to include *contradictions and breakdowns* as a means to describe and analyse the role of conflict and challenge in video game play. We use these concepts to consider multiple forms

of conflict, including represented and experienced challenges, and the use of contradictions as a basis for video game analysis.

1.4 Limitations and delimitations

Given our use of a qualitative methodology, we must acknowledge the usual limitations and delimitations involved in this approach to research. We have limited the number of games being studied to five, and the total number of participants recruited for observation and interviews to 25. As we will discuss in the methodology chapter, this suggests due caution in any generalisation of the results.

This dissertation does not culminate in detailed design advice for the creators of games, though that may be the next step. Instead, the core focus of our research is to build a usable framework within which video game play can be described and analysed as a form of interaction.

1.5 Outline of dissertation

Chapter 2 - Background We review the HCI literature in connection with a definition of value. We then address the existing video game HCI and game studies literature. Finally, we introduce activity theory, connecting it with HCI and video game research.

Chapter 3 - Methodology We introduce our qualitative research methodology of case study. We describe the selection of cases, data collection and analysis, our pilot study, and our approach to validation.

Chapter 4 - Video game values We define *video game values* and introduce them as approach to understanding play as human-computer interaction. We foreground the importance of the values of PAIDIA and LUDUS and show how they are fundamental to play in our case study games. Finally, we use the concept of video game values to discuss our qualitative evidence for distinguishing features of play as interaction.

Chapter 5 - A video game activity framework We introduce our activity theoretic framework for describing and analysing video game play. We present the first two levels of the framework, addressing *video gaming* as a real world activity and the concept of *generic activities* of play.

Chapter 6 - Specific activities We extend the video game activity framework by describing and analysing the *specific activities* of play as represented in our case study games. We show how the *activity hierarchy* can be used to analyse specific activities at multiple levels of detail, from high-level activities, to particular conscious actions, to automatic button presses.

Chapter 7 - Contradictions and breakdowns We extend our video game activity framework to include further concepts of *contradiction* and *breakdown*. We show how these concepts help to describe and analyse the roles of conflict and challenge in play. We present our own method of video game analysis called *oppositional play* and apply it to our case studies.

Chapter 8 - Conclusion We conclude by describing the major contributions made, positioning our research relative to related work, and considering the possible future directions of our approach to video game HCI.

1.6 Publications

Some of the research presented in this dissertation has been published elsewhere prior to write-up. We now indicate which parts of the dissertation are based on previously published work. All results in this dissertation previously presented in jointly-authored publications are primarily the work of the author of this dissertation. Co-authors on these publications provided overall supervision, advice about methodology, research, resources, and analysis.

Chapter 4 The basic concept of video game values was explored in depth in *Videogame Values: Human-Computer Interaction and Games*, published in the journal *Interacting with Computers* in 2006 [19].

Chapter 5 We discussed the generic activity of avatar transformation in relation to a value of WELL-BEING in “*Well-Being to Well Done!": The Development Cycle in Role-Playing Games*”, published in the proceedings of the First International Conference on Persuasive Technology for Human Well-Being, 2006 [23].

We further addressed avatar transformation specifically as an activity in *Changing the Virtual Self: The Avatar Transformation Activity in Popular Games*, published in the proceedings of the Joint International Conference on CyberGames and Interactive Entertainment, 2006 [20], and republished in the ACM magazine *Computers in Entertainment* in 2007 [17].

The activity of play directed toward the interface specifically was addressed in *Playing the Interface: A Case Study of Grand Theft Auto San Andreas*, pub-

lished in the proceedings of the Annual Conference for the Computer-Human Special Interest Group of the Human Factors and Ergonomics Society of Australia, 2006 [21].

Chapter 6 Our initial exploration of the activity hierarchy relative to video game play was presented in *From Pushing Buttons to Play and Progress: Value and Interaction in Fable*, published in the proceedings of the Seventh Australasian User Interface Conference, 2006 [25].

Work relative to the specific activities of play relative to the value of WELL-BEING was published as *Feeling Strangely Fine: The Well-Being Economy in Popular Games* in the proceedings of the First International Conference on Persuasive Technology for Human Well-Being, 2006 [22].

Chapter 7 The basic ideas surrounding the importance of conflict in video games relative to interaction were first published as *Get Out Of My Way!: Exploring Obstruction in Popular Games*, published in the proceedings of Future Play 2006 [18].

Our work on oppositional play first appeared in *Oppositional Play: Gathering Negative Evidence for Computer Game Values*, published in the proceedings of Second Australasian Conference on Interactive Entertainment [24].

Chapter 2

Background: The State of Play

Vincent and Mario put the *Grand Theft Auto* DVD into the PlayStation 2 and turn it on. They watch the developers' logos appear, and then the game beginning to load. It shows a sequence of images of characters from the game, and Vincent speculates about who they are and what their roles will be.

The game begins with the back-story of Carl Johnson, the avatar, as he arrives at the Los Santos airport and catches a taxi. The taxi is pulled over by police officers, and it is made clear they have a long standing conflict with Carl, who used to be a gang member. Carl asserts that he is "clean" this time around, but they take his money, blackmail him by framing him for a murder, and leave him in dangerous gangland territory.

Vincent flicks through the manual for the game and reads some of the fictional advertisements that form the instructions for play. He sees that radio stations are advertised along with their play-lists and tells Mario some of the songs he recognises. They then both turn their attention to the game, which has now loaded, and all the possibilities that engenders.

Much as Vincent and Mario learn about the narrative setting of *Grand Theft Auto* to make sense of their later play, we must learn the "back-story" presented by the existing literature. We focus our attention on the particular aspects of research which shed light on understanding play as a form of human-computer interaction, with a focus on the role of value.

In this chapter we first define value and discuss its relationship to human-computer interaction (§2.1). Following this, we survey the existing literature

relevant to video game HCI, suggesting that there is a substantial foundation to work from, and that much of the best work implicitly relates to value (§2.2). Next, we turn to the area of game studies and suggest that this research, which addresses video games as games specifically, is of key relevance to any approach to video game HCI (§2.3). After this, we introduce our core theoretical basis of activity theory, showing how it provides us with a number of models and concepts for describing and analysing video game play (§2.4). Finally, we summarise the discussion in this chapter and look toward the following chapters (§2.5).

2.1 Value and Human-Computer Interaction

In order to establish that value is a useful concept with which to address video game HCI, we must first define it. Further, we must examine existing literature connecting value with human-computer interaction more generally.

2.1.1 Defining value

At an intuitive level we all have some idea of what value is and how it works, most commonly pairing it with ideas about “worth” and “ethics.” We think about the value of our new plasma television to the enjoyment of our lives, or the value of justice in creating the kind of society we wish to live in. Beyond this level of understanding, however, researchers in value theory have defined value more precisely. We begin with the commonly accepted definition of value offered by Milton Rokeach:

A *value* is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence.

[213, p.5]

Although Rokeach’s inclusion of *end-states* along with conduct as the object of values is common [70, 149, 178, 208], we focus exclusively on the relationship of value to *conduct* because of our specific interest in interaction.¹ Values can also be *compared* with one another and it is suggested by Rokeach and others that they can be organised into *systems*: “an enduring organization of beliefs concerning preferable modes of conduct … along a continuum of relative importance” [213, p.5]. Finally, Rokeach also notes that values do not solely involve comparisons with an “opposite or converse” mode of conduct: “a person prefers a particular

¹The utility of separating the object of value into conduct and end-states has been debated in the literature, including by Rokeach himself [116, 213]

mode of conduct ... not only when he compares it with its opposite but also when he compares it with other values within his value system" [213, p.10].

Value is defined in this dissertation as follows:

A value is an enduring belief that a specific mode of conduct is preferable to other potential modes of conduct.

Values can thus be thought of as "sustained beliefs about preferable conduct." Indeed, Rokeach advises that we think of values as "standards that guide ongoing activities, and of value systems in general as plans employed to resolve conflicts and to make decisions" [213, p.12]. As an example, consider the value of HONESTY as a guide to conduct. In a situation where we have broken our friend John's vase while house-sitting, the value of HONESTY would lead us toward conduct in which we tell John about the mistake, rather than blaming his cat or some other circumstance. In another situation our value of HONESTY might be secondary to a value of BENEVOLENCE or HARMONY when we decide to lie to a young child about the attractiveness of the tutu and running shoes he wants to wear to kindergarten. Note that in all these cases the values do not *motivate* conduct, but provide an indication of what conduct would be preferable *given* the situation.

Another view of value suggested by Rokeach is the identification of its cognitive, behavioural, and affective aspects. The cognitive aspect concerns the *knowledge* of the correct (valued) actions to take: "To say that a person has a value is to say that cognitively he knows the correct way to behave" [213, p.7]. This concerns the element of value according to which we know it is wrong, for example, to contemplate not feeding our pet hamster before going out with friends because we are in a hurry. A value has a behavioural component because "it is an intervening variable that leads to action when activated" [213, p.7]. In this sense, values are causally related to our conduct, as when we value our social life and go out with our friends (forgetting to feed the hamster). Finally, a value is affective in that a person "can feel emotional about it, be affectively for or against it" [213, p.7]. Here, a value leads not just to particular conduct, but to feelings about one's own conduct and the conduct of others, such as when we feel upset by our own conduct leading to our pet hamster's death.

Most contemporary work on value centres less on theoretical exploration and more on empirical tests to establish what human values *are*. A good example of this work is that of Shalom Schwartz, whose value survey has been used in psychology throughout the world [216]. Schwartz divides human values into eleven categories: self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, spirituality, benevolence, and universalism. He further identifies values within each category, such as FREEDOM and CREATIVITY within

the category of self-direction, and discusses the relationships of the values with one another throughout the categories. Similarly, Geert Hofstede has developed a detailed model of human values, organising them into a set of five “cultural dimensions”: power distance, individualism-collectivism, masculinity, uncertainty avoidance, and long-term orientation [120]. Following on from Hofstede, Harry Triandis has focused on the continuum of individualism-collectivism, introducing “horizontal” and “vertical” aspects of both [239].

2.1.2 Value and interaction

Now that we have a working definition of value, we can consider its relevance to human-computer interaction specifically. The relationship between “beliefs about preferable conduct” and interacting with software is strong, given that interaction itself is a form of conduct. Much research surrounding human-computer interaction is relevant to matters of value, though work which considers it specifically is more rare. The reason for this may be in part because it is common to think of software and interfaces as *neutral*, only doing what they are told and nothing more. Nonetheless, values, when considered as beliefs about preferable conduct, are increasingly discussed within HCI research.

Central to HCI interest is the ways in which software can potentially *influence* a user’s values. We identify three key ways in which this can take place. First, values can be included in the *context* of use, concerning the user’s or others’ values relative to the use of the software. Second, a user’s values can be involved *during* use when they affect decisions about interacting with the software. Finally, value can potentially be *transferred* from the software to a user if the interaction influences beliefs about preferable conduct. Below, we discuss literature which illustrates these three relationships, noting, however, that they are intertwined.

The context of software use necessarily involves the values of a user and a task. Even the use of the most “neutral” software, such as a plain text editor, involves values if the user is writing a letter of resignation, for example. Similarly, changing one’s online banking password invokes values such as SECURITY because of the nature of the task, rather than the software itself. Research on software for domains such as nuclear power plants [192] and voting systems [28] also has a clear relevance to values, again associated with the context of use.

One instance in which research has been performed to specifically address human values is Batya Friedman’s project of “value sensitive design” [102, 103, 182]. The premise of value sensitive design is, again, that humans bring values to their interactions with software, but with the additional acknowledgement that software has a role to play with regard to these values. Friedman’s research is premised

on “a growing consensus that we need also to include criteria that embody or at least help foster core human values” [102, p.22]. The value sensitive design project has the goal of expanding the standards of evaluation and design of software to include questions about how well it advances basic human values. An example of the application of this kind of work is found in relation to the environmental effects of software and technology design. Value-oriented researchers have considered the longer term implications of software design, focusing on sustainable software [36] and methods for predicting the longer term effects of software [182].

Part of the project of value sensitive design addresses the idea that software can *influence* or *persuade* users, by altering their beliefs about preferable conduct. An area of research concerned with exactly this concept is known as *persuasive technology*, made popular by B. J. Fogg’s book of the same name [94]. Fogg defines the field as exploring “the design, research, and analysis of interactive computing products created for the purpose of changing people’s attitudes or behaviors” [94, p.5]. His book reviews existing technologies along with a number of persuasive “strategies.” Fogg includes video games in his survey of persuasive technologies, albeit briefly, and only to note them as a form of behaviourist conditioning [94, p.51].

Much persuasive technology research addresses the development of persuasive technologies. Examples of platforms for persuasion include the web [222], video games [184], virtual reality [16], and robots [64]. Further, the topics with which these technologies are concerned are equally varied, ranging from health [147] to politics [101] and environmental awareness [59]. Simultaneously, there are ethical concerns about issues such as the message of a persuasive technology [30] and the potential deception of users [118].

As well as having the goal of affecting users’ beliefs about preferable conduct beyond their interaction with software, persuasive technology involves persuasion *during use*. As we stated above, part of the relationship of value to interface concerns users’ beliefs about preferable conduct with respect to the software itself. Although research specifically addressing this level of value and interaction is relatively uncommon, it is of considerable significance to the current research.

Two of the most interesting investigations of the role of value during interaction relate to *Microsoft PowerPoint* [171]. Edward Tufte’s *The Cognitive Style of PowerPoint* looks at how *PowerPoint* pushes its users toward a very particular style of presentation [240]. As he puts it: “popular *PowerPoint* templates ... usually weaken verbal and spatial reasoning, and almost always corrupt statistical analysis” [240, p.3]. In related work, Catherine Adams has studied how *PowerPoint* influences the work of teachers [6, 7]. Adams focuses on “how *PowerPoint* invites and seduces educators to reshape knowledge in particular ways, and subsequently

how this knowledge is presented to students in the classroom” [6, p.389]. Both these researchers have an interest in how software, and particularly its interface, influences users’ conduct as they interact.

Although it is often not explicitly acknowledged in HCI research, values, defined as beliefs about preferable conduct, have a major role. As we have seen, there are multiple relationships between interaction and value acknowledged in the literature, so there is, therefore, evidence that an approach based on value and interaction may assist us in developing video game HCI, the topic of our next section.

2.2 Video games as software

Video games must be studied because they have become a financial and cultural force. Financially, the games industry in the United States has made over seven billion US dollars in each of the last three years [82, 83, 84]. Players play games for hours and join online game worlds in huge numbers with populations of almost ten million in *Second Life* [217] and over nine million at level 10 or higher in *World of Warcraft* [247]. Further, video games are fully integrated into popular culture, with references in movies such as *The Simpsons Movie* [125], professional gaming leagues [164], and documentaries about gaming history [201].

Given that video games are a form of interactive software, they need to be studied from an HCI perspective [183, 263]. In looking at the HCI literature with respect to video games, we identify two key areas. First, we examine the relationship of traditional HCI approaches to video game play. Second, we discuss the growing video game HCI literature which takes the nature of games as *games* into account more fully. In both cases, as we shall see, there is an emphasis on the *evaluation* of video game interaction in an effort to create better video games.

2.2.1 Traditional HCI and video games

Applying traditional HCI research thinking and methods to video games is challenging. As we have already suggested in chapter 1, video game interaction is intuitively distinct from interaction with the usual objects of HCI study. This can now be demonstrated by considering Jakob Nielsen’s five usability principles of *learnability, efficiency, memorability, error prevention, and satisfaction* [191]. Of these five principles, only one straightforwardly applies to video games: satisfaction. Video games are frequently difficult to learn (complex control systems), demand inefficient solutions to problems (crossing vast territories repeatedly), challenge the player’s memory (including explicit tests of memory), and push players into

errors intentionally (mistimed jumps, death, and so on). Further, all of these “unusable” aspects of video games are in the name of *fun*.

Correspondingly, the traditional HCI methods of evaluation, such as heuristic evaluation [190] and cognitive walkthroughs [252], are not always helpful in evaluating video games. Melissa Federoff has briefly discussed how Jakob Nielsen’s heuristics apply to the video game domain, and generally found them wanting [89]. She concluded that “the majority of Nielsen’s heuristics appear to be helpful when analyzing the interface of a game, but fail in the ability to address game play issues” [89, p.19].

In essence, the literature applying traditional HCI research and methods to video games often treats games as if they were another form of productivity application. Such an approach largely results in finding problems which apply more to the standard usability of video game interfaces than to the nature of interaction as *play*. Despite this, a number of researchers have attempted to apply traditional HCI to video games, focusing on usability evaluation methods such as expert evaluation and user testing.

Sauli Laitinen has used both expert evaluation and testing with players to discern usability problems in a video game [153, 154]. The expert evaluators Laitinen used found 135 usability issues in the game, including “one color has multiple meanings in the map display” and “it is not immediately obvious whether the upgrades presented next to the weapon are installed or not.” As can be seen from these examples, the problems found were highly related to the usability of the interface in terms of the player’s ability to carry out basic interactions, rather than to the play interaction itself. Further, the player is often referred to as a “user” in the discussion, emphasising the traditional view of use rather than play.

In pursuing testing with real video game players (again frequently referred to as “users”), Laitinen found 97 distinct usability problems. In this case, problems such as “the character moves too slowly” and “users did not understand how the radar works” were identified. Once again, these problems relate primarily to the traditional usability of the interface, rather than the specific nature of the interaction as *play*. While it is indisputable that the usability problems identified would have a significant impact on the experience of play, they do not specifically relate to *playing* a game, but to *using* an interface.

Other instances of evaluating video games with “user testing” have had similar results. Kavakli and Thorne, for example, conducted testing on games to evaluate several different input devices [142]. An important aspect of their evaluation of the input devices concerned the effect the device had on play. Although they freely used the term “error” as a usability measure, the meaning of error in the context of play was not given. Further examples of “user testing” with video games have

considered the impact of network delays on play with a similar lack of focus on play as a distinct form of interaction [188, 205].

The familiar HCI practice of designing and evaluating novel interfaces also has its place in video game HCI. Interfaces developed include full body motion-detection with a floor sensor [206], control using a stream of urine [168], and Augmented Reality [13]. Once again, however, these interfaces are often designed more for novelty's sake than for applicability to the play interaction, and generally are not evaluated by the researchers.

Evident from our brief survey of traditional HCI approaches to video games is the distinction between video game interfaces in terms of basic usability concerns and in terms of play specifically. While there are aspects of video game interfaces which are amenable to traditional HCI concepts, such as efficiency and transparency, the relationship between interface and play is not fully captured by this. Video game HCI requires new tools for analysis purposefully developed for application to video game *play*, rather than to video game *use*.

2.2.2 Video game HCI

The interest in a video game-specific HCI is evidenced by special issues of journals on video games and HCI [263], books of papers [37], and games-specific sessions at key conferences such as CHI'2007 [29]. The majority of current video game HCI does acknowledge play as a distinct form of interaction [131, 263].

The most common point of departure in discussing how video game play is a unique form of interaction is by comparing video games with productivity applications. Although there are multiple dimensions along which this has been attempted, such as the nature of the graphics [198] or the context of use [131], there are a number of common themes. First, the motivations for playing video games differ from productivity application use. Specifically, players play games for their own sake, while they generally use productivity applications to achieve some other task [89, 131]. Second, video game interfaces are not neutral, presenting carefully designed narratives and complex graphics to the player [198, 232]. Third, video games frequently dictate goals to players, while productivity applications generally facilitate user goals [183, 198, 232]. Finally, video game designs purposefully involve conflict and constraints on the player, while productivity applications are designed to minimise them [66, 131, 198].

Despite the clear acknowledgement of the distinct nature of video games, video game HCI remains a small area of research. As is common in HCI research, video game HCI has a focus on the *evaluation* of video games.

One common approach to investigating the unique nature of play as interaction

has been the development of video game-specific heuristics to guide design and evaluation [155]. The earliest work in this area took place in the 1980s with Thomas Malone's investigations of games in education [165, 166]. Malone developed and tested video game prototypes according to specific categories: challenge, fantasy, and curiosity.

Since Malone's work, most heuristic approaches to video game HCI have been based on designer experience [88, 215], interviews with members of the game industry [89], or literature reviews [69]. In most cases, the heuristics are not applied or tested, but offered as a summary of hands-on knowledge derived from industry practitioners. Despite this limitation, many of the heuristics are specifically directed toward *play* as interaction, rather than more generic interface issues. Thus, heuristics such as "create a great storyline" [89], "the game is enjoyable to replay" [69], and "players want a challenge" [215] are offered to inform video game design. Although these heuristics are often not detailed enough for any specific decision-making about a video game design, they do help to capture the distinct nature of play and may remind designers of aspects of play to consider when evaluating a game.

Much of the best work in video game HCI comes out of the Microsoft Playtest group, an industry-focused team which also performs research on video game evaluation methods. The group has a psychology orientation, using methods from psychology to obtain data about video game play [105]. Importantly, the group performs research on real video games in development and is thus in an ideal position to consider the effects of their evaluation. In particular, they promote usability methods along with insight into the nature of games, such as the way in which a game designer wishes to direct a player's interaction with the game interface [199]. A summary of the group's work can be found in their book chapters on user-centred design in games [197, 198, 199]. The core philosophy of their approach is captured by four principles of evaluation: fun, ease of use, challenge, and pace [198]. The key practical component is the "playtest," an adaptation of traditional HCI's user testing [66]. A further creation of the group is the "RITE" or rapid iterative testing and evaluation method which is designed to meet the scheduling demands of video game development [169].

Carlo Fabricatore, Miguel Nussbaum and Ricardo Rosas have addressed commercial video games, performing qualitative research on the action genre [87]. In their article they present a model which "describes the main elements that, according to players' opinions, determine the playability of action videogames; the model proposes design guidelines that are the conceptualization of players preferences" [87, p.312]. Although their model includes specific discussion of the role of the interface, it is often treated as a source of information rather than as the

fundamental mediator of play. Accordingly, most of the design guidelines they offer are shaped by traditional HCI interests. An example is the efficiency-driven design guideline: “finding alternative branches in a non linear hierarchy of goals should not be excessively time consuming.’ [87, p.361]. Fabricatore et al. do not list or discuss the specific video games used in their study or analyse them individually.

A final popular aspect of video game HCI has been the suggestion that insight gained in evaluating video games might be applied to the traditional HCI domain [130, 200, 218] although others are critical of the idea [237]. Thomas Malone’s work on the motivational properties of games was partly aimed at the development of more “entertaining” productivity software [166]. Lisa Neal, in work largely focused on the nature of play as interaction, also pauses to identify a number of qualities of video games which might apply more broadly to software design [183]. Similarly, Jeff Dyck et al. identify four key properties of video games which they see as desirable in other software: effortless community, learning by watching, deep customisability, and fluid system-human interaction [75].

Video game HCI includes strong research into video games, largely concerned with the question of how to design games. Researchers working today display a growing awareness of the unique nature of video game play as interaction, making their work far more relevant. Implicit in much of the discussion is a relationship between video game play and players’ beliefs about preferable conduct, their values. The discussion of games’ definition of *goals*, for example, suggests that games dictate preferable conduct [198]. Research in video game HCI, however, does not currently direct its focus in that direction. Very few researchers in video game HCI have turned to another key source of explanation and analysis: *game studies*.

2.3 Video games as games

Video games are most commonly studied not as software, but in relation to *play* itself. Research into the nature of games as *games* is known as game studies. Game studies has become an established field, with major journals such as *Game Studies* and *Games & Culture* and several regular conferences such as the Digital Games Research Association Conference [72] and the Digital Arts and Cultures Conference [71]. Universities such as IT Copenhagen and USC have programs dedicated to both the design and analysis of video games.

In this section we introduce game studies, discuss the methods used and identify some key areas of research. Further, we show how game studies has a

particular focus on players' beliefs about preferable conduct, their values, and suggest that this thinking in game studies can assist our study of video games from an HCI perspective.

2.3.1 Introducing game studies

Game studies is a growing area of research, with video game studies emerging in the 1990s. Since the late 1990s, this area has expanded rapidly and now represents a sizeable body of knowledge. Although games studies researchers have often fiercely asserted their independence [86], by far the largest amount of work takes an interdisciplinary position. In this section, we first discuss methods of studying video games used in game studies before introducing a series of key areas of study relevant to our own work. We consider the role of avatars and point of view, genre studies, the nature of space in video games, narrative and the representation of virtual worlds, and a number of taxonomic examinations of video games and their design. In the course of this discussion we focus largely on the relationship between game studies and our interest in play as interaction.

Addressing the question of how to conduct research on video games as games specifically has led to a wide variety of approaches. As Espen Aarseth has pointed out, much of game studies research was under way before researchers thought to ask how it should be conducted [3]. Aarseth ultimately supports the existing multi-disciplinary approaches to game studies, suggesting three major focuses: game play, game structures, and game worlds. Specific methods of study are conducted within many areas, from psychology [121] to artificial intelligence [207]. Diane Carr et al. show how to use multiple qualitative methods in studying games [49], while Mia Consalvo and Nathan Dutton present a detailed methodology for analysis, focusing on a number of basic tools: object inventories, interface study, interaction maps, and logs of play sessions [58].

Although researchers such as Consalvo advocate specific study of the interfaces of video games [58], it is often neglected. Despite this, much game studies research does acknowledge the interface in some way, most in relation to *avatars*, players' representatives in game worlds [57, 233, 242]. Researchers have often focused on the distinction between the avatar as a "tool" used by the player to manipulate the world, and as a part of the narrative or world of the game. Jonas Linderoth, for example, identifies three key roles the avatar plays: a fictional character, a tool allowing the player's agency in the game world, and a "prop" representing the player [159]. Similarly, Andrew Burn and Gareth Schott analyse the avatar of *Final Fantasy VII*, questioning whether it is primarily a narrative agent or an interface into the world of the game as "a bundle of semiotic resources, or affordances for

the player's engagement with the game's system, equipped to move us through the game's links and nodes, landscapes and events" [44, p.221].

Discussions of the avatar are part of a larger interest in the nature of *interacting* with a video game. This interaction is frequently discussed in terms of the "point of view" a player has during play, connecting clearly with avatars. Jason Rhody has discussed the ways in which the player's point of view is both of a fictional world and of an interface, with many games overlaying "heads up displays" onto the representation of the game world [210].

Concerns over the nature of the game worlds that players in some sense inhabit are also common to discussions of interaction. Lisbeth Klastrup's poetics of virtual worlds is intended to address this in massively-multiplayer online games [148]. Klastrup focuses on ways in which a virtual world can be viewed: as a representation, as a simulation, as a game, or as a social space. Other discussions of the worlds represented in online games typical focus on culture. T. L. Taylor has written extensively on massively-multiplayer online games, for example, with a particular interest in embedded research and ethnography [234]. Taylor encourages researchers to play the games they study and do immerse themselves in game worlds. Edward Castranova, also writing on virtual worlds, draws on his dual experience as both an economist and game player [52]. Based on this, he tends toward understanding game play more in terms of acquisition than social experience.

The literal space represented in games is itself the topic of much discussion. An early work by Mary Fuller and Henry Jenkins characterised the play of some games as being literally about movement through space [104]. Espen Aarseth has continued this line of thinking by suggesting that games can be classified by the nature of the spaces they represent, for example by the distinction between spaces which are restrictive as opposed to those which are open to exploration [2]. The notion of exploring spaces is regarded as critical to play by Simon Engenfeldt-Nielsen who classes it as a basic drive for play [77]. Henry Jenkins echoes this concept, suggesting that a central part of game design is the representation of spaces [128]. The positioning of spatial exploration and transformation as central to play is emphasised further elsewhere [47, 93, 146, 194].

Another major theme in the discussion of video games within both game studies and game design more generally has been genre. Many of the books written by game designers contain listings of genres of games, although these are generally ad hoc and based on industry standards [60, 214]. In these publications, the traditional genres such as role-playing games (RPGs), first-person shooters (FPS), strategy, and simulation games are reiterated and described from a design perspective.

In the game studies literature itself, considerable attention has been paid to more theory-oriented approaches to genre [43]. Early work by David Myers drew on a structural approach in which he sought to identify genres based on the differing forms of interaction, such as environmental, mechanical, physical, or competitive [175]. Espen Aarseth's more recent approach is somewhat similar, identifying a number of dimensions across which video games vary, again acknowledging interaction (as "control"), but also discussing representations of space, time, and the player or avatar [5]. Detailed studies of established genres have also been undertaken, such as examinations of simulation games [97] and first-person shooters [126]. The most common theme in video game genre discussions is that genre relates most strongly to the *interactive* aspects of a game and primarily concerns what a player can *do* during play [257], though this has also been questioned [251].

Related to genre is the nature of narrative and representation in video games. Narrative, in particular, has been the subject of fierce debates for several years, with arguments both for [62, 163] and against [4, 85] the usefulness of narrative in studying video games. This debate has helped raise questions about game studies methodology and whether games can, in fact, have narratives in the traditional sense [99]. Whether or not video games do have narratives, there is general agreement that they possess the quality of telling stories, either through cut-scenes or as told by a player's interaction [224]. Further, the worlds of video games are frequently regarded as the setting of a narrative of action.

The broader elements of representation in video games can be connected, once again, to the nature of the interface. David Myers, a semiotician, has addressed representation in video games extensively, emphasising the study of representation specifically [177], and expounding his own theory based on a semiotics of opposition and contextualisation [176]. Mark Wolf has assessed the history of video games in terms of their development from the more abstract to the more representational [256]. The nature of representation in video games is implicit in most discussions, with the areas of agreement being about the way in which games communicate a sense of agency to players, construct virtual worlds for them to act in, and convey information about *how* to play [74, 146, 185].

A final point of relevance to our research concerns the numerous efforts within game studies to create taxonomies or systematic analyses of video games. Several game designers, for example, have created special vocabularies for describing video games, such as Doug Church's "Formal Abstract Design Tools" [54] and Andrew Rollings and Ernest Adams' book on game design [214]. Within game studies proper, a large number of taxonomies have been offered [122, 160]. Design patterns are especially popular in describing the structure and design of games

[151, 187]. Staffan Björk et al. have developed a number of design patterns intended to capture the essential aspects of game design [35] and have published them in a book [34]. Lars Konzack's approach involves multiple levels of detail, from hardware concerns to code and then to the "meaning" of a game [150]. Konzack's work is especially interesting in that it deals with both the detailed level of hardware and code implementations as well as social contexts and interpretation.

As we have discussed, game studies involves research into a wide variety of aspects of video games, from their spatiality to their narratives to detailed taxonomies of their design. Implicit in much of the discussion above has been an interest in players' *interaction* with video games, the subject of this dissertation. As we shall see below, much of the game studies literature on play specifically concerns players' beliefs about preferable conduct and is of direct relevance to our focus on value.

2.3.2 Value and game studies

In this section we look specifically at the ways in which game studies addresses matters of value, defined here as "enduring beliefs that specific modes of conduct are preferable to other potential modes of conduct" (§2.1.1). We first examine the motivation for studying value in connection with games, focusing on the controversy surrounding the representation of conduct. Following this, we address a number of themes in game studies with particular relevance to value: definitions of the concept of a game, the place of rhetoric and ideology, psychology research on video games, serious games and advergames, education, and motivation research. Finally, we point toward two of the most important potential values of play, making to the distinction between playing according to rules and playing for its own sake.

As video games have become more popular, interest in the effects and nature of play has risen greatly. Video games are frequently covered in the media, for example, and their relationship to real-world violence has been debated vigorously [8]. Outrage greeted the discovery of the "hot coffee" content in *Grand Theft Auto: San Andreas* which allowed players to have "play sex" [143]. Even more contentiously, some games have been made in response to controversial real world events, such as *Super Columbine Massacre*, a role-playing game based on the shootings. According to its creator, the game is intended "to deepen the understanding of the shooting and its possible causes" [156]. The banning of both *Manhunt* and *Manhunt 2* in several countries is often used as a benchmark in the debate over video games as an expressive medium [11, 225].

A familiar feature of discussions about video games and their applications

is their nature as *interactive media* which can convey particular messages to their players, whether educational, socially aware, or consumerist. In other words, there is concern surrounding the *values* implicit in video game play. Although other forms of media, such as cinema, have been regarded in the same way [117], it is common to cite video games' *interactivity* as central to their influence [74].

One starting point when considering how game studies deals with questions of value is to examine *definitions* of the concept of a game. Over the course of game studies' history, definitions have been offered by many researchers, and agreement has by no means been reached [12, 96, 231, 265]. For the purposes of this research, we present the definition offered by Jesper Juul as a useful example of game definitions. Juul defines a game as:

1. a rule-based formal system;
2. with variable and quantifiable outcomes;
3. where different outcomes are assigned different values;
4. where the player exerts effort in order to influence the outcome;
5. the player feels emotionally attached to the outcome;
6. and the consequences of the activity are optional and negotiable.

[134, pp.6-7]

It is immediately apparent from this definition that value has a large role to play in the basic nature of a game as defined by Juul. The definition connects strongly with Rokeach's three aspects of value: cognitive, behavioural, and affective (§2.1.1). Cognitively, it relates to players' knowledge of the "correct" conduct when it refers to the values assigned to outcomes (point 3). Players' exertion of effort in order to influence the outcome, and presumably to obtain the more valued outcome, relate to the behavioural aspect of value, the ability to *perform* the correct conduct (point 4). Finally, Juul includes the affective aspect of conduct when he notes that players feel *emotionally attached* to the outcome (point 5).

If we take Juul's definition to suggest that value is an important concept in the analysis of video game play, the next question implicitly concerns *how* it is present. We now discuss aspects of game studies which address this, paying attention to the three key locations of value in technology we discussed earlier (§2.1.2). First, we discuss the ways in which beliefs about preferable conduct are invoked *during* play, raising questions of the rhetoric and ideology of games. Next, we address the idea that values can *transfer* from a game to a player in the context of advertising, social marketing, or education. Finally, we examine values which

players bring to play themselves, focusing on the distinction between “playful” and “rule-following” play.

The most direct use of concepts related to value is in the game studies research which examines aspects of rhetoric, ideology, and ethics. Drew Davidson has written a short piece of the nature of video game rhetoric, describing it as “how the mechanics show players how to play” [65]. Davidson draws attention to features of the game *Ico* which he suggests have a rhetorical function: the architecture of the game world which defines where the player can move, and the save “couches” which provide a save function integrated into the narrative of the world. Davidson’s central point is the idea that there are aspects of video game design which inform the player of preferable conduct.

Steffen Walz has developed a more detailed model of video game rhetoric based on three key features which cause players to conform with a game’s design: symbolic, structural, and systemic [246]. The systemic coupling of player and game occurs with the coinciding of the game design model and the player’s model of play. The symbolic aspect concerns the player’s connection with the representation of play, and the structural element relates to the player’s “expectations, motives, and needs through social psychologically verified “functional circles” in the game” [246]. Walz’s work uses the rhetorical theory of Kenneth Burke to discuss games largely in theory and not in practice.

Matt Garite pursues a similar line when he addresses the ideologies present in video games. His central argument is that interaction in video games is much like *work*, involving “a relentless series of demands, or a way of disciplining player behavior” [107]. In his book, *Gamer Theory*, McKenzie Wark suggests the opposite, that life and work are now described by video game play, and that real life has become “gamespace” [249]. Wark discusses the ways in which video games represent the perfected versions of real life, from *The Sims 2*’s domestic utopia to *SimEarth*’s controllable biosphere. Miguel Sicart has also written on the notion that *The Sims 2* represents “a simulator of an ideology of modern capitalist societies” [219].

Some of the best work on ideology in games has been performed by Gonzalo Frasca, notably in his paper on simulation and narrative [100]. In the paper, Frasca considers the persuasiveness of games at three specific levels. First, he identifies the level of representation, the standard form of persuasion shared with other media such as television and film. At a more fundamental level, however, he also discusses the influence of both rules and playfulness in a video game. Specifically, Frasca notes that “by stating a rule that defines a winning scenario, the [designer] is claiming that these goals are preferable to their opposite” [100]. Similarly, the context of play is also ideological in that it defines what kinds of play can exist.

He explains this subtlety in terms of the possibility of homosexuality in *The Sims*: “Homosexuality is not the goal of *The Sims*, just a possibility. By incorporating this rule, the designers are showing tolerance towards this sexual option but we could hardly say that they are encouraging it” [100]. Interest in the ways players relate to the goals and rules of a game are a major point of interest in game studies research more generally [127, 133].

In a related area, Miguel Sicart has discussed video games in connection with ethics, pursuing “the analysis of computer games as moral objects because of the ethical values that can be imprinted in their design” [220]. This is echoed by Mary Flanagan with respect to embedding of designers’ values in games systematically [92]. In his Ph.D. dissertation, Sicart examines in detail the ways in which video games can function as “moral objects” [221]. Central to this argument is the notion of “the role of the designer as the choice-giver” [221, p.79] and of the player as a choice-maker, leading to ethical considerations. Sicart argues that video games are “designed objects with embedded ethical values that affect the ways players can interact with them” [221, p.272]. Again, we see the centrality of players’ beliefs about preferable conduct in the context of the game, this time in explicitly ethical and value-centric terms.

So far we have discussed the ways in which value is present *during* the playing of video games. Such an idea intuitively leads to the further suggestion that these beliefs about preferable conduct could *transfer* beyond the video game world into the real world. This has most commonly led to psychology research into violence and aggression in video games, and whether they lead to violence and aggression in other spheres [9, 112]. While some research claims to demonstrate that this is the case, there is also considerable debate [41, 255]. Other approaches involve studies of players’ attitudes in play, including issues of violence in specific games such as *Grand Theft Auto* [119], gender [51, 91] and how video games instill feelings of power in children [145].

In connection with the idea that playing video games could promote particular beliefs in players, the “serious games” movement develops games which concern social, health, and other issues [31, 259]. Gonzalo Frasca, a leading creator and theorist of serious games, is most interested in the ways in which video games can promote critical thinking [101]. Frasca’s “newsgaming” site includes the game *September 12th*. This game is intended to lead players to question the “war on terror” by indicating it generates more terrorism than it eliminates [186]. Another game, *Smoke?*, was developed in New Zealand to promote quitting smoking among both European and Maori communities [144]. The game takes the form of a simulation of a smoker’s life just as they decide to quit smoking. The idea is that by helping the virtual character quit and learn about quitting strategies the player

will begin to think differently about smoking.

In a parallel development, many commercial enterprises are beginning to use video games as an advertising medium, creating “advergames” which promote their products [264]. The *Book of Deviants*, for example, is an online game advertising a new model of Toyota car by inviting the player to kill “sheeples,” representative of the people who drive “boring” cars [238]. In a less gory vein, the *King Games* series for X-Box was created by Burger King to advertise their products [42]. In all cases, advertisers seek to leverage the popularity of video games and their potential to influence players’ beliefs about their products, a practice which is controversial especially when involving children [63]. Research into advergames does show some effects on players, especially in their positive feelings about the brand the advergame represents and their willingness to direct their friends to the game [230].

The idea that video games could instill values or other beliefs in their players has been enthusiastically adopted by many education researchers as an aid to learning [67]. Projects such as the Education Arcade have demonstrated that games can be effective teaching and learning tools [129] and many educational games have been developed [106, 123, 235], teaching such diverse topics as the logical analysis of religious beliefs [236], safe sex [184], and typing [254].

James Paul Gee’s *What Video Games Have to Teach Us About Learning and Literacy* is one of the best analyses of video games’ potential to assist learning [110]. Gee investigates popular video games in terms of “the theory of human learning built into good video games” [110, p.6]. These learning opportunities include consideration of identity, understanding the game world, and the ways in which a game challenges or does not challenge a player’s world view. Gee identifies a cycle of learning in which players “probe” the virtual world of the game, form a hypothesis about it, reprobe the world based on the hypothesis, and then either accept or rethink that hypothesis [110, p.90]. Throughout the book, and collected in an appendix, Gee presents thirty-six principles of learning in video games, such as his design principle: “learning and coming to appreciate design and design principles is core to the learning process” [110, p.207].

A key factor in the enthusiasm surrounding video games’ potential for delivering messages is their *motivational* power. Unlike most forms of software, people largely play games because they enjoy the process which leads us to a further level where values can be seen as something brought by players to their play. Players’ own values in play as explored by motivation research are the final aspect of our examination of game studies.

One of the earliest and most well-known papers in this area is Richard Bartle’s *Hearts, Clubs, Diamonds, Spades: Players Who Suit MUDs* [26]. In this article, Bartle

observes four “personality types” found in the players of multi-user dungeons (MUDs), based on their motivations in play: “hearts” are social, “clubs” are aggressive, “diamonds” are achievers, and “spades” are explorers. Bartle suggests the personalities form a system in which they are largely antagonistic to one another. These four distinct categories can also be seen to reflect a number of different beliefs about preferable conduct, or *values*. “Hearts,” for example, prefer conduct in which they talk with and interact with other players.

The most thorough research into player motives is psychologist Nick Yee’s “Daedalus Project” [261]. Yee has conducted a large number of online surveys of players of massively-multiplayer online games to ascertain their motives for play, among other things. As a result, Yee identifies three basic categories of motivation: *achievement*, *socialising*, and *immersion*. Within each category, Yee describes specific motives as identified within the surveys such as “advancement” and “completion” (achievement), “socializing” and “teamwork” (socialising), and “discovery” and “customization” (immersion) [260]. These elements, while able to be interpreted as motives, can also be seen as values which guide players’ play. “Completion,” for example, concerns players’ preference for conduct in which they move toward completing the game. Based on such a value, they would be more likely to complete a quest than to explore a landscape, given the choice. This decision would be the opposite if based on “discovery.”

While Yee’s category of “socialising” is largely tied to the nature of his study of *massively-multiplayer* role-playing games specifically, the other two categories of “achievement” and “immersion” draw on elements which connect with a fundamental understanding of play reflected in the game studies literature. Specifically, Roger Caillois, in his 1958 book *Man, Play, and Games*, provided a number of categorisations of play which have proved highly influential in game studies [45]. Caillois’ concepts of *paidia* and *ludus* are defined as follows:

[Paidia is] an almost indivisible principle, common to diversion, turbulence, free improvisation, and [in which] carefree gaiety is dominant. It manifests a kind of uncontrolled fantasy that can be designated by the term *paidia*.

[45, p.13]

[Ludus concerns] a growing tendency to bind [play] with arbitrary, imperative, and purposely tedious conventions.

[45, p.13]

These categories of *paidia* and *ludus* have been adopted by many researchers as fundamental principles of play. Although Jesper Juul does not use the terms

explicitly, he has written on the distinction between games which emphasise *emergent play* (*paidia*), versus those which emphasise *progression* (*ludus*) [132]. In this case, Juul has tied the two categories to forms of game, rather than play as interaction.

Explicit use of Caillois' terms is also frequent. Gonzalo Frasca is a major proponent of this understanding of play, writing on a number of occasions to connect it with video game play specifically [96, 98, 100]. As we have already discussed, Frasca is concerned with ideology in video games, and uses the concepts of *paidia* and *ludus* in order to explain how players are subtly persuaded by game designs [100]. Frasca characterises Caillois' terms as describing "the difference between "play" and "game"" [100]. Specifically addressing beliefs about preferable conduct, Frasca briefly considers how the *paidia* and *ludus* influence players' choices. In a game premised on *ludus*, he suggests that "by stating a rule that defines a winning scenario, the [designer] is claiming that these goals are preferable to their opposite" [100]. A game premised on *paidia* might be seen as one of freedom from preferable conduct as defined by the game, Frasca notes, however, the presence of "manipulation rules" which help to define the possibilities in the game and by which "the designer could convey his ideology by adding or leaving out manipulation rules" [100]. Video game analysis according to *paidia* and *ludus* has also been taken up by other researchers [27, 185].

As a final point, we can draw a comparison with Shalom Schwartz' classification of *human values*. Schwartz's value categories of *self-direction* and *achievement*, in particular, bear a significant resemblance to *paidia* and *ludus*. For Schwartz, self-direction involves values such as **FREEDOM** and **CREATIVITY**, and is described as concerning "independent thought and action - choosing, creating, exploring" [216, p.5]. Schwartz's achievement category includes values such as **AMBITION** and **CAPACITY**, and is described as focusing on "personal success through demonstrating competence according to social standards" [216, p.8]. Accordingly, *paidia* and *ludus* might be thought of as *values*, beliefs about preferable conduct, which are fundamental to all forms of play with games, and specifically to video game play. We take this idea up in depth in chapter 4.

In this section we have seen that there is a great deal of research within game studies directly concerned with the importance of players' beliefs about preferable conduct during play, and the influence a game design can have on this. In order to bring these forms of thinking into our HCI perspective, however, we must be able to successfully describe and analyse that conduct. In the following section, therefore, we discuss our use of activity theory for this purpose.

2.4 Activity theory

Within HCI research there are a number of established approaches to the description and analysis of interaction with computers. Essentially, these approaches can be thought of as concerning the *conduct* of a user while using a computer system. Descriptions of interaction range from the highly detailed and technical GOMS model [46] to the more high-level perspective of models such as Donald Norman's action cycle [193]. A recent book on the subject, edited by John Carroll, lists many possible approaches to HCI, from models based on human perception to motor function to mental models [50]. In this dissertation we have chosen to focus on *activity theory* as our approach to description and analysis. In this section we introduce activity theory as applied to HCI research, then present the core models of conduct it provides before examining its application to video games specifically.

The use of activity theory in HCI has been defined as "a clarifying descriptive tool rather than a strongly predictive theory" [179, p.9]. Proponents of activity theory within HCI often refer to particular benefits: its emphasis on *mediation* as critical to activity, a common vocabulary of concepts leading to more integrated research, the privileging of the *human* in human-computer interaction, and the ability to analyse conduct at multiple levels of detail [136, 152, 179]. Activity theory has also been compared to related approaches to HCI research, particularly as they concern the ability to include *context*, such as situated action and distributed cognition [181].

2.4.1 Introducing Activity Theory

Activity theory stems from the work of Russian psychologist Lev Vygotsky, whose core interest was human development with a focus on children and the disabled [245]. Alexei Leontiev, a colleague of Vygotsky, worked with his ideas to formulate a description of *activity*, which both regarded as a central concept in human psychology [157]. Leontiev defined activity as a process in which one or more people transform an object in an acknowledged cultural or social context.

Within HCI, activity theory has become more established over time. Susanne Bødker's *Through the Interface* is one of the earliest introductions to the use of activity theory in HCI and directly concerns the role of the interface as a mediator of activity [39]. The collection of essays in *Context and Consciousness*, edited by Bonnie Nardi, still represents some of the clearest work on applying activity theory to HCI [180] and Olav Bertelsen and Bødker's book chapter on the subject is also an excellent introduction [33].

Geri Gay and Helene Hembrooke's book *Activity-Centred Design* is a good example of activity theory's focus on technology as a mediating tool in human activity [109], and is representative of much earlier work [15, 241, 244]. Other uses of activity theory include reconceptualisation of the affordance theory of Gibson [14], evaluations tangible user interfaces [90] and E-Learning applications [158], and as a basis for high-level design methods [141].

A recurrent theme in activity theory research has been attempts to make the complexities of the theory more accessible to HCI researchers. Along with general introductions to activity theory in most articles on the topic, several researchers have developed frameworks which bring activity theory more firmly into the context of HCI. The "activity checklist" is one example, casting activity theory as a series of questions which can be asked about software design. "Are all target actions actually supported?" and "Is target technology considered an important part of work activities?" are examples of such questions [140]. Daisy Mwanza's "Activity Oriented Design Model" and Olav Bertelsen's "Activity Walkthrough" are further examples of the attempt to operationalise the concepts and models of activity theory [32, 174]. Despite these efforts, however, some grounding in activity theory itself is still required before attempting to apply it to real world problems.

Within activity theory a number of models introduced both early in its development and also more recently are frequently used as the basis for discussion. The three most commonly employed approaches are the basic model of activity developed by Leontiev, his division of activity into three interrelated levels of detail [157], and Yrjö Engeström's more recent development of the concept of "contradiction" as a way of analysing activity [79]. In the following section we discuss the use of each of these models within HCI research in order to apply them ourselves to video games.

2.4.2 The model of activity

A key component of Leontiev's thinking is his adoption of Vygotsky's theory of mediated action. This is a triadic structure comprised of a Subject, an Object, and mediating Artifacts [245]. Figure 2.1 presents the activity model as discussed by Leontiev applied to the example of "writing a Ph.D. dissertation," an activity mediated in part by the use of a computer. The model includes four basic components or *nodes*: Subject, Object, mediating Artifacts, and Motive.

- The *Subject* of an activity is the person (or persons) engaged in it. In the case of writing a dissertation, the Subject is the Ph.D. candidate.

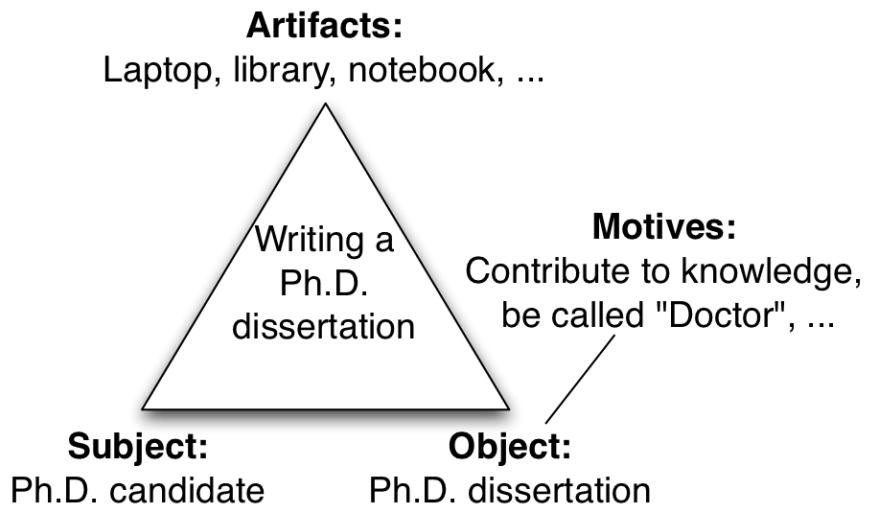


Figure 2.1: The activity model applied to writing a Ph.D. dissertation

- The *Object* of an activity is that which is to be transformed by the activity and that which the activity is directed toward. For Leontiev “the main thing that distinguishes one activity from another ... is the difference of their objects. It is exactly the object of an activity that gives it a determined direction” [157]. Thus, in the dissertation-writing activity, the Object is the dissertation itself which must be transformed from an idea in the Subject’s mind to a typed-up text, and finally to a printed and bound copy in the university’s library.
- In order to transform the Object, the Subject uses *mediating Artifacts*. In writing a dissertation, for instance, a central Artifact is the Subject’s laptop computer. Other Artifacts include scholarly books, research methodologies, critical thought, and so on. Note that the mediating Artifacts have a substantial impact on how the activity is carried out: different methodologies or texts selected for study will lead to an entirely different dissertation, different text editors provide different functionality for editing the document.
- Intimately connected with the Object of activity are the *Motives* for the activity. They help to explain why the Object is being transformed in the first place. A student writing a dissertation, for instance, might have Motives such as “contributing to knowledge” or “having ‘Doctor’ in front of my name.”

As has been suggested by Victor Kaptelinin, we have explicitly separated the concepts of *Object* and *Motive* [137]. The Object is, therefore, the thing (real or conceptual) transformed by the activity, while the Motive represents the reason(s) behind the activity. In activity theory, Motives are further linked to human *needs*, but we maintain a focus on the Motive-level only.

Activity theory is also often regarded to be about *collective* and *social* actions, rather than those of individuals. This perspective is particularly associated with the work of Yrjö Engeström, whose interest is organisational change [79, 80]. In our work we focus on individual activities, while acknowledging the necessarily social nature of all activity, a view put forward by Leontiev [157].

Objects, artifacts, and interfaces

The activity model is generally the basis for activity theory approaches to HCI [33, 174], with the positioning of the interfaces of software as *mediating artifacts* as central. In standard descriptions of activity, the Object is either something in the real world or something in the mind of the Subject, but in interacting with software the Object is often *represented*. The interfaces of software, therefore, mediate the Subject's transformation of the Object. Susanne Bødker notes that "computer-based artifacts often allow no direct access to the ... object of the actions conducted through the artifact ... Sometimes the object does not even exist as something separate from the artifact (e.g. a spreadsheet). It is part of human capabilities that make us able to project our experiences with one object onto another object" [38, p.178].

Bødker identified three ways in which the interface mediates an Object [33, 39]. Objects can be entirely represented within the interface, existent in the real world but present only in the interface during use, or present in the real world so that interaction with the software affects it, which must be accounted for [39]. Bødker also identifies three levels in computer-mediated activity: physical, handling, and subject/object [39]. The physical level concerns operations directed toward the physical interface, such as a keyboard or mouse, while the handling level concerns operations directed toward the software itself, focusing on the affordances in the interface rather than the physical level. Finally, the subject/object level relates to how an interface mediates activity related to the represented Object *within* the interface. Bødker later joined forces with the semiotician Peter Bøgh Andersen to write on the potential for considering mediation jointly from both activity theoretic and semiotic perspectives [40]. In that article the two suggest, again, that the Object of an activity can be thought of as a represented or semiotic Object which does not necessarily have a physical existence.

In sum, the work within activity theory on the role of interface in mediation emphasises that Objects can be not only physical or conceptual, but also *represented* in software interfaces. In these cases, the interface not only represents an Object to be transformed, but is also the artifact which mediates this transformation.

Motives and values

Values are beliefs about preferable conduct and thus inform the kinds of conduct a person engages in when choosing what to do. As we have noted, Rokeach describes values as “standards that guide ongoing activities” [213]. Motives, on the other hand, are what drive a person to engage in a particular activity. Thus, according to Leontiev, “the concept of activity is necessarily connected with the concept of motive. Activity does not exist without a motive” [157]. Motives are the *reason* a person pursues an activity.

Although not a part of the standard model, an activity is also necessarily connected with the values a Subject has. In the “writing a Ph.D. dissertation” activity, for example, the values of HONESTY and SELF-DISCIPLINE will affect the Motives and Artifacts along with the choices of conduct. With those values operative, a Subject will not use the “Have Your Dissertation Written While You Sleep” website as a mediating Artifact nor will he leave all his writing to the last month of his enrolment. At the most fundamental level, then, values determine the forms of conduct a Subject will engage in, while Motives provide a reason for the activity as a whole.

2.4.3 The activity hierarchy

Leontiev also described an activity *hierarchy* in which he discussed levels of human conduct: activity, actions, and operations, each with a specific driving force. Using our example of the “writing a Ph.D. dissertation” activity again, we can describe the hierarchy as in figure 2.2:

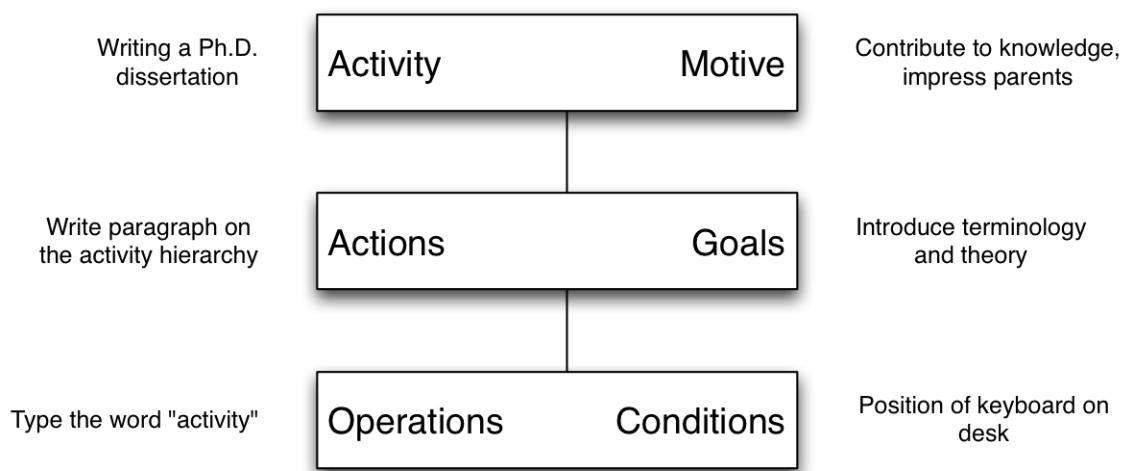


Figure 2.2: The activity hierarchy applied to writing a Ph.D. dissertation

- *Activities* are elicited by *Motives* held by the Subject, the fundamental reason for the activity such as “contributing to knowledge” or “impressing my parents”. As Leontiev puts it, “activity does not exist without a motive” [157]. There might well be no activity of “writing a Ph.D. dissertation” if there were no parents to impress, for instance. This level corresponds to our prior discussion of the activity model (§2.4.2).
- *Actions* are performed with conscious *goals* in mind and are what a Subject is actively concerned with. Thus, “the actions that realize activity are aroused by its motive but appear to be directed toward a goal” [157]. An activity is comprised of a collection of actions which only make sense in the context of that activity: “Human activity does not exist except in the form of action or a chain of actions” [157]. An action in our example activity might be “write paragraph on activity theory” with the goal “introduce terminology for use in dissertation.” This description only makes sense in the context of an activity (and its corresponding Motive) where introducing terminology is a useful thing to do.
- *Operations* are driven by *conditions*. They are automatic responses to circumstances and comprise the underlying execution of actions. Operations are particularly relevant to computer mediation because much of our use of interfaces is automated, such as typing. For example, the condition of needing to write the word “activity” in our dissertation-writing activity will lead, in an accomplished typist, to the automatic movement of fingers to type the word. Conditions such as the position of the keyboard will subtly alter how the operation is carried out.

An additional property of the activity hierarchy is that particular instances within it can transition between the levels. Thus, an action can become an activity or an operation, an operation can become an action, and so on. This transition can be based on learning (actions becoming unconscious operations) or problems (unconscious operations become apparent to conscious awareness and thus actions). To continue the example of dissertation-writing, for an amateur typist typing the word “activity” may well be a conscious action, but as learning takes place it becomes automatic, and thus an operation, responding only to the conditions as needed. Conversely, if some problem arises in the operation, such as a different keyboard being used, the operation of typing will return to the level of conscious action as the typist consciously thinks about moving fingers to the correct locations.

2.4.4 Contradictions and breakdowns

A final component of activity theory is the notion of *contradiction*, as introduced by Yrjö Engeström [79]. The essence of contradiction is that it describes a *systematic tension* in an activity system which results in breakdowns or disturbances in the flow of that activity. In particular, these breakdowns are experienced in the *actions* of the activity, and thus are consciously experienced by the Subject. Contradictions, therefore, can be thought of as *indicated* by breakdowns, but are not identical with them.

As an example, consider the dissertation-writing activity again. The Subject of this activity might find that their work is continually interrupted because they have also taken on a full-time job. As they work on their dissertation, they find that they are frequently prevented from focusing on it by the demands of the job, such as phone calls, emails, and going into the office. All of these events are *breakdowns* in the dissertation-writing activity and disrupt its progress. Given that these breakdowns are repetitive and systemic, they indicate the presence of a *contradiction* in the activity. In this case, it is reasonable to suggest there is a contradiction between the dissertation-writing activity and the full-time job activity which the Subject is undertaking simultaneously.

Engeström identifies four kinds of contradiction at different levels of detail within and between activities. Figure 2.3 shows the four levels, described as primary, secondary, tertiary, and quaternary by Engeström:

Primary contradictions occur *within* the nodes of an activity, such as Subject, Artifact, or Object. Engeström claims that the primary contradiction in the work activity, which he is most interested in, is between the *use value* and *exchange value*. This is the fundamental contradiction of capitalism: the tension between what something is worth to a person to use and what it is worth to exchange it for something else. An example might be the tension within a Subject simply wanting to “get a postgraduate degree to get a better job” (*exchange value*) versus the “joy of knowledge” (*use value*). Breakdowns might be generated within the Subject in the struggle between the idealisation of pure academic research and the desire for monetary gain by a qualification.

Secondary contradictions occur *between* the nodes of an activity. A contradiction between Subject and Artifact might occur when the Artifacts available (such as an under-stocked library) prevent a student from engaging in successful research. Breakdowns occur as the Subject hears about important resources in the field that are not available at the library.

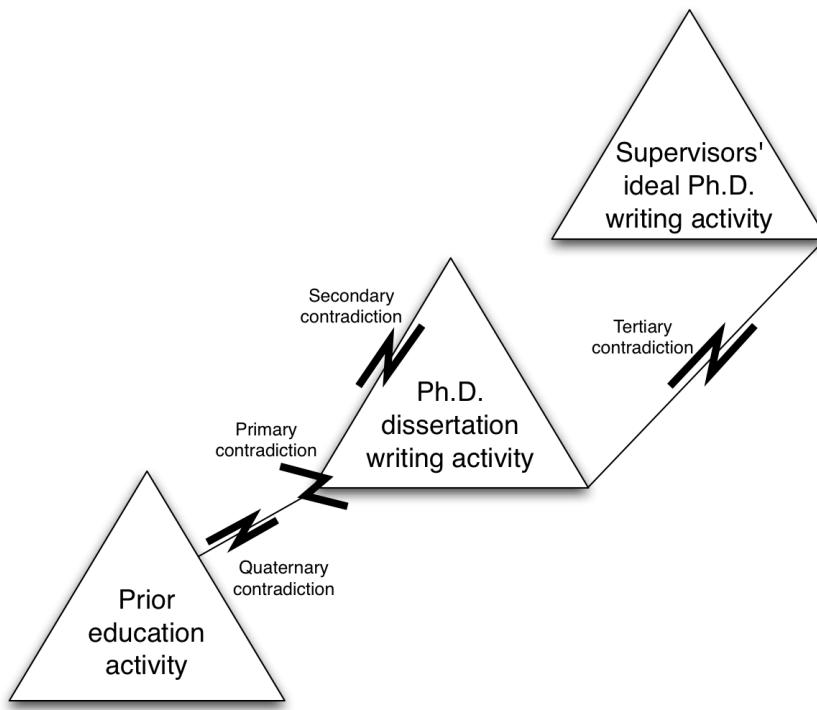


Figure 2.3: Engeström’s four categories of contradiction [79]

Tertiary contradictions occur between the central activity and a “culturally more advanced form of the central activity” [79]. The current dissertation-writing activity of a student might come into contradiction with the more advanced version of the activity as promoted by supervisors if the student’s work is inadequate. Here the breakdowns might literally be those of the student failing to live up to expectations.

Quaternary contradictions occur between the central activity and other activities which it relies upon, such as those activities which *produce* the Artifacts or the Subject in some way. The dissertation-writing activity may involve a contradiction with the Subject’s previous educational activities if they have not produced a well-informed Subject. In this case, the contradictions will lead to breakdowns such as the student’s inability to read critically for a literature survey or lack of knowledge about basic research methods.

Contradiction in activity theory is a useful way to think about *learning* or *change*. Specifically, Engeström claims that it is the *resolution* of a contradiction which represents learning. In order to resolve a contradiction, the central activity must be transformed in some way, and thus become a better version of itself. For example, in order to resolve the secondary contradiction described above, the student might have to learn to research using the internet, or to inter-loan books and articles from overseas universities. In doing this, the breakdowns caused by

the lack of research artifacts cease because the contradiction between Subject and Artifacts is resolved by a more competent attitude to research, as well as by access to more useful Artifacts.

2.4.5 Activity theory and video games

The use of activity theory within game studies has been limited to date. Kurt Squire, an education researcher, argued convincingly that activity theory could transfer well to video game analysis [226]. Squire confronts the problem of finding an integrated way of analysing the many facets of games in the context of education, such as “the individual’s goals and intentions, the tools, and resources employed in practice, and the social organization and institutions that mediate practice” [226]. This leads Squire to suggest that activity theory is a strong candidate for an integrating approach. Although he does not apply activity theory himself, Squire raises some of the important issues in studying video games, not only from an educational perspective, but from any perspective, and recommends activity theory as a potential solution.

Activity theory does have a limited history of application to games within the traditional activity theory community. Most fundamentally, L. S. Vygotsky devoted a chapter in his book *Mind in Society* to the relationship of play to development, describing its motive as “the imaginary, illusory realization of unrealizable desires” [245]. This idea has been taken up elsewhere as researchers have considered the relevance of Vygotsky’s thinking to play [161].

In more contemporary research, Victor Kaptelinin and Michael Cole, established activity theory researchers, investigated children playing video games in an after-school setting [138]. They identified three phases in which children’s learning with the games took place: the coordinated individual activities (with a supervisor), the development of a group or team identity with respect to play, and the transfer of the group experiences back to the individual activities of play. Pentti Hakkarainen has also studied play, focusing on the question of what the Object of play might be [114]. Hakkarainen acknowledges the familiar position we have seen in game studies, exhibited by play’s “place on the border of two worlds: the narrative world of play and the real world” [114, p.232]. His conclusion is that “play does not change anything visible; thus the object of play must be the process itself” [114, p.234]. Although not particularly focused on video games or play, Victor Kaptelinin raises a critical issue when he discusses the mediation of software and its effects on a user’s activity, citing video games as a key example. Kaptelinin notes that “the values and goals intended by [software] developers can influence users who may not even be aware of these influences. This is obvious

in the case of some computer games” [136]. The notion that video games are key exemplars of the influence of a (software) Artifact on activity is central to our consideration of beliefs about preferable conduct during video game play.

Within game studies, activity theory has been applied even more rarely. As in traditional activity research the focus has remained firmly on learning. Begoña Gros provides a primer on video games in education, indicating activity theory as a possible approach much in the same way as Squire did [113]. Mike Dobson et al. have used activity theory as the basis for their development of an educational game to improve practice in a health care network, although the focus of their work is the generation of an interactive narrative [73]. Tim Marsh et al. also use activity theory in the form of “hierarchical activity-based scenarios” to contribute to game development, including design and evaluation [167]. Their approach is based largely on Leontiev’s concept of the activity hierarchy and aims to help understand the levels of context in game analysis.

The best and most clear current work on activity theory within game studies has been done by Martin Oliver and Caroline Pelletier. They explore the application of various activity theoretic concepts to two case study games in order to discuss learning. In one study, they analyse the game *Harry Potter and the Philosopher's Stone* using both the activity hierarchy and the notion of contradiction [195]. They use the levels of the activity hierarchy as a way of identifying where contradictions occur, such as when the player is not able to trace a pattern accurately enough with the mouse to cast a spell. In their other study focused on *Deus Ex*, Oliver and Pelletier seek to identify examples of learning during play. They find four in their study: skillful tool use, knowledge of properties of objects in the game, game conventions, and spatial understanding [196]. They use the same method of analysing the hierarchy of activities, actions, and operations in conjunction with contradictions to identify these learning examples.

Although the work of Oliver and Pelletier is detailed and involves an impressive amount of qualitative evidence, it does involve a theoretical problem. No distinction appears to be made between the notion of a *contradiction* and a *breakdown*. As we have seen, these two concepts are distinct, with breakdowns indicative of contradictions and, conversely, contradictions leading to breakdowns (§2.4.4). This sometimes leads them to identify what would appear to be only breakdowns as contradictions, such as a player’s momentary questioning as to whether to name their character after herself or to use a fictional name [196]. This example of confusion is *not* systematic. It passes quickly in the playing session, and cannot be confidently labelled a contradiction. Apart from this confusion between breakdowns and contradictions, Oliver and Pelletier have performed valuable research, perhaps most importantly showing how qualitative research

can be highly revealing about the nature of moment-to-moment play.

2.5 Summary

In our review of the literature we have focused on understanding the nature of play as a form of human-computer interaction. First, we have seen how values, defined as beliefs about preferable conduct, can influence people's interactions with software (§2.1). We have reviewed the literature within HCI which focuses on video games, discussing how the majority of the work concerns evaluation, and how work which treats video games as *games* specifically is unfortunately rare (§2.2). As a way to address this problem, we have then shown how game studies, the study of games as games, has a focus on issues surrounding value (§2.3). With this in mind, we have then introduced activity theory as applied to HCI as a basis for the discussion of interaction with video games (§2.4).

In order to proceed with research into the relationship between values, video games, and interaction, we regard it as fundamental to have data related to play itself. One aspect missing in much research into video games is access to real player experience. In the next chapter we discuss our qualitative methodology for the study of play, focusing on the collection of data from actual play and games. With this data in place we then begin to develop our understanding of play as a form of human-computer interaction in the following chapters.

Chapter 3

Methodology: Video Game Case Study Research

Mario holds the controller as the starting screen of *Grand Theft Auto* shows Carl Johnson standing in a back alleyway. The game instructs him to steal a nearby bicycle by pressing the triangle button and Mario does so. He then wobbles the bike around on the screen as he learns the control system. Vincent asks him questions about the bike and reads to him from the manual about doing a “bunny hop” by holding down the L1 button and then releasing it.

Paying attention to the game’s instructions, Mario begins to steer the bike toward Carl’s home. The game instructs him on how to “sprint” with the bike and he does so but crashes into a park car, sending Carl flying through the air. Vincent and Mario talk about the bicycle as an addition to the game as it hadn’t been in past iterations of *Grand Theft Auto*. Mario goes online on the computer in the room and reads that Carl can become better at riding the bike through practice. They decide to continue to ride the bike around town rather than take the first mission of the game so they can learn how to ride the bike effectively. On screen a message appears saying “Bicycle Skill: Upgraded.”

Much as Vincent and Mario must study the manual and other instructions in order to learn how to play *Grand Theft Auto* successfully, we must also consider the best way to study video games. At the heart of any investigation into video game HCI is the need to study the *interaction* which takes place between a player and a video game. A recurrent theme in the previous chapter was that much existing research lacks the use of video game play data when discussing video game interaction. Much of the most impressive research, on the other hand, utilised evidence from both researchers’ experience of video games and, critically, typical

players' experiences. In this chapter we introduce the research methodology we used to gather data surrounding how players play video games.

First, we introduce our decision to use a *qualitative* methodology in our investigations, based on the currently underdeveloped nature of video game HCI (§3.1). Next, we discuss the specific form of methodology, case study, and discuss this method's appropriateness in the context of our research (§3.2). In the following section we present our research design (§3.3), focusing on case selection and data collection and analysis. Next, we present the pilot study we conducted to test our methodology (§3.4) and discuss our approach to validation (§3.5). Finally, we discuss the overall structure of the methodology and preview its use in the following chapters (§3.6).

3.1 Qualitative research

Qualitative research is generally compared to quantitative research. Quantitative research focuses on explanations, particularly as regards *why* things happen, and usually takes place in a controlled, designed experiment. By contrast, qualitative research "involves an interpretive, naturalistic approach to the world" [68]. It is premised on *understanding* and *describing* a particular case or phenomenon.

In this dissertation, we use a qualitative approach, justifying this according to four key reasons John Creswell has identified [61, p.75]. Here we present each of the reasons in the context of studying video game play as a form of human-computer interaction. Creswell's reasons are echoed elsewhere in the literature [111, 173].

1. *The concept is often "immature" because of a lack of previous research and theory.*

As discussed in chapter 2 there is a notable lack of research into video games from an HCI perspective. More particularly, as we have seen, there is a tendency to view video games as *either* software or games, and not both. Without solid existing theory to build upon, the more explorative approach of qualitative research is appropriate.

2. *Existing theory may appear to be inaccurate, inappropriate, incorrect, or biased.*

Of the four reasons, this is the least relevant. It is not so much that existing theory is incorrect or inappropriate, but that there simply is not *enough* of it. In chapter 2 we introduced value as a central concept (§2.1) along with activity theory (§2.4), which we hypothesised would assist in video game HCI, but to ascertain whether this is the case we must consider its applicability to data.

3. *There is a need to explore and describe the phenomenon and to develop theory.* As discussed in chapter 1, the research in this dissertation is premised on understanding play as a form of human-computer interaction, a perspective we believe is not taken often enough. Further, as was shown in chapter 2, current theory is insufficient and a more sophisticated and detailed understanding of play as interaction is required.
4. *The nature of the phenomenon may not be suited to quantitative measures.* The state of research viewing play as a form of human-computer interaction is under-developed, as identified above. The lack of established thinking makes it difficult to design quantitative experiments because a more detailed initial understanding of the domain is required before we can identify the appropriate forms of quantitative investigation.

3.2 Case study research

There are numerous qualitative strategies for research, including grounded theory, ethnography, and biography, but in this dissertation we adopt the *case study* approach. In the following sections we discuss the reasons for this, introducing case study as a methodology and justifying its use.

3.2.1 Definitions

Case study is oriented toward the *case*. A case is “a unit of human activity embedded in the real world” [111, p.1]. In the present research, the *cases* under consideration are individual video games. A case *study* “is one which investigates the [case] to answer specific research questions ... and which seeks a range of different kinds of evidence, evidence which is there in the case setting, and which has to be abstracted and collated to get the best possible answers to the research questions” [111, pp.1-2]. Two points of emphasis are immediately clear: the importance of *context* or *setting*, and the collection of a *range* of evidence types.

In case study, understanding how the context informs the phenomenon under investigation is key. The context of video game play most basically involves both the player and the software and hardware which allows the game to take place. Further, other aspects such as the physical environment while playing, online communities, documentation used, and the player’s own cultural context external to the game are significant.

The second important feature of case study research is its *multi-method* nature: more than one means of evidence collection is used in order to build up a more

complete understanding. This is also in keeping with the emphasis on context, above, as multiple forms of evidence tend to capture a broader context in the case study. The six commonly identified types of evidence used in case study are: documents, records, interviews, impersonal observations, participant observations, and physical artifacts [111, 262]. We discuss our approach to collecting data specifically in section 3.3.3.

Case study research can clearly be used for a great many applications, from studying individual people to entire organisations. Robert E. Stake, one of case study's foremost proponents, distinguishes between three general types of case study [228]:

1. *Intrinsic* case study focuses specifically on a single case, and seeks only to understand that one case with as much depth and richness as possible.
2. In *instrumental* case study, by contrast, the case "is of secondary interest; it plays a supportive role, facilitating our understanding of *something else*." [228, p.137, emphasis added]
3. Finally, *collective* case study involves the study of *multiple* instrumental case studies. The aim of this form of study is to provide somewhat more generalisable insight into a concept considered to be applicable to all cases. One aim of the collective case study is to perform *cross-case* comparisons to discover commonalities and differences.

In this dissertation we adopt a *collective* case study methodology, focusing on the ability of multiple cases to shed light on one another and to contribute to a more generalisable resulting theory.

3.2.2 Use of theory

The use of theory prior to data collection is regarded as controversial by some researchers [229], but is supported by others, such as Robert Yin, who goes to far as to term it "critical" [262, p.27]. Similarly, Matthew Miles and A. Michael Huberman, discussing qualitative research more generally, also recommend an initial conceptual framework with which to begin evidence collection, giving four key reasons [173]. Each reason helps to validate our initial orientation toward value and interaction and to activity theory in the previous chapter.

1. As an apprentice qualitative researcher it can be particularly important to have an initial grounding in theory. It can help direct observation and interpretation in the face of large amounts of evidence which otherwise may *all* seem significant.

2. Given that a key objective of the current research is to *compare* across cases, it is useful from the outset to have a theoretical framework to use as the basis for comparison.
3. The analysis stage critically involves the development of analytic categories to understand the evidence. Initial theory can make the early stages of classification easier.
4. Prior to data collection, a considerable amount of knowledge and expertise considering the domains of video games and HCI had already been developed. This existing base of knowledge is both difficult to disregard and of substantial assistance during analysis.

3.2.3 Researcher bias

The interpretative nature of all qualitative research requires the researcher to be aware of their own presence in the study. In particular, the researcher must “explicitly identify their biases, values, and personal interests about their research topic and process” [61, p.84]. The objective here is two-fold. First, explicitly acknowledging the researcher’s background and associated biases ensures that the reader is aware of them and can take them into account when assessing the findings. Second, it allows the researcher can be aware of those points *during* the research to avoid biases where possible in data collection and analysis. Accordingly, here is a brief statement of my own background and potential biases:

I am a white, male, middle-class New Zealander. All of these characteristics, essentially cultural, affect my interpretations of events and information. In particular, they are often connected with my personal value system, shaped by the Western or individualist values of New Zealand culture [250].

I have played video games since I was five or six years old (on the Apple IIe, initially). Although I have never been a “hard-core” gamer, I have played many games on many different platforms over the years, and the characteristics of those games have had an impact on my beliefs about video games in general. Many of my friends also play games and our discussions have influenced my thinking about the nature of video games and play. Furthermore, some of my friends have been aware of my research project, and have explicitly discussed it with me.

My academic background is in computer science and philosophy, both of which orient me toward specific ways of thinking and analysing

problems (including seeing many things as “problems to be solved”). My role as the *researcher* in the case studies influences the ways I now play video games and discuss them with others, particularly the tendency toward critical thought rather than a more playful experience.

3.3 Research design

As discussed above, a *collective case study* approach has been utilised, involving the collecting and analysis of data from five video games. The intention was to maximise differences between the cases in order to generate the maximum possible contrast in the results. This breadth of investigation is justified by noting that this research is highly exploratory, and a broader perspective was required in order to gain initial insights into video game play.

A pilot study was performed at the beginning of data collection to evaluate the various methods of data collection and analysis. The pilot study used a smaller number of participants, but was otherwise identical to the full case studies which followed (one of which extended the pilot study). With both qualitative research and case study research now introduced, we now describe the research design used.

3.3.1 Case selection

As suggested by Miles and Huberman, “qualitative samples tend to be purposive, rather than random” [173, p.27]. It is of critical importance to choose the cases in case study research carefully in order to obtain the most valid, relevant, and potentially generalisable evidence. As has already been mentioned, five video games were chosen as the core cases for the current research.

The general advice followed in selecting cases was drawn from Robert Stake’s two main criteria [227]:

1. Select cases that are likely to maximise what you can learn.
2. Select cases that are accessible and likely to yield the most evidence.

Various factors affect Robert Stake’s guidelines for accessibility and learning potential. We identified five key conditions which guided our selection of the five case studies:

Multiple genres. We selected games from multiple genres in order to maximise the potential insights into the nature of play. While studying a specific genre, such as role-playing games, might have yielded more detailed and saturated data, the applicability to video games generally would have been reduced. Detailed knowledge of a single genre was sacrificed in order to increase the diversity of insights. Further, by selecting significantly different genres, we were able to emphasise both the contrasts and similarities between genre designs.

Multiple platforms. Related to our selection of multiple genres was the selection of games based on different platforms. In particular, the effort was made to examine games on both personal computers as well as on consoles. Although clearly important, mobile gaming devices, such as the Nintendo DS and cellphones, were not included as these contexts of play are extremely variable and difficult to account for in experimental conditions.

Single-player games. This was a central condition for the games studied in order to limit the complexity of the cases and the introduction of a significant social context. In multiplayer games, whether one-on-one or “massively multiplayer,” many issues concerning interpersonal relationships affect the question of how value relates to the interface. Social elements of value, such as “wanting to beat my friend, John,” become significant and further complicate the description and analysis of play. Single-player games largely eliminate this additional variable, and allow for a stronger focus on the relationship between player and interface.

Contemporary, popular games. This was to maintain relevance to the current state of the art in game design and analysis, so that our conclusions are more accessible to video game designers and HCI practitioners alike. In addition, the games selected have been the subject of a large amount of discussion and documentation, both official and unofficial, still available on the internet, as well as active online communities.

Prior familiarity. The selection of experienced participants and games with which the researchers were familiar allowed for a far smaller learning curve in playing and analysing the games.

3.3.2 The cases

With the above discussion on case selection in mind, we now present the five case study games selected: *Civilization III* [124], *Fable* [172], *Grand Theft Auto: San*

Andreas [211], *Half-Life 2* [243], and *The Sims 2* [78] (figure 3.1). Figures 3.2 through 3.11 present typical screens from each game and below we provide basic details such as genre and platform, as well as some brief information about the context of the video game, and the nature of its play.



Figure 3.1: The five video games studied in this dissertation: *Civilization III*, *Fable*, *Grand Theft Auto: San Andreas*, *Half-Life 2*, and *The Sims 2*

Civilization III

A *turn-based strategy* game for PC premised on building a civilisation beginning with a single settler and expanding to a worldwide empire (figures 3.2 and 3.3). The original *Civilization* was released in 1991 and the present version is *Civilization IV* [1]. We studied the third game in the series because it was the most widely played at the time of this research. The objective of the game has remained largely the same: world domination through a variety of means, including diplomacy, space colonisation, and nuclear war. With each new edition, however, greater complexity in the interface and play is introduced, through such concepts as culture and religion.

Fable

A *role-playing game* (RPG) for the X-Box and PC that involves directing an avatar through a series of quests that eventually save the world from evil (figures 3.4 and 3.5). The game includes a detailed narrative about the avatar's family and his destiny, as well as a traditional evil character who must be defeated in battle. The typical RPG genre characteristics are present, such as the continuous upgrading of the main character's statistics during play and the exploration of a large world. *Fable* was often promoted as innovative because it allowed the player to act in either good or evil ways during play and to reap the consequences.

Grand Theft Auto: San Andreas

An immensely popular multi-platform *action-adventure* game, available for the PC, PlayStation 2, and X-Box (figures 3.6 and 3.7). The game has been widely discussed online and in the media, largely because of controversies around violence and hidden sexual content. Playing the game involves taking the role of Carl Johnson, a gang member, as he gradually dominates the crime world through a series of game-assigned missions in a fictional state of the United States called San Andreas. The game is well-known for the degree of freedom it offers. Players are not forced to take on the missions, but can simply drive through the countryside or play a game of pool at a local bar. In the rest of this dissertation we will refer to *Grand Theft Auto: San Andreas* as just *Grand Theft Auto*.

Half-Life 2

A recent *first person shooter* (FPS) game for the PC typical of the genre (figures 3.8 and 3.9). The game involves taking the role of physicist-turned-freedom fighter Gordon Freeman in a first person perspective, wielding numerous weapons to defeat an evil regime. Following the FPS genre, the play is essentially restricted to moving forward along a delineated path and overcoming obstacles such as enemy soldiers, aliens, or locked gates. Playing *Half-Life 2* focuses on “fast-twitch” reactions in combat along with some puzzle-solving.

The Sims 2

A highly successful *simulation* game for the PC that is one of the few games that are played as much by women as by men (figures 3.10 and 3.11). Play involves controlling one or more characters in a virtual domestic setting and micromanaging their lives. This largely takes place by having them interact with objects in the household and with other Sims. Within this setting a wide variety of interactions and events can take place, from a child taking its first steps to an elderly Sim seeing a ghost in the garden. Versions are also available for PlayStation 2 and X-Box, though they differ significantly from the PC edition.

3.3.3 Data collection

Our data collection methods are derived both from traditional qualitative research and from HCI-specific methods. In the following sections we introduce each data collection method, outline the process used to collect the data, describe the data actually gathered, and, finally, discuss the benefits and limits of that data. We primarily follow Yin [262] and Creswell [61]. Finally, we discuss the ethical



Figure 3.2: The typical play screen in *Civilization III* showing the area of terrain the player is focused on. Four cities belonging to the player's civilisation are visible along with their borders. At the bottom left is the full map of the world (largely black because it is unexplored). In the centre are various action buttons such as "mine" and "fortify." At the bottom right is a panel giving status information.



Figure 3.3: The "city menu" in *Civilization III* where players manage individual cities such as "Thebes." This menu allows players to choose what the city will build, to allocate where their citizens will farm or mine, and to assess the current status of the city.



Figure 3.4: The standard play screen in *Fable* showing the avatar in the centre as he moves through the game world. At the top left are measures of his health and magical power. At the top right is a map of the immediate area. At the bottom left are the current “expressions” he can make. At the bottom right are his current options for action, such as sprinting, attacking, or defending.



Figure 3.5: A typical menu in *Fable* showing a listing of the available Quests a player can undertake. Each Quest includes a title, a starting location, a brief description, and information about rewards. Quests are denoted as being either relevant to the main narrative (coloured gold), or auxiliary to it (coloured silver).



Figure 3.6: The standard play screen in *Grand Theft Auto: San Andreas* when the avatar, Carl, is on foot (seen here stealing a car). In the top right are indicators of the current weapon, time, health, and money. At the bottom left is a map of the immediate area. At the bottom right is the name of the current neighbourhood.



Figure 3.7: The standard play screen in *Grand Theft Auto: San Andreas* when the avatar is driving a vehicle. The same interface elements as in figure 3.6 are visible, along with an indicator for how “wanted” by the police Carl is (the two yellow stars at the top right).



Figure 3.8: The standard play screen in *Half-Life 2* showing the first person perspective of the avatar, Gordon Freeman, and his current weapon (a machine gun) directed outward. Indicators at the bottom of the screen show Gordon's health, armour, and ammunition levels.



Figure 3.9: The standard play screen in *Half-Life 2* when Gordon Freeman is driving a vehicle, such as an air-boat.



Figure 3.10: The standard play screen in *The Sims 2* showing a Sim inside his house interacting with a computer. In the left-centre of the screen is the pie menu with which players select a Sim's actions, in this case showing options for using a computer. At the bottom of the screen is the control panel which gives players information about the current status of their Sims, such as their Wants and Fears (bottom centre), Needs (bottom right), as well as the option to change to views such as "Buy Mode" and "Build Mode" (bottom left).



Figure 3.11: The Create-a-Sim screen in *The Sims 2*, showing a new Sim being created. The Sim being created stands in front of a mirror while the player manipulates options such as their name, skin-colour, and clothing using the menu at the bottom of the screen.

considerations of involving human participants in the data collection. An overview of the data collected is presented in figure 3.12.

Data collection method	Data collected
Participant observation	150+ hours of observation, 25,000 words of notes
Interface audit	20,000 words of notes
Observation	25 hours of video and audio, 160,000 words of transcription
Interview	13 hours of audio, 90,000 words of transcription
Documentation	50+ web pages captured, 15,000 words of notes

Figure 3.12: Data collected during qualitative research.

Participant observation

A standard form of data collection within qualitative research is participant observation in which the researcher literally takes part in the case being studied [10, 61]. Our own participant observation included initially playing each case study game for a minimum of 20 hours while taking notes. Further, throughout the later stages of data collection and analysis, we continued to play the case study games with the intention of maintaining a clear sense of the play while discussing the games with participants, analysing the data, and writing the dissertation. In general, the attempt was made to complete those games which could be completed (*Fable*, *Grand Theft Auto*, and *Half-Life 2*), and to play multiple run-throughs of those which were not of that nature (*Civilization III* and *The Sims 2*). In addition to this, the attempt was made to be exceedingly thorough during play, accessing menus and information that the average player might not notice or bother with.

The data gathered during participant observation largely consisted of hand-written and typed notes concerning the experience of play, along with a smaller degree of analysis of play as it took place. The notes were largely descriptive, covering the introductory sequences of the games, the events which took place, and the researchers' reactions to play. Important aspects of this data included self-analysis, such as considerations of why a game was lost, or analysis of mistakes made as they occurred. They further included considerations of the researchers' context, including interruptions of play, reasons for being more or less engaged in a particular play session, and so on. In addition to the impressions recorded, a large amount of the games' output was also written down, either as descriptions of what took place on the screen, or literal capturing of texts which the game

displayed.

We find it indisputable that researchers must play the video games they study in order to understand them. There is no substitute for the experience of play itself, especially when viewed with a critical eye. Researchers can experience the values of play and the ways in which the video game encourages certain conduct firsthand. Further to this, having played the video games before engaging with participants proved crucial to winning their respect and fully understanding what they had to say. Much discourse about the games referred to situations and events which would have been incomprehensible without prior experience of them.

While participant observation is crucial to gaining a personal understanding of the cases, it naturally excludes a number of important aspects. Primarily, the researchers' experiences of play are likely to be somewhat different to those of an "ordinary" player because an analytic mindset is often induced. Further, simply playing the games does not guarantee any completeness of coverage and many elements of play can be missed. Finally, participant observation naturally lacks some of the rigour of other methods of study, in that the researcher is free to pursue the game play as they see fit, rather than focusing on a systematic approach.

Interface audits

Along with participant observation of the cases, we also approached the games more formally by explicitly noting down all elements of the interface, a process we referred to as an "interface audit." While not an "official" technique, we felt it was a necessary complement to our participant observation. The interface audit consists of the attempt to document all elements of the interfaces of the case study games. The basic process involved loading a game and enumerating the various facets of the interface available to a player, essentially by examining the many possibilities for interaction.

The data gathered took the form of documents with written accounts of the interfaces of each case study game. These documents included sections on the game's menu systems, the interface elements present on the screen during play, and the commands available to the player during interactions. In addition to describing each of these features, care was taken to note the particular results of issuing the commands available in different contexts.

The resulting data provided the researchers with a detailed description of the interaction possibilities for each of the case study games as well as the ways in which they presented information to the player. Although the manuals which come with video games often give the basic details surrounding their interfaces, they rarely contain *everything*. In particular, because video games are interactive,

there are many ways in which the interface can ultimately appear. By explicitly taking our data from the game itself, we were able to include a large amount of contextually sensitive information.

Documenting the interaction possibilities in a video game does not assist much at all with understanding how play itself will proceed and must be supplemented with actual data from playing. Further to this, because of the highly complex nature of contemporary video games, it was often impossible to fully document all possible interactions in a video game to a fine degree of detail. Thus, in *The Sims 2*, for example, it was only possible to examine instances of Sims interactions with each other, rather than detailing every possible command.

Observation and interviews

Participant recruitment For each case study we recruited five players for observation and interview sessions, yielding twenty-five unique participants in total. Participants were self-selected, responding to advertisements in video game stores and internet cafés as well as coming from within the university. An important condition of selection was that participants be *experienced* players of the games. We defined this as having played the game for at least 20 to 40 hours. The participants were largely male players in their twenties. Two exceptions to this were three female players for *The Sims 2*, and three teenage players (two female, one male), also for *The Sims 2*.

We regarded the involvement of real players of the video games as the most important component of our methodology. There is literally no substitute for the knowledge and experiences of players of the game. Crucially, the participants provided a balance to an otherwise highly academic and analytic study of the cases. The participants allowed us to consider contexts of play other than our own, and to see different ways in which the same game can be approached by a player. The data yielded from our observations and interviews was consistently the most interesting and revealing about the interaction between a player and a game.

It is important to note that the selection of experienced players effectively eliminated the chance to observe learning during play. This was regarded as acceptable, however, as we were more interested in observing the *results* of learning than the learning process itself. Further, because the volume of data collected from players was substantial, we were unable to study more than five participants per game. While this was necessary, it does mean that the data was limited in terms of analysis over a large sample.

Observation In the observation portion of sessions, each participant played the selected case study game for approximately one hour [10]. Prior to play, the participants were introduced to the traditional HCI “think-aloud” protocol [189]. Participants were asked to play the game while talking about the reasons and motivations for their actions. The physical set-up of the observation sessions is presented in figure 3.13. Each participant was seated at a desk playing the game on either a PC or console system. The researcher was seated behind and to the right of the participant, taking notes as the session proceeded.

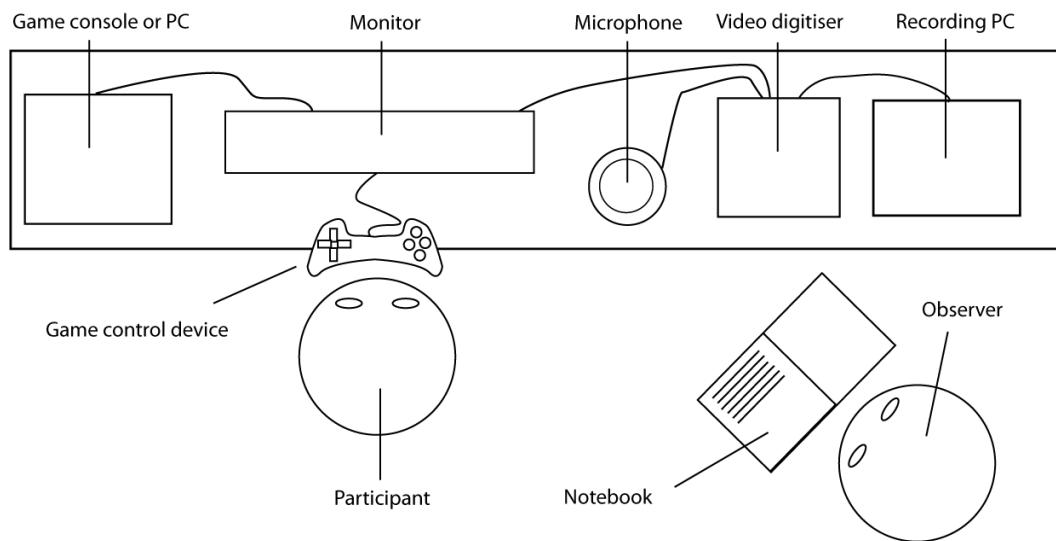


Figure 3.13: The physical set-up for observation sessions

The game’s video and audio were captured digitally during play. The digital video was then merged with the audio of the participant speaking captured from a microphone. The resulting digital video was stored on a PC and burned to DVD after the session was completed. Following this, the video of the session was transcribed by the researcher, including a full transcript of the participant’s speech as well as notations of what was taking place on the screen throughout the session to provide context.

The observation sessions provided the chance for the researchers to examine play as it took place, without having to generate the play itself. The participants often played the video games in unexpected ways or with surprising attitudes, leading to greater insights into the overall possibilities of play. Further, during many sessions, participants also often spoke at length on other topics, from their personal interests outside the game to their pet peeves about the game design. These ostensibly secondary comments often emerged as among the most interesting during analysis as they provided unexpected insights into matters such as

physical context and players' real world values.

The "think aloud" process was often challenging for participants because it required both interacting with software and voicing thoughts simultaneously. During interaction as immersive as video game play, participants often found it difficult to continue talking. Where necessary, they were prompted with questions such as "why are you doing that?" or "why was that a bad thing?", focusing on their beliefs about preferable conduct as they played. Despite this, it is indisputable that participants did not feel they were playing in a natural environment and this undoubtedly affected the ways in which they chose to play and even talk about their play.

Interview Directly following the observations, semi-structured interviews [61, 95] were held in the same environment as detailed in figure 3.13. Interviews lasted for 30 to 40 minutes at most and the video game was left running for participants to illustrate points made during the interview if they desired. The interviews followed a general schedule based on the initial theory developed beforehand, with room to pursue other lines of discussion as they occurred. The basic schedule of questions is available in appendix D. Topics focused on aspects of the interaction such as players' evaluation of their play, possibilities for activity in the gameworld, and their thoughts on the opposition in the game. Notes taken during the observation sessions were also followed up on at this point.

Each interview was recorded and transcribed afterwards by the researcher. The transcriptions included notations for laughter and other physical gestures which took place during the interview.

The interviews were essential to gain more reflective discussion of the video game by the participants. Without the distraction of playing the game itself they were often able to discuss the nature of play more abstractly and holistically. This provided an important complement to the more immediate nature of the think-aloud data from the observation sessions. Especially encouraging was the intelligence with which players were frequently able to analyse their play and the game itself. The participants often provided insights into the gameplay which the researchers had not considered at all.

Some participants found the interview situation challenging and were reluctant to speak at length, especially the younger players. The limited time available for the interview often meant that only a swift coverage of the main interview topics was possible. The time limit was necessary, however, in order to make participation in the case study desirable.

External data

As a final form of data we collected documentation associated with the case study games [61]. The process largely involved searching on the internet for relevant information about the games from both official and unofficial sources.

The key official documents collected for our studies were media produced by the makers of the game itself. Foremost were the box and manual of each game. These provided core information about how the game was promoted as well as instructions for its use. The official website of each game was also reviewed in order to understand further both the advertising of the game along with any advice the creators had provided about its play. Finally, where available we viewed television and print advertisements for each game, as these often gave insight into the overall message the creators wished to convey.

The key unofficial documents were those generated by the player communities around each video game. These included forum discussions among players of the games, walkthroughs and FAQs written by fans offering analysis of the games in depth, and dedicated websites exploring every aspect of play including modifications, strategies, and tricks. Unofficial documents were interesting for two main reasons: First, they often explicitly discussed beliefs about preferable conduct when they described how to win a game (e.g. walkthroughs), or even how to play subversively (e.g. speed-runs where one plays as fast as possible). Second, these documents contained insight into the experience of thousands of players, which was invaluable in expanding on the researchers' own play.

The data gathered largely took the form of captures of the various web-based documents we reviewed. These documents were then summarised by the researchers. Further, we transcribed important information from the games' manuals in order to have these in digital form.

The external data collected was most useful in terms of *saturation*. While we chiefly relied on data from our participants and our own observations of play, the external data often provided nuance in terms of understanding the games. Importantly, the FAQs and walkthroughs were frequently used during our own play in order to better understand the enormous range of possibilities within any given game. The external documents were also useful in that they provided a representation of the case study games *outside* their actual play, supporting our data which was otherwise devoted to the play experience itself.

The external data collected was often overwhelming in nature because there is simply so much available, especially from unofficial sources. This being the case, it was often difficult to know how to approach the external data in terms of analysis. Our eventual solution was to simply use this data in the background to enhance

our overall understanding of the cases, without necessarily citing information directly in our analyses.

Ethics

An important issue whenever human participants are involved in any kind of study are ethical considerations. The collection methods with direct contact with participants were those of observation and interview. In order to maintain the ethical nature of the studies, the following steps were taken:

- Foremost, all research involving human participants was approved by Victoria University's Human Ethics Committee based on the submission of detailed information about the process involved.
- Participants were all provided with an information sheet (appendix B) and consent form to sign (appendix C) at the beginning of the sessions.
- Participants were informed they could stop the session at any time and were able to withdraw from the study if they wished.
- The data captured included only participants' voices and their play. No video or photos were taken of the participants.
- No personal information was sought about the participants beyond their age and gender. In the analysis and write-up of the data, participants were kept entirely anonymous.
- Age restrictions were observed for each game. The age restrictions on the games were as follows: *Half-Life 2* (R16), *Grand Theft Auto* (R18), *The Sims 2* (M15+), *Civilization III* (G), and *Fable* (M15+).

3.3.4 Data analysis

Data analysis in qualitative research falls under two broad categories: *direct interpretation* and *categorical coding* of evidence [227]. Although our focus was on categorical coding, interpretation is a natural and unavoidable consequence of examination of any qualitative data.

As noted by Yin, a desirable approach is to "follow the theoretical propositions that led to the case study" [262]. Our initial basis in theory relating to value and interaction, video game HCI, activity theory, and game studies were all used as we analysed the multiple forms of data.

As the evidence gathered was largely textual, we followed a standard qualitative analysis method of coding chunks of text by conceptual category [173]. This process involved multiple, in-depth readings of the texts in order to code the data as well as watching and re-watching the DVDs of the play. Along with the researchers' own notes and the external data, the participant data analysed was of three kinds: First, the transcriptions of the interviews provided a reflective account of play and the participants' own interpretations and assessments of the game. Second, the transcriptions of the observation sessions represented a more immediate perspective on play and were often quite fragmented in nature. Finally, analysis extended to the transcription of the play itself, focusing on the actions being taken and their relationship to what the participant was saying or not saying about them.

The initial code list was based on concepts related to value and interaction (§2.1), video game HCI (§2.2), game studies (§2.3), and activity theory (§2.4). This led to the use of concepts such as "preferable conduct," "goal," and "breakdown," as lenses through which to view the data. During coding, however, codes had to become far more detailed before they could accurately be applied to data, for example, a code such as "Subject" was divided into "Subject - player as gamer," "Subject - player as person," and "Subject - personal narrative." Furthermore, it was inevitable that other, unexpected codes emerged as important, such as "laughing at events during play" or "focus shifts to the interface." A particular focus was maintained on codes relating to evidence of values, such as "status and recognition" or "morality and ethics." The initial passes of coding built up a complex and diverse description of the various forms of data, generally situated at a more detailed level than the broader theoretical concepts of value and activity theory.

In order to facilitate the coding process the qualitative analysis tool *HyperResearch* was purchased and used [209]. HyperResearch is a basic textual analysis tool which supports the building of a list of codes and their application to specific chunks of text in multiple text files. It further provides the ability to examine subsets of the coded data as the researcher desires. A screenshot of the basic working view of *HyperResearch* is presented in figure 3.14.

Following the initial stage of coding we began creating a more holistic picture by drawing together the codes into larger thematic areas. This was a highly interpretative process, of course, but was aided by the use of activity theory as an overarching perspective on the codes. In this way, themes that helped to describe the activities of play began to emerge. A theme such as "avatar transformation and ludus," for example, emerged in the study of several games through codes relating to the avatar being treated as the Object of activity, rather than the Subject, and

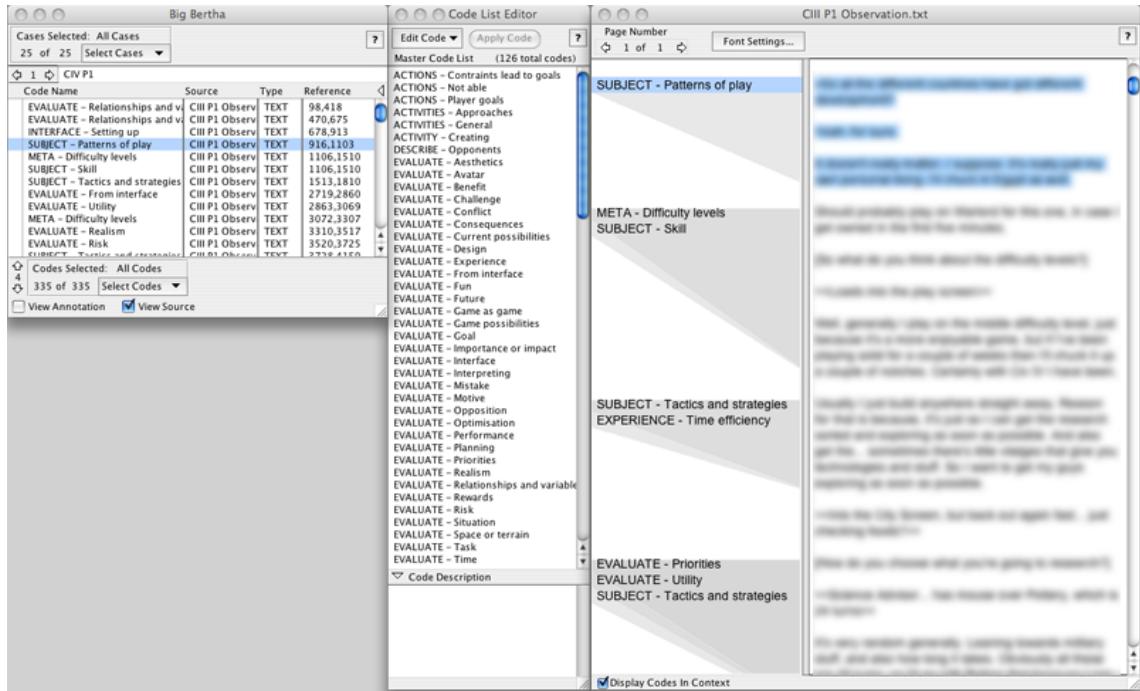


Figure 3.14: The basic working view in *HyperResearch*

often being associated with the concept of ludus. The final set of codes established during analysis is presented in appendix E and consists of 15 code categories and 126 individual codes. During analysis of the data there were 7,450 applications of the various codes and the coding process took approximately 25 hours per game.

This process of refining the codes continued in an iterative fashion until it was felt that the interactions in the video game had been identified and captured, leading to a well supported understanding of its play. At this point, it was possible both to describe the play in each game in detail and also to make convincing arguments, supported by data, concerning the relationship of that play to the interface.

3.4 Pilot study

A highly recommended practice before embarking on data collection of case study research is to undertake a *pilot study*. In Yin's words, the pilot study "helps investigators to refine their data collection plans with respect to both the content of the data and the procedures to be followed" [262, p.74].

In keeping with this recommendation, a pilot study of the game *Fable* was conducted in order to trial the data collection and analysis methods identified in the case study and qualitative research literature. The study of *Fable* was subsequently extended to follow the methodology discussed above. The pilot

study provided a number of benefits.

1. Refinement and verification of the overall case study protocol, including the data collection plan and the development of specialised instruments.
2. An initial check on the applicability and usefulness of the theory already identified.
3. A training exercise in qualitative and case study research methods.
4. Discovery of potential problems that can arise during the case studies.

During the pilot study, the important components of the protocol outlined above were informally tested and improved for use in the full studies:

Recruitment Two participants were recruited for observation sessions to gain insight into the kinds of participants who were likely to be most informative in the studies.

Evidence Collection Methods Each of the evidence collection methods described was tested and weaknesses were identified along with strategies to counter them. The usefulness of each type of evidence was assessed, allowing shifts in time allocation.

Data Recording Data recording instruments were developed before the pilot study and improved as issues and ideas arose. Problems with data recording, such as technical issues and access to equipment, were allowed for.

Data Analysis Some initial data analysis was conducted as a proof of concept. Early analysis problems relating to the existing theory and the kinds of evidence collected were identified and planned for.

3.5 Verification strategies

The need to ensure that the data collection and the interpretations and codings derived from it are as accurate and reliable as possible, makes it necessary to use one or more strategies of “verification.” In verifying qualitative research, it is useful to distinguish between internal and external validity. *Internal* validity concerns how well analysis describes and comprehends the individual case it is being applied to. Creswell lists a series of strategies for improving internal validity, and all of these were used in some form in the case studies [61, pp.196-197]:

Triangulation Case study inherently involves a triangulation of data collection methods. By taking evidence from multiple sources such as interviews, observations, and document analysis, a more complete perspective is obtained.

Member checking The raw evidence as well as the results of analysis were checked, as far as possible, with the participants in the research.

Researcher checking The raw evidence and analysis were discussed with other researchers, but most particularly with the supervisors of this work to gain further critical and research-oriented perspectives.

Clarification of researcher bias As discussed above, the researcher's bias was kept in mind at all times in order to enhance the reliability of the results obtained (3.2.3).

Negatives/discrepant evidence As far as possible, evidence that did *not* fit within the initial conception of the cases was collected and assessed.

Rival hypotheses As far as possible, alternative explanations of the evidence were considered and either adopted or convincingly discounted.

The question of *external validity* is a challenge in case study as it requires generalising to other, unseen cases. Certain researchers, such as Stake, suggest this is simply not the proper use of case research [228], while others encourage it [262]. Yin suggests that a strategy of "replication" is one way to begin generalising. This involves applying the case study protocol and conceptual framework to other cases in order to make more general claims about the domain the cases fall within. This approach was used in the proposed research by performing five case studies, as already discussed.

Additional means of checking external validity considered were the degree to which the theories resulting from our data analysis conformed with existing theory, as well as their explanatory power..

3.6 Summary

In this chapter we have described our qualitative methodology for the study of video game play as a form of human-computer interaction. As we have seen, the method chosen was case study (§3.2), and we utilised a varied number of evidence collection methods (§3.3.3). Our analysis protocol largely followed the concept of categorical coding, gradually refining codes applied to segments of the data to build a picture of how the data relates to our initial theoretical stance (§3.3.4).

Having established the methodology used, we can now proceed to the presentation of our results. In the following chapters we cover four major perspectives on video game play in the context of HCI, deriving our discussion primarily from the data and placing it within a framework based on activity theory and with a focus on the nature of “preferable conduct” in play.

Chapter 4

Video Game Values: Play as Human-Computer Interaction

Vincent and Mario have been playing *Grand Theft Auto* for several hours, declining the option of going out to the movies with friends. They take a new mission called “Los Sepulcros,” watching a cut-scene in which Sweet explains they are to assassinate the leader of a rival gang at a cemetery. Text appears on the screen instructing them to recruit two gang members and then to drive to the cemetery indicated by a marker on the map. Vincent takes control and drives the car to the cemetery. After debating which weapon would be best to use and settling on an assault rifle, Vincent proceeds to massacre the gang members there, including their leader, Kane. During the fight Carl gets shot repeatedly and is very close to dying when he kills Kane. Vincent and Mario both relax from their tensed positions when they realise they have succeeded.

The mission continues instructions to escape now that they have a “wanted level” which will cause the police to chase them. Instead of going directly back to their base, Vincent plays around with the police. He drives recklessly through the city, pursued by as many as three police cars, doing U-turns, driving up stairs, and even performing a stunt-jump along the way. Once he tires of this he escapes back to the safe-house and completes the mission.

Highly visible in the example above is the importance of values or “beliefs about preferable conduct.” From the game narrative focusing on family and gang honour to Vincent’s desire to “play around” with the police in the game, preferable conduct was key to their play. Qualitative analysis of our case study data confirmed that value was a central feature of play and was involved in all

aspects of interaction. The application of a definition and categories of value (§2.1), research from video game HCI (§2.2) and game studies (§2.3) all helped to make sense of our data both at general and specific levels.

In this chapter we make our first key contribution to video game HCI by introducing *video game values*, defined as players' beliefs about preferable conduct during play, as a means to describe and analyse play as a form of human-computer interaction. We also define and analyse the two core video game values as found in our case study games, PAIDIA and LUDUS. This contribution forms the central thesis of this dissertation: that value can be used as the basis for describing and analysing players' interactions with video games. We emphasise the study of how beliefs about preferable conduct are *mediated* by the interfaces of video games.

We begin by defining what we mean by value in the context of video game play, introducing the concept of *video game values* (§4.1). Following this, we discuss two video game values as found in our case study data, PAIDIA and LUDUS (§4.2). We make the case that PAIDIA and LUDUS are key video game values which help to explain players' interactions with video games. Finally, having established the basic nature of video game values, we present a number of observations based on our data about the unique nature of video game play as a form of interaction, using value as the basis of our discussion (§4.3). Finally, we summarise the work presented and pointing toward the following chapters (§4.4).

4.1 Video game values: Mediating preferable conduct

In all of our case studies, participants played each game in similar ways. Those playing *Civilization III* founded cities, explored the landscape, and built armies. Those playing *The Sims 2* bought furniture, made friends, and got jobs. This is hardly surprising, but helps us to see the basic nature of play: participants tended to perform the same kinds of actions in the same kinds of order. In other words, there was a sense of participants having similar "beliefs about preferable conduct," or *values*, as they played.

The participants themselves were alert to this aspect of their play, and often referred to the idea that their play conformed to a standard. Further to this, they noted their awareness that the game itself, in some sense, was shaping their play and directing their actions:

You do sort of see yourself... the game's manipulating you as much as you're manipulating it. It gets harder to increase those bars... all games

seem to be like that.

(*The Sims 2*, Participant 1 interview)

It still leads you by the nose very very strongly. They don't have too many choices about it.

(*Half-Life 2*, Participant 5 interview)

I mean, it suggests you should follow the missions, and go to the markers, and complete the way through the narrative.

(*Grand Theft Auto*, Participant 3 interview)

Well, obviously the game wants you to win. That's quite logical. By the way it's structured, I think you... except for some special maps and stuff, in general, as I said, I think the game wants you to expand and have lots and lots of cities and control maximum land. How can you tell? Because if you don't, you lose.

(*Civilization III*, Participant 5 interview)

Like, at the beginning of every quest it'll tell you what it wants you to do. So it's really up to you to just follow through on that. There's not really much ambiguity as to what it actually wants you to do. There's always some indication.

(*Fable*, Participant 1 interview)

These kinds of observations about video games lend support to the idea that there is a fundamental notion of *value* underpinning the interaction. Further, the values of play do not come solely from the player, but are somehow embodied in the games themselves, as the above quotes indicate.

Value has been well-explored in value theory, and a fundamental part of this has been *defining* value. In this dissertation we follow the definition offered by Milton Rokeach as already discussed (§2.1.1):

A value is an enduring belief that a specific mode of conduct is preferable to other potential modes of conduct.

Values are therefore standards of conduct which help in choosing between different actions. Thus, subscribing to a value of BENEVOLENCE leads us to forgive our child for letting their pet hamster die rather than to hold it over them. Similarly, a value of PROTECTING THE ENVIRONMENT means that we will choose to put out the recycling on Tuesday evening, rather than put all our plastic in with the regular trash.

In a video game, players engage in represented conduct on a screen. In *Half-Life 2*, for example, they run down hallways, fire guns, and leap over rubble. In *Fable* they take on heroic quests, kill bandits, and fish for secret keys. We argue that this conduct is guided by *video game values*, just as our conduct in the real world is guided by our values. We define a video game value in the same way as a real world value, but with the proviso that such values apply *during play*:

A *video game value* is a sustained belief that one mode of conduct is preferable to other potential modes of conduct during play.

A typical value present in most of our case study games is AGGRESSION, a preference for aggressive conduct over other forms of conduct. Thus, on seeing enemy soldiers in *Half-Life 2* the player is far more likely to begin shooting at them than to saunter over and offer them a cup of tea. Similarly, in *Civilization III*, play inevitably involves engaging in war with other civilisations rather than establishing national boundaries and living peacefully.

Although discussion around specific video game values is of considerable interest, it is not the focal point of our research. The meta-level study of video game values is not developed enough to work at such a specific level of discourse. Instead, central to our work is the analysis of how video game values are present and influence play, independent of how those particular values might be defined. Given this, we focus “beliefs about preferable conduct during play,” rather than on particular named instances of values.

In order to study video game values in HCI, we must first assess the relationship between value and interface. The key to our definition of video game values is, again, the emphasis on *conduct*. Video game values are, at their most fundamental, sustained beliefs about what to *do* during play. They concern how players choose to conduct themselves in a game and, most importantly, this play-conduct takes place using the *interface* of the game. Video game values, therefore, directly relate to how the player *interacts* with the game through its interface and provide a strong link between play and the interface.

Play as interaction relates to the interface in two ways. First, the player interprets the interface in order to make decisions on how to act in the game. The output of the interface *promotes* particular modes of conduct as preferable to the player. Second, the player executes chosen actions using the interface. The interface *defines* the possible input and therefore the actions a player can take in the game. The interfaces of video games therefore *mediate* players’ conduct both in terms of their interpretation of preferable conduct and their execution of conduct. The strong links between interface and conduct suggest that this mediation is key to our investigation of video game values.

4.1.1 Video game values and promotion

The most fundamental observation to be drawn from our analysis of the case study data as well as from the existing literature is that video games encourage particular forms of conduct. Promotion of preferable conduct takes place in the interface as players interpret the interface to decide on the actions they will take.

At a general level, we can say that *Half-Life 2* encourages armed combat, *Grand Theft Auto* promotes criminal conduct, and *Civilization III* promotes colonisation. In each of these games such conduct is intuitively the “right” thing to do. The video game interface indicates what the preferable forms of conduct are: it *promotes* video game values to the player.

Beyond their general awareness of values driving their play, our participants were also aware that the interface specifically promoted certain forms of conduct as preferable:

[“How do you know what to do?”] It tells you, in the game, it tells you what to do to get your aspiration points to your... well, on the X-Box you’ve got certain things you could buy [with them].

(*The Sims 2*, Participant 5 observation)

[“Why do this mission?”] I don’t care about the mission so much as I really like to complete things. I want to construct what’s supposed to be constructed. I’m meant to do it because... it tells me to do it [*Laughs*].
(*Grand Theft Auto*, Participant 2 observation)

The value system is to create a loving environment, I guess. And that’s what the game values. That’s the goal: to create interactions between people, and rewarding relationships, and happy people, well-adjusted, successful. That’s what it values.

(*The Sims 2*, Participant 1 interview)

The question of *how* this promotion takes place is of central importance in this dissertation. Throughout our analysis of video game values we will discuss the particular ways in which a video game interface was able to promote particular forms of conduct to participants, and how they reacted to this.

4.1.2 Video game values and execution

As we have noted, the interface has a further role to play because it not only promotes conduct, but also is used to *execute* it. A player interacts with the interface of a video game to bring about the conduct she believes to be preferable

(generally in reaction to the value promotion in the game we have just discussed). This, then, is the second part of value mediation, in which the interface is used to express a player's video game values in conduct.

At this level, we can observe the multiple ways in which a video game both permits and constraints player conduct. Everything from the control system to the design of the virtual environments to the rules of the game help to determine how a player is able to act through the interface. Thus, in *Half-Life 2* players often move in a particular direction because there is only one way to go, and in *The Sims 2* after choosing to interact with the fridge there are only a limited number of options for the player to choose between, such as "Make Spaghetti" and "Make Mac 'n' Cheese."

As with the promotion of forms of conduct, our participants were aware that video games also restricted what they could do while playing. This was not solely based on constraint, but also included the ways in which freedom of action led to particular forms of conduct:

There's enough other places in the game where you jump off a ledge or whatever, and you can't go back up. Okay, I can only go forwards from here, because I can't get back to the previous areas.

(*Half-Life 2*, Participant 1 interview)

So there are a lot of things you have to do, so I guess it's not as open ended as it seems, but you can do those things in a lot of different ways.

(*The Sims 2*, Participant 5 interview)

I think ultimately it comes down to freedom... because you are supposed to construct something, and you've been given the tools to construct something...

(*Grand Theft Auto*, Participant 2 interview)

Once again, in this dissertation we are centrally concerned with *how* the interface influences player conduct by being the conduit for its execution. Rather than determining the specific values being invoked in play, we focus on the role the interface plays in mediating a player's chosen conduct, often pushing it in a particular direction. Further, we also consider the ways in which players react to this mediation of their conduct.

4.2 PAIDIA and LUDUS:

Fun and games

Although the majority of this dissertation is concerned with the mediation of conduct with value as the centralising concept, we must first discuss two particular video game values which recurred in our data. These values reflect our discussion of Roger Caillois' concepts of paidia and ludus as basic categories of play (§2.3.2). Our data indicates that these two categories can be regarded as the fundamental values of video game play, defined as follows:

PAIDIA is the sustained belief that creative and exploratory conduct for its own sake in a video game is preferable to other forms of conduct during play.

LUDUS is the sustained belief that following rules and conventions in order to achieve defined goals in a video game is preferable to other forms of conduct during play.

Given that PAIDIA and LUDUS were observed as being central to play, and given their emphasis in literature, we now discuss their relationship with play in our case studies. We focus on showing how these values were identified, their influence on our participants' conduct, and also their relationship to one another.

4.2.1 PAIDIA

The value of the PAIDIA concerns a preference for creative and exploratory conduct. One way to characterise the conduct that PAIDIA leads to is that it involves a player "seeing what happens" when they act in different ways. The emphasis in this case is on interaction *for its own sake*. In confirmation of other research, at least one participant regarded PAIDIA as a fundamentally *human* value (§2.3.2):

It's just like this natural human instinct for me. It's like those Advent calendars... if you can break something off and see what's behind it, you will, you won't not do that. If you can open something you'll open it. You don't wrap things up and expect them to stay wrapped up, and the game sort of sets itself up like that.

(*Grand Theft Auto*, Participant 3 interview)

All but one of the case study games exhibited significant signs of PAIDIA being a guiding value. The most clear case of this was found in *Grand Theft Auto*, where participants frequently played according to a belief that their conduct should be guided by doing whatever was possible to experience play fully:

It's still... the developers have put it in there, they've put it in there for something, might as well use it. Like, if you can do it, it's there and there's no point in not.

(*Grand Theft Auto*, Participant 5 observation)

It's about exploring the game and indulging in the things that were created for me to indulge in.

(*Grand Theft Auto*, Participant 2 interview)

Participants playing the *The Sims 2* had a similar attitude. They highly valued the ability to "try out" the various possibilities for action in the game, or wanted to be creative:

And to try other options to see how they act, it's fun... If I [make them run], or... if I click on them, and there are so many options, I'd like to try each of them, to see.

(*The Sims 2*, Participant 4 interview)

That sort of thing does interest me, because... the most interesting part, I think, of it is the creating. Just the creative part of it, of making new characters and... I would much rather really create a beautiful house, or a beautiful person... something like that.

(*The Sims 2*, Participant 5 interview)

Even in games such as *Half-Life 2*, which might be thought of as far from playful or creative, participants did exhibit a value of PAIDIA. In this case, the value concerned their interest in conduct for its own sake to "see what happens":

And I'm just picking up these hooks because I haven't really seen them before. Always fun trying to throw new stuff, you can see what happens. I guess it's the visceral value of seeing what happens when you throw new stuff.

(*Half-Life 2*, Participant 1 observation)

I'm thinking I'll just stack all the barrels up in the middle, blow them up, see what happens. And if I go far enough I think there won't be too much danger to me. Could be fun, I'll see what happens.

(*Half-Life 2*, Participant 2 observation)

The "see what happens" mode of playing also applied to *Fable*, where the system of morality the game includes was experimented with, and the landscape itself was the subject of playful exploration:

Although, sometimes you'll just be in a mood where you're not that interested in the consequences of it and you'll just kill people to see what happens.

(*Fable*, Participant 1 interview)

Seeing more of the world, exploring is a big part for me. I mean, you know, if there's some wide area that doesn't have any direct story-line impact I'll have fun running around it, seeing what's there.

(*Fable*, Participant 5 interview)

The one case study in which PAIDIA was not observed was *Civilization III*, where participants were fixed on playing within the rules and conventions of the game. While one small facet of the game, the ability to design a “palace,” had an element of PAIDIA, it was generally dismissed by participants as unimportant: “Pretty cosmetic really, I don’t know. I just choose whatever really. It really doesn’t impact too much on the game” (*Civilization III*, Participant 1 observation).

The reasons for the absence of PAIDIA in our observations of *Civilization III* are not entirely clear. One possible explanation might be that, as a turn-based strategy game, there is not the same potential for impulsive and creative acts as there is in the other “real-time” case studies. Further, *Civilization III* does not obviously reward exploratory play and is focused on achievement and the development of conventions, bringing us to the complementary value of LUDUS.

4.2.2 LUDUS

The value of LUDUS involves a focus on conduct which follows rules and conventions. LUDUS was universally observed in our case studies, all of which included particular perspectives on what it meant to do “well” during play. One participant for *Half-Life 2* commented that this reliance on the idea of performance according to the game’s rules and conventions was important to him, and potentially a basic human value:

I'm not sure if I'm going to do well. I want to do well. I suppose you want to do well because it's best to do well, rather than not well.

(*Half-Life 2*, Participant 2 observation)

Participants for *Grand Theft Auto* and *The Sims 2* echoed this idea of LUDUS as a basic human value in response to the rules implied by the various meters present in the games:

This game and any game with bars in it. You really want to fill the bar... I don't know why that is. I think that's just an underlying part of human nature, to fill the bar.

(*Grand Theft Auto*, Participant 2 interview)

Maxing out is a key thing really. Filling up bars. It's very sort of B. F. Skinner and behaviourist. Very pigeon tapping at coloured lights. You can see that this is what's happening, and it is ... you're being given feedback and it's sort of positive and negative reinforcement.

(*The Sims 2*, Participant 1 interview)

LUDUS was reflected throughout play in the case study games. In *Civilization III*, for example, LUDUS was most obviously visible in participants' focus on conduct revolving around particular rules of play, such as managing their resources:

I like every square to be developed to its utmost. Once I've got railroad I hope to have enough workers to rush around busily making railroads out of everything. Each available resource square should be maximally developed.

(*Civilization III*, Participant 3 observation)

This often led to playing the game for far longer than intended, because the possibility of satisfying some particular element of LUDUS was ever-present:

You always just want to finish the next thing... but by the time you've finished that you're starting something else. "Okay, I'll just conquer this city and then I'll stop, promise!"

(*Civilization III*, Participant 5 interview)

Similarly, in both *Fable* and *Grand Theft Auto*, much of the play followed the conventions of the game, such as killing the denoted enemies and completing the missions assigned:

And besides, I want to kill him. Get more experience and get a chance to go up levels. Which is kind of the fun part of the game.

(*Fable*, Participant 2 observation)

I'm meant to do it because... it tells me to do it [Laughs].

(*Grand Theft Auto*, Participant 2 observation)

Even in *The Sims 2*, a game that could potentially be regarded as a *simulation*, and thus devoid of rigorous rules and conventions for play, LUDUS was a dominating factor. Elements such as “career paths” and “moods” led participants to engage in conduct aimed at satisfying the virtual social conventions of the Sims’ world:

Then you’d be... like you’ve accomplished something, in a sense. Especially when you’ve maxed out a career or something like that...

(*The Sims 2*, Participant 5 interview)

Dustin’s energy’s low, his social bar is low, his fun bar is low. What I’m wanting is to get those bars, all those bars, at max. I’d see that as a good achievement...

(*The Sims 2*, Participant 1 observation)

Overall, the value of LUDUS was visible in all of our case studies. Fundamentally, participants regarded it as desirable to pursue conduct according to the specified rules and conventions of the game largely because of their focus on *achievement* in that context. The case study games included a number of achievement-focused rules and conventions such as meters, quests, and points, all of which participants paid close attention to as they played.

4.2.3 PAIDIA and LUDUS as antagonistic

Given the definitions we have given for PAIDIA and LUDUS, it might be expected that they would frequently come into conflict during play. An orientation toward creative and exploratory play on the one hand, and on following rules and conventions on the other, appear to be contradictory. There was some support for this expectation in the data, although not as much as might be anticipated.

At the most basic level, playful conduct, such as flying a plane upside down in *Grand Theft Auto* (PAIDIA), is not acknowledged as an achievement within the conventions of the game (LUDUS). Similarly, in *The Sims 2*, constantly experimenting with killing off the Sims in creative ways (PAIDIA) will never lead to a successful, wealthy, happy family (LUDUS): “They’re trying to get you to create things, not destroy things” (*The Sims 2*, Participant 2 interview). In this way, a focus on conduct according to PAIDIA would seem to imply a neglect of LUDUS-driven conduct.

In addition, a focus on LUDUS can also conflict with PAIDIA. This is most obvious in those games where, having followed the conventions to their completion, the game itself *ends*. In *Half-Life 2*, for example, playing according to LUDUS throughout leads the player to the credits and the end of play, necessarily eliminating any PAIDIA-driven conduct and the chance to notice small details. Thus, in

Half-Life 2, focusing on progressing through the game can cause a player to miss out on some of the story of the game which requires a more playful mindset to notice:

There's actually quite a lot of plot points about what's happened in between the two games, the backstory, that's hidden away on boards. If you don't pay attention, you blink and you miss it.
(Half-Life 2, Participant 5 interview)

Similarly, a focus on LUDUS elements such as completing the quests in *Fable* was rejected by one participant because it would necessarily remove the chance for pursuing more playful aspects (PAIDIA):

I never actually finished the game because I got too distracted during the time I was trying to finish all the bits of the game... so I never got to the end of the game.
(Fable, Participant 3 interview)

In both these cases, PAIDIA and LUDUS effectively compete for *time*. The implication is that the two values cannot be pursued simultaneously. Even in a game such as *Grand Theft Auto*, where the game does not officially *end* after the major LUDUS components of play are completed, participants found the absence of conventions and rules meant they did not want to "play around" any more:

I think I wanted to be engaged in the game, I wanted to be engaged in the world that was there, but there was need to because, again, there was no bar to fill, there was nothing to construct. It had already been constructed.
(Grand Theft Auto, Participant 2 interview)

Similarly, in *The Sims 2* one participant was unable to progress through a Sim's entire life because he became bored by the repetitive, conventional conduct required:

I get bored, usually, after about half-way there, when they're about half-way there. I usually get bored and start a new one up. The routine, I guess. I'm not sure. The way they do everything is kind of predictable by now. When he has his day off he works out, he eats, he takes a shower, then he goes to the bathroom...
(The Sims 2, Participant 3 observation)

Finally, as we saw in our discussion above, *Civilization III* does not involve much in the way of PAIDIA. It is difficult to determine if there is an antagonism in the game between them, or if it is not a supported aspect of play. In generally, *Civilization III* does not obviously provide for experimental approaches to play as it is largely a game of understanding and then manipulating the underlying rules:

I do look at the attack and defence numbers [for units], and I know that there are factors that you apply for city walls and terrain... so I don't work out the probabilities, but I would estimate it.

(*Civilization III*, Participant 2 interview)

Even I am not so pedantic as to work out what [the formula for the effects of corruption] was likely to be, but I do take notice of factors that I know would influence it. I know people have worked out what the formula is. But that's a novelty really.

(*Civilization III*, Participant 2 interview)

In general, participants did not exhibit any strong conflict between their more playful conduct and their achievement driven conduct. Given the contradictory definitions of PAIDIA and LUDUS it is likely that players are adept at balancing the two during play, as is discussed in the following section.

4.2.4 PAIDIA and LUDUS in balance

PAIDIA and LUDUS were largely balanced with each other in our case studies, as exhibited by the lack of conflict experienced by the participants. There is further evidence in our data that the relationship goes beyond a simple co-existence, with the values interacting in positive ways.

An important example of this is how more playful, less-goal oriented conduct (PAIDIA) can serve as a break from the LUDUS-driven activities. Thus, in *Grand Theft Auto*, participants were able to escape from the "pressure" of working through the various missions in the game and instead go for a drive to the countryside or to change focus in some other way:

I wanted to get away from where I was because there was so much tension there almost, like there was tension in the city from all the cops, the missions... there was pressure on me to do something. Whereas, once I was... I felt like I was driving away from it all..

(*Grand Theft Auto*, Participant 2 interview)

If you blow out on a mission you're just left standing in the middle of somewhere. So you can just go start some rampage and just do something weird and go on a total tangent.

(*Grand Theft Auto*, Participant 3 interview)

Similarly, in *Fable*, one participant felt that the ability to *not* purely follow the conventions of the narrative quests was a part of being able to enjoy play:

It's hard to explain, because you are being led around by the nose to an extent. But it's kind of interesting just being able to wander off the edges every so often, and play with things, and explore around a bit.

(*Fable*, Participant 3 interview)

In this way, PAIDIA-focused conduct can facilitate later LUDUS-related conduct by allowing the player to relax for a time and recover their energy in order to face the rules and conventions of the game again.

Conversely, LUDUS-oriented conduct can directly aid in PAIDIA-oriented conduct when, for example, it unlocks features of the game not previously accessible. In *The Sims 2*, a player must pursue the achievement-oriented conduct of gaining skill points for their Sim in order to access new commands. Similarly, only by progressing their Sim's career can they obtain enough money to buy new objects and new interactive possibilities. These new objects, such as furniture, can lead to PAIDIA-driven conduct as the player explores the new possibilities they provide:

And once you've attended to those things you can start to train them, increase their skills so they can get a good job and get promoted, earn lots of money, so you can buy more stuff... It sort of perpetuates. I guess you get to interact with more things and uncover more of the game by that constant process of improvement.

(*The Sims 2*, Participant 1 interview)

As we can see in this quote, a particular cycle of play is indicated in which the participant pursued the value of LUDUS in order to support a value of PAIDIA. This is similar to one side-effect of building a character's strength in *Fable* (LUDUS) leading to the ability to kick chickens longer distances (PAIDIA):

One of the statistics in these is the furthest you've actually kicked a chicken... and as your strength builds you can kick them further.

(*Fable*, Participant 1 observation)

In *Grand Theft Auto*, certain playful accomplishments also require the “work” of LUDUS-oriented play. One of our participants explained how he would need to spend time following the rules for upgrading his avatar in order to perform an impressive stunt-jump off the edge of a mountain (PAIDIA):

So, if I wanted to, say, be able to ride a mountain bike as fast as I possibly could down Mount Chilead, and that became my mission... and I wanted to spend a week perfecting that. I'd have to go around and get my mountain bike skill up to the maximum possible level.

(*Grand Theft Auto*, Participant 5 observation)

Furthermore, PAIDIA-driven conduct can have side-effects which also satisfy a value of LUDUS in some games. In *Grand Theft Auto*, for example, the player is often rewarded for simply exploring the landscape by their avatar gaining improved abilities or finding unseen opportunities for achievement like hidden missions (LUDUS):

The other thing is, see how that bike skill thing came up? At these levels of the game it actually pays off to spend a lot of time just fucking around, not doing anything too specific, because you build up driving skill... and that helps you ... basically means you can stay on bikes or cars longer without crashing.

(*Grand Theft Auto*, Participant 3 observation)

And, also, I'm just driving around not doing missions because it means you get to see things like this, [*Sees the indicator for a special mission*] which are just the random events they put into the game... never been here before.

(*Grand Theft Auto*, Participant 5 observation)

Our data shows that PAIDIA and LUDUS are fundamental *values* of play in the case study games. Further, the values interact in a largely positive fashion, although there are certainly potential conflicts as well. PAIDIA and LUDUS shape all play and are visible in all aspects of it, making them central to our further discussion of the mediation of video game values.

4.3 Distinguishing play: Playing the interface

Based on the above discussion and on our qualitative data, we can now re-examine play as a form of human-computer interaction. In the course of our data analysis

we found four recurring themes of play which help to explain it as interaction. First, participants' motives for playing video games were focused on the interaction itself, rather than other objectives. Second, the interfaces of video games were not neutral in their presentation of possibilities for interaction. Third, the case study video games frequently dictated particular goals for players to pursue. Finally, play often involved conflict and mistakes as an accepted part of the interaction. In the following, we discuss each of these themes of play as interaction and use the perspective of value we have established so far to discuss them.

4.3.1 Motives for play

The first defining feature of play as a form of interaction was the motivation participants had for engaging in the interaction in the first place. Playing a video game was usually regarded as an *end in itself*, unlike most forms of interaction which are generally intended to achieve some external goal. The most common motives for play observed in our case studies emphasised the experience itself. Thus, in *The Sims 2*, a key motive for playing was to have a fantasy life:

I purely think the point is playing a life that's not your own. I mean, that's why people watch movies. Everybody wonders what it would be like to be someone else, and in this game you can be whoever you want and do whatever you want.

(*The Sims 2*, Participant 5 interview)

Related to this kind of motive was the desire of participants to focus on the video game itself, independent of any successes or failures during play. More than one participant noted that they played *Half-Life 2* partially because they were interested in the game's graphics and physics programming:

My goal is kind of to see cool stuff. Things that are interesting, physics puzzles were one of the things I found quite interesting in this.

(*Half-Life 2*, Participant 4 interview)

Water! I love the water in *Half-Life*. Look how good it is. It's really just nice. They've obviously put a lot of effort into this game. Even though it's a few years old.

(*Half-Life 2*, Participant 2 observation)

While this perspective relates more to aesthetic appreciation, participants playing *Civilization III* showed a desire to understand the *rules* and basic operation of the game. Gaining knowledge about the software was regarded as the pinnacle of achievement:

There's a function behind it, there's a mathematical function behind what sort of land it is, is it cleared, is it forest, is there a mine, is there a road, is it irrigated. And they have an outcome in terms of how much food and shields and gold that has ... there's an if-then chain ... what happens if I do this. There could be a bit of a domino effect going on... you could test things as you go along.

(*Civilization III*, Participant 4 interview)

Another element of the motivations we observed was that participants talked about continuing play even *after* they had “completed” the game. They discussed continuing to explore the game world even after the official task was over. One participant playing *Grand Theft Auto* found himself drawn to playing the game even during our interview session:

There's no point in me sitting here and playing it... it's like, Hey I've clocked this game. [But he continues to play even during our interview]
 (*Grand Theft Auto*, Participant 5 interview)

Similarly, a focus of participants’ motives in playing video games, such as *Fable*, was an *affective* one. Most commonly, the participants sought to be *excited* by their interaction:

I'm going to head back and check out what other quests they've got. Hopefully they've got something with a little bit more excitement rather than puzzling in it at the moment. That's kind of what I'm in the mood for at the moment...

(*Fable*, Participant 2 observation)

Finally, another motive observed was the notion of “killing time” with a video game. This was especially true when the game was used as a pleasant diversion in which little thought was required:

I enjoy playing it, it's a brilliant time-waster, that's one of the reasons I'm not going to remove it from my computer.
 (*Grand Theft Auto*, Participant 1 interview)

Like I said about why I play *Civilization*. A lot of the time I play *Civilization* is about switching off, doing something quite routine. And the challenge is trying to fit that routine into how the game presents itself. If the game presents itself so far outside of matching that routine then it stops being the mindless sort of entertainment that I often play *Civilization* for.

(*Civilization III*, Participant 3 interview)

In all of these cases we can see that the interaction with a video game is primarily an *end in itself*: players play video games to be playing video games. The core value of PAIDIA is plainly evident here, in the pleasure of interaction for its own sake. Video game interaction, then, is characterised by generally being engaged in for no purpose other than the interaction itself.

4.3.2 Non-neutrality of interface

In our observations, we saw that the interface constantly evaluated a player's interactions. The idea of being judged by the game itself is frequently a part of what makes a video game a *game* specifically.

In *Civilization III*, for example, a dialogue box ranking civilisations in the world according to measures such as "size" and "power" regularly appears during play:

I always get a bit disheartened when I end up down the bottom of lists like Largest Civilization. Technology and size are ones that I value.
(Civilization III, Participant 3 observation)

In *Fable*, a related part of play centres on "morality points" which denote how good or evil the player has been during their play. The interface judges a player's actions as morally good or bad, although it did not explicitly discourage or encourage specific conduct for our participants:

There is a morality thing in the game, the more mean things you do to people, whether it be steal from them or fart at them... or even kill them... you score negative points.
(Fable, Participant 1 observation)

Moving on from the concept of scoring points, part of the play of *Grand Theft Auto* includes the accumulation of signs of material wealth and social standing. The game indicates to the player, using real-world parallels, the desirability of money and power. An additional powerful incentive was the ability to *do* more with the game on achieving such wealth:

[“Do you care about money and respect?”] Yeah, because with respect you can carry around more people with you. And with money you can buy stuff. ... weapons, clothes... you can do stuff to your car...
(Grand Theft Auto, Participant 4 observation)

Half-Life 2 includes a simple evaluation of performance:

One of the not so subtle signs [that you are doing well] is that you haven't died yet. [Laughs]
(Half-Life 2, Participant 5 interview)

Finally, in *The Sims 2*, there are many quantifications of doing "well," including a series of meters which indicates how "good" the Sims' lives are:

[Doing well means] you feel good, you have good friends, a good relationship, got a good job... everything kind of is Green, which is what means "good" in Sims. Then you'd be... like you've accomplished something, in a sense.

(The Sims 2, Participant 5 interview)

The element of evaluation found in video games ties closely with our earlier discussion of LUDUS as a core video game value (§4.2.2). Video games include explicit sets of rules and conventions which players are encouraged to conform to. Conduct according to the rules is frequently *rewarded* in some way, such as by being told a "happy ending" to the narrative or gaining a new ability in play. Video game interaction can be partly characterised by the non-neutrality of the interface, which constantly evaluates and judges player conduct.

4.3.3 Goal origin

Video games often explicitly *define* a player's goals and tasks. As we have observed, there is often a powerful sense of what the player is "meant to do" during play promoted by the interface and interpreted by the player.

In *Civilization III*, for example, the player is supposed to take over the world:

[It's] an Empire Building game, I guess. Where you take a unit and build an empire out of it. Through any means necessary. You're simulating being the Emperor of a particular country of civilization.
(Civilization III, Participant 1 interview)

The path toward this world domination is quite specific and comes only in certain forms with precisely defined goals:

It's all about achieving a big goal, but there are lots of little goals, like actually taking over that city, or achieving that cultural or technological advance.

(Civilization III, Participant 4 interview)

The same concept of being *assigned* goals or tasks by video games occurred in all our case studies. In *Grand Theft Auto* and *Fable*, for example, participants frequently had goals *explicitly* dictated to them in the form of “missions” or “quests”:

Basically, the way that the missions are structured is this linear kind of thing that you have to complete some manual task in the game world using the controls that you have available to you.

(*Grand Theft Auto*, Participant 3 interview)

[“How do you know what to do?”] You just show up, basically, and go where the little pulsing thing on the map tells you to go. And these guys are going to tell me what to do now, I guess.

(*Fable*, Participant 4 observation)

In *Half-Life 2*, many of the goals and tasks are indicated in the *narrative* of the game, including the stories told by various characters and the appearance and events of the game world. A clear example of this concerns the zombies in a particular chapter, where players are encouraged to kill them for a number of reasons, such as their appearance, behaviour, and the attitudes of other characters:

[“Are you supposed to kill zombies?”] The implication is fairly heavily yes. The fact that you’re seeing lots of bodies around the place ... you can’t reason with them at all ... I mean, it’s obvious that Father Gregori isn’t trying to save his flock, he’s just bumping his flock off.

(*Half-Life 2*, Participant 5 interview)

An effect of the meters measuring Sims’ lives we discussed in connection with *The Sims 2* is the development of goals related to them. Participants discussed a feeling of being compelled to *raise* the meters:

[“What are you supposed to do?”] Attend to their needs. Max out their bars. You have little bars for each of their needs, their eight needs. And your goal is to, first of all, max out those bars, and make sure that their level of comfort, that they’re at a good level of comfort, of hygiene, by reminding them to go to the toilet, have a shower, have a sleep, to eat.

(*The Sims 2*, Participant 1 interview)

While participants frequently chose their own goals and conduct, even this took place within the possibilities defined by the game. Both PAIDIA and LUDUS are involved in this feature of play, with PAIDIA leading players to enjoy the interactions made available by the interface for their own sake, while LUDUS sets out particular goals as a part of the system of rules and conventions.

4.3.4 Conflict in play

A final feature of video game interaction visible in our studies was the constant presence of *conflict* during play. In the games plays are intentionally obstructed by the design of the software in the form of complex navigation tasks, difficult problem solving, and the inevitable men with guns.

In *Civilization III*, for example, play includes situations of conflict in which the player must constantly deal with opposing civilisations. As one participant pointed out, the other civilisations always obstruct important goals, such as building a civilisation:

Your opponents could make exploitative treaties with you, or actually run all over you with their armies... or do exactly what you need to do, in terms of having enough cities so that you own a certain proportion of the map.

(*Civilization III*, Participant 4 interview)

The conflict in *Half-Life 2* is even more blunt, with the Combine soldiers and other enemies attempting to kill the player whenever he or she is in sight. Even in ostensibly “safe” situations, the participants in our studies were on edge, waiting for the next conflict to arise:

And I’m shooting because I don’t trust seemingly dead enemies. Because more often they’re not. There’s always someone waiting to just rise up and kill you.

(*Half-Life 2*, Participant 1 observation)

Even when the conflicts were not especially challenging, they can hinder the player’s traversal of a particular space, for example. In *Fable*, one participant was unimpressed by an enemy as it appeared in front of him, but was still forced to deal with the conflict in the usual way:

They’ve thrown in this guy as an obstacle on the mission. Guys like this in most games tend to be quite annoying until you work out the specific ways you can get them without actually getting hurt yourself.
 (*Fable*, Participant 1 observation)

Can get quite infuriating. I gave myself a healing potion because I was about to get pounded to... he was about to kill me.
 (*Fable*, Participant 1 observation)

Similarly, in *Grand Theft Auto*, it is normal to be in conflict with some enemy, whether it is the police or an opposing gang member. The inevitability of fighting and being pursued by enemies was viewed by most participants as par for the course during play:

It's pretty much whoever you get told to kill, and you've got to take something from them, effectively. Because they've got something that you want, and you kill them to get it. You don't really get the choice, do you ... it just ends up in shooting anyway.

(*Grand Theft Auto*, Participant 4 interview)

Finally, *The Sims 2*, which does not present the same forms of physical conflict found in the other case studies still includes conflict as a constant part of play. In this case, the conflict concerns the player's ability to manage the Sims' relationships, careers, and basic needs. Players can be driven to distraction as they become overwhelmed by the constant barrage of problems. Discussing the stress associated with looking after a baby, one participant discussed potential ways out:

Although, I can just call a service and ask somebody to adopt him... if it's too stressful I'll do that. Or somebody can just take the baby away if you ignore it. That could be a bad thing.

(*The Sims 2*, Participant 4 interview)

All of our case study games fundamentally involved conflicts of different kinds. Much of a player's interaction is necessarily directed toward responding to gunshots, pushy civilisations, and crying children. This emphasis on conflict and its resolution as a basic aspect of the interaction with video game software was another strong theme of play.

4.4 Summary

In this chapter we have made our first key contribution to video game HCI by introducing *video game values* as a means to describe and analyse play as a form of human-computer interaction. We further showed how PAIDIA and LUDUS are core video game values which affect all aspects of play. We first introduced video game values, defining them as sustained beliefs about preferable conduct during play (§4.1). We used the concept as a means to highlight what we regard as the central feature of interaction in video game play: the mediation of players' beliefs about preferable conduct through the interface. Following this, we defined two fundamental values of play, PAIDIA and LUDUS (§4.2). We discussed their

relevance to explaining conduct in our case studies and examined their relationship to one another, confirming their place as basic video game values. Finally, we examined our case study data in order to re-evaluate what makes play a unique form of interaction, identifying four central themes: play as an end in itself, the non-neutrality of video game interfaces, the origin of goals during play, and the constant presence of conflict (§4.3).

One element we have not explicitly discussed is the role of “social” values in play, including a player’s context and social values. Literature reviewed in the background chapter, such as Yee’s “social” motivation category and the prevalence of social values in Schwartz’ categories (e.g. conformity, tradition, and benevolence), suggests this is a strong candidate for a third fundamental value in play along with PAIDIA and LUDUS. While, as we have stated, some social elements of play were observed, we have limited the scope of this dissertation to *single*-player video games in order to avoid the potentially extensive discussion required to include an interpersonal focus. We do, however, pay close attention to players’ real world social context and its relationship to their play.

A final point for discussion concerns the role of specific values in our research. As we have stated, our focus is explicitly on the *conduct* of players during play, and the role the interface has in influencing it. While individual video game values, such as AGGRESSION or HAPPINESS, can be supported by the evidence, we are most interested in examining how beliefs about preferable conduct are promoted and expressed during video game play, and how this is mediated by the interface.

In order to discuss the influence of video game values on play, we now turn our focus to the description and analysis of that interaction. In the following chapters we take up issues identified in this chapter with regard to the study of play as a form of human-computer interaction. Over the course of these chapters we produce a video game activity framework for understanding video game play, and use it to describe and analyse the relationship of player to interface with regard to preferable conduct during play.

Chapter 5

A Video Game Activity Framework: The Shape of Play

Mario and Vincent have been playing *Grand Theft Auto* for a week and have made considerable progress, reaching a new city called San Fierro. They load the game start the “Jizzy” mission on the water-front of the city for the third time. Vincent completes the first parts of the mission easily, but the next part, killing a debauched preacher who flees in a limousine, is the difficult bit. Yet again, Vincent crashes his car while trying to shoot the limousine in a “drive-by”: Mission Failed. Mario complains about how action-adventure genre games always seem to have a mission which is too hard.

Mario suggests they use a walkthrough and looks one up on GameFAQs.com while Vincent completes the first parts of the mission again. Mario reads that simply following the limousine closely is enough, because it eventually has an accident and flips over by itself. Vincent tries this, driving carefully, and it works: Mission Passed!

Mario’s mother comes into the living room and shocked as Vincent runs over a pedestrian accidentally. Mario and Vincent laugh and Vincent directs the avatar to beat up another pedestrian, stamping on the corpse as blood seeps across the pavement. This makes Mario feel uneasy in front of his horrified mother, and he asks Vincent to stop.

As we can see in the example of Vincent and Mario, play occurs both in the real world in which a player sits in front of a TV or computer, and also “inside” the game world. Further, as is suggested by Mario’s describing the game as “action-adventure,” we can see that the genre of a game also shapes expectations. The contexts of play influence how it is experienced and carried out, whether it is a

horrified mother in the doorway or the structure of a mission. Video game play is not a single, monolithic form of conduct which can be understood all at once.

In this chapter we introduce our second key contribution to video game HCI, presenting a *video game activity framework* for describing and analysing video game play at multiple levels of detail and context. Our focus is on understanding the relationship between a player and a video game in terms of video game values: players' beliefs about preferable conduct during play. During our case studies, we observed that play was composed a number of distinct levels of context. Through analysis of the data we were able to determine a *framework* of activities which describe the shape of play. In this chapter we focus on how two of the primary contexts of play, the real world and the game genre, influence players' beliefs about preferable conduct during play.

In the following section, we discuss our creation of the overall video game activity framework (§5.1). Following this, we address the first two levels of the framework, the real world activity of *video gaming* (§5.2) and the *generic* activities (§5.3). Finally, we summarise and point toward the following chapter (§5.4).

5.1 A video game activity framework: The shape of play

In examining our data, we identified four major levels of activity at which play could be analysed. We present these levels as our video game activity framework, including our analysis of the prominence of PAIDIA and LUDUS in the previous chapter (§4.2). Figure 5.1 presents the video game activity framework diagrammatically, and we discuss each level in turn here.

PAIDIA and LUDUS As we have already discussed in detail, PAIDIA and LUDUS are the basic video game values (§4.2). We represent them in our framework as overarching values which impact on all other activities involved in play. As we have seen, PAIDIA motivates conduct "for its own sake," while LUDUS concerns conduct which proceeds "according to the rules." Throughout the framework we pay attention to the influence PAIDIA and LUDUS have on all video game play activities.

The video gaming activity If we were to ask Vincent or Mario what they were doing, one of the answers they might give us is "playing *Grand Theft Auto*." This gives us the sense that they are doing something in the real world, as indeed they are: they are pressing buttons, looking at a screen, talking with each other, looking up guides, and so on. We call this the *video gaming activity*,

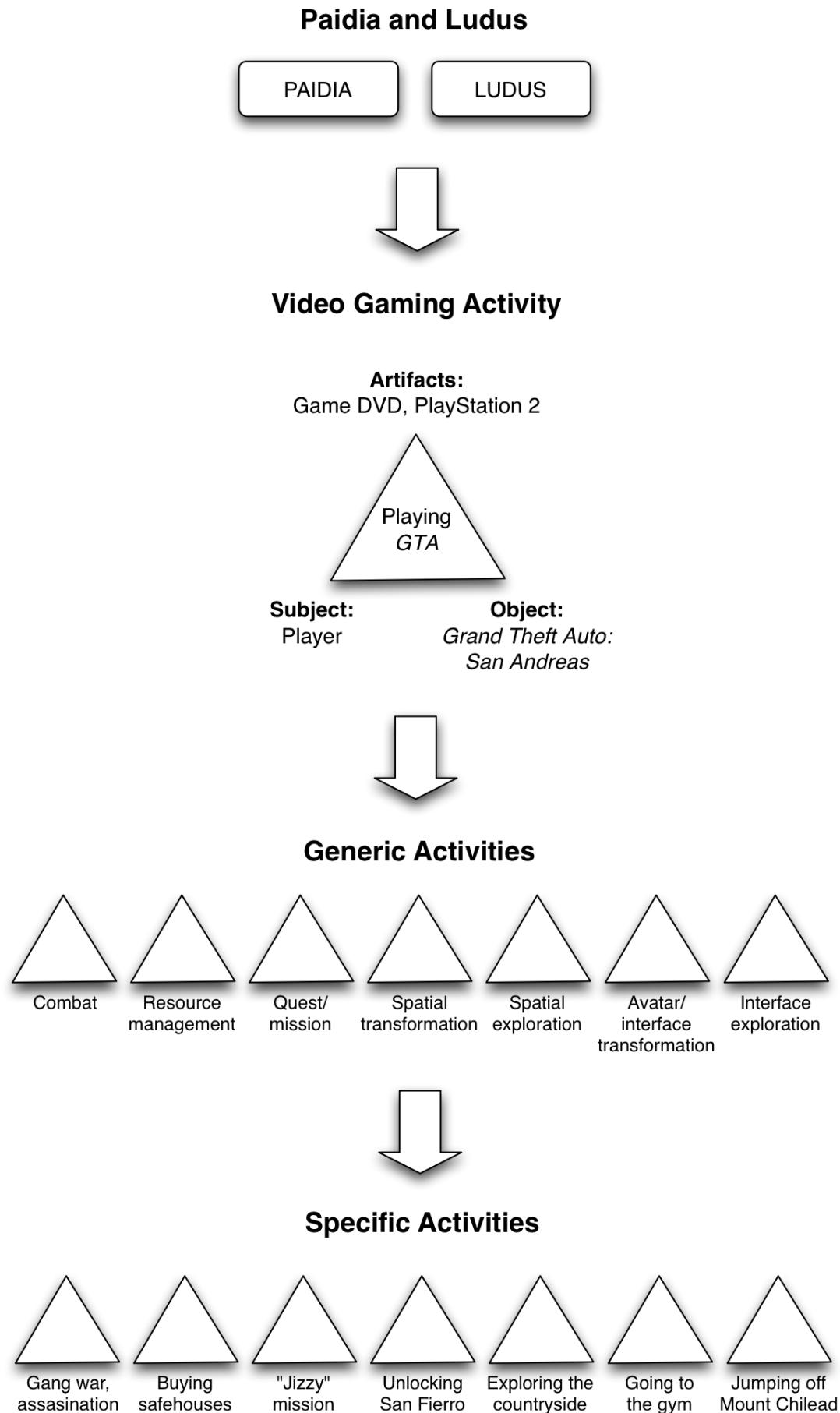


Figure 5.1: The video game activity framework applied to playing *Grand Theft Auto: San Andreas*

a real world activity in a physical and social context. With respect to video game values, the video gaming activity is significant because it allows us to see the impact of real world context on a player's beliefs about preferable conduct during play. The video gaming activity is discussed in section 5.2.

Generic activities Another answer Vincent or Mario might give to the question of what they were doing as they pursued the preacher in the limousine is "doing a mission." This gives us another clue as to how players think about their activity in play. In our data, we observed players discussing their play in a way that was not specific to the game at hand, but instead concerned *generic activities* related to the idea of genre in games (§2.3). Generic activities can be thought of independently from representation. This perspective allows us to consider video games at a more abstract level than the specifics of their command systems, aesthetics, narratives, and so on. The generic activities are relevant to video game values because they allow us to discuss standard ways in which video games mediate players' beliefs about preferable conduct. Generic activities are discussed in depth in section 5.3.

Specific activities The natural complement to generic activities are *specific activities*, where we take into account the specific representations and implementation of a game. This allows us to view a game as representing a world *inside* which specific activities take place. Thus, another answer Vincent or Mario could give to our question is that they are "chasing a preacher and trying to kill him for Jizzy." This was the most common perspective taken by players in our case studies, in which they talked as if they "existed" in the game world itself. Specific activities are discussed in depth in chapter 6.

In the following two sections we address the *video gaming* activity and *generic* activities. These aspects of our video game activity framework help us to understand the context in which a player acts as they play, both in terms of their real world environment and their understanding of video game genres and traditions. In the next chapter we address the final aspect of the framework, turning to the *specific* activities as they are represented on a screen with more attention to how conduct was executed and shaped in the different case studies.

5.2 Video gaming: Sitting around playing video games

Part of our example of Vincent and Mario at the beginning of this chapter concerned their presence in the *real world*. They were sitting in a room, talking with

Video Gaming Activity

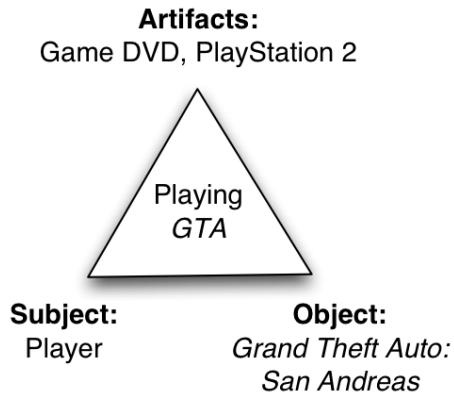


Figure 5.2: The video gaming activity for *Grand Theft Auto*

each other about the game, and so on. Although video games are software and non-physical (apart from storage media), the experience of play includes a real world context. This context can affect a player's beliefs about preferable conduct during play. In the following subsections, we discuss the *video gaming activity* which takes place in the real world (figure 5.2).

5.2.1 Subject

The Subject of the video gaming activity is a player. This player has a physical context in which they play. They may be sitting in their bedroom or playing on the sofa at a friend's house. It might be late at night or early in the afternoon, at a particular time of year, and so on. The physical context has a decided impact on play, as we observed relative to our case study participants who felt disrupted by the experimental setting:

Feels weird playing video games without a bottle of coke and some salt and vinegar chips around...
(*Fable*, Participant 1 observation)

It's probably harder to get too scared in this environment where you're being tested, but if you had the lights off, and not talking to you, and if you had sounds.
(*Half-Life 2*, Participant 1 observation)

In non-experimental conditions, play frequently occurs alongside other players. Even while playing a single-player game, there may well be friends watching and even participating in the play. Other players often serve as a primary source for a

player's understanding of the preferable conduct in a game. In talking to other players and receiving their feedback on play, players learn what they should and should not do:

I'd say "look, I'm in this position in the game, and this is happening, and I can't seem to do this." I might post in a forum or something and ask the question, because generally people will know.
(*Civilization III*, Participant 1 interview)

I think the first time I played it was actually over an Easter Weekend where there were four or five of us in a room. And a lot of it was me asking the people I was playing with how to play it.

(*Civilization III*, Participant 4 interview)

I watched other people playing it, and kind of watched how they played and got ideas from them.

(*Fable*, Participant 4 interview)

Further to this, it is not uncommon for *multiple* players to play a single-player game together. In this situation, one player controls the action while the other player or players offer feedback and suggestions for conduct:

Yeah, at the time my flatmate was fully into [*Fable*] as well. So he'd sit down and watch with me. Offer you advice and stuff to do and... sort of follow the story through as well.

(*Fable*, Participant 1 interview)

I didn't actually buy it, I played it at a friend's house first and he told me to "make him do this, make him do that" and I wasn't really sure what he was trying to do. So I bought the game myself.

(*The Sims 2*, Participant 3 interview)

Even when not playing the game, play is often discussed. In this case the game provides a social context for two people, who may not even know each other, to interact and discuss it. These discussions may lead to learning about new possibilities for interaction, or even issuing a challenge between players:

We would compare game scenarios. Like whether or not we're winning our battles, or whether we've tried playing in a certain way and won or lost.

(*Civilization III*, Participant 2 interview)

I think it's a way of swapping notes on different gaming experiences or news of different games available or ways to play the same game. Also it's... swapping details about we didn't know about the game, like the whole marriage thing.

(*Fable*, Participant 1 interview)

But you can have conversations about enjoyable things you've done in this game with other people that you've never met before. ... I had a conversation with a guy who was in one of my Physics lectures ...

And he's like, "Oh yeah, man, I can get killing sprees going on for like half an hour, forty-five minutes."

And I'm like, "I once had one going for an hour twenty, I was shooting down helicopters."

And he's like, "Oh man, that's a nice score."

(*Grand Theft Auto*, Participant 5 interview)

Outside the context of play, a player also has a real world social context that influences their video gaming activity. Relationships with other people, such as significant others or parents, can have a strong effect on the time spent playing or the effects of play on a player:

My girlfriend's quite ... when I had the whole *World of Warcraft* stage and kept playing that all the time, it was quite ... not good for the relationship ... She doesn't believe spending time with her sleeping in bed and me playing on the computer in the same room is spending time with her...

(*Grand Theft Auto*, Participant 1 observation)

I like to play my games quite loud at home, and if there's guys saying "Fuck you, motherfucking nigger" then my mum will be like: "What?!" She kind of walks into my room and says, "Are you playing this game again?" Thinks I'm going to turn into a murdering psycho.

(*Grand Theft Auto*, Participant 4 interview)

Players also have other commitments which encroach upon their play, from hobbies to schoolwork. Two participants identified the demands of school or academic work as a limiting factor:

[“What would mean play had been unsuccessful?”] I would have realised that I could have spent the time doing something more useful. Like writing a thesis.

(*Fable*, Participant 3 interview)

School's started so I can only play in the weekends. Because otherwise I'll have been playing for two hours and realise I haven't done any homework. You don't realise how much time you've been on it.

(*The Sims 2*, Participant 2 interview)

The Subject of the video gaming activity is a real person, in a real physical and social context and this must be taken into account when considering their play. As we have seen, a player's physical and social context has a substantial influence on their beliefs about preferable conduct during play.

5.2.2 Object

The Object of an activity is that which is *transformed* by the activity (§2.4). In the real world context, the player is transforming the *state* of the video game, indicating that the Object is the video game itself. The Object of the activity is made possible by the mediating Artifacts such as the game DVD and hardware, but it is not itself any of those things.

There was evidence that participants thought of the game as an Object in this sense, discussing it in terms of transformation toward its "finished" state followed by removing it from their computer, for example:

Getting closer to finishing the game. Really just getting ... clocking it to a point where you can just delete it from your hard-drive and start with another game.

(*Grand Theft Auto*, Participant 1 interview)

Several participants made it clear that in the real world context the Object of their play was the video game itself, meaning software designed by people in the real world:

That's a limitation of the game, you can't just make a free-roaming world where you can go anywhere on the planet. That's just unfeasible.

It's a technical issue rather than a design issue...

(*Half-Life 2*, Participant 3 interview)

It's very disappointing... *Civilization*... it should run on a 386... any of them can run on a 386... *Civ IV* is ridiculous, they added so much.

Little birds flying... who cares? I don't care at all about the graphics.

(*Civilization III*, Participant 5 interview)

Rendering engine is shit. I don't know whether that's a limitation of the PlayStation 2 architecture or not. It's below the standard of most modern games.

(*Grand Theft Auto*, Participant 3 interview)

The Object of the video gaming activity is a video game which is transformed by the player in the course of their play. The positioning of the video game itself as an Object of play helps in maintaining a focus on the importance of the *interface* in mediating the more detailed activities of play in our framework.

5.2.3 Motive

The *Motive* of an activity stems from and is integral to its Object. Further, as we have discussed, because the Motive of an activity is the *reason* for its existence, Motives are closely related to *values* (§2.4.2). Motives can be thought of as the reason for the activity, while values determine the kinds of preferable conduct for carrying out the activity. In addition, values can provide motivation themselves. This occurs when a player engages in particular activities in order to satisfy one or more of their video game values. Here, we discuss the relationship between the observed Motives of play and the core video game values of PAIDIA and LUDUS.

We have already discussed the key Motives observed in the playing of our case study games (§4.3). Of further interest here is the impact which the real world context of play has on player Motives and values.

The experimental setting required in our case studies had a substantial effect on how participants regarded their play. Some participants felt that their conduct was *less important* than it would have been if they had been playing at home this diminished some players' attention to the rules and conventions of the game. This, in turn, suggests that the impact of LUDUS was reduced:

I guess because I've come into this game in an environment which isn't my living room I don't have... I don't sort of care as much as I would about doing the right thing or completing a mission.

(*Grand Theft Auto*, Participant 2 observation)

To be perfectly honest, I'd probably pay a little bit more attention to it if I were in a different environment, but that's just the way it is at the moment. ... ["A different environment?"] Just if I was at my own computer sort of thing. ["What's the difference?"] I think probably you'd pay more attention to things.

(*Civilization III*, Participant 1 observation)

Conversely, other participants felt that the experimental setting placed *more* pressure on them to perform well. At times they viewed the process more as a *test* than play. In this situation, the value of LUDUS was strengthened by the presence of an observer who might critique their performance according to the rules:

You've got quite a bit of money [Referring to the amount of money I had obtained in the saved game he was playing from] ... have you been playing this, have you? See, probably people like yourself watching people like me play, it's probably a bit frustrating because...

(*Grand Theft Auto*, Participant 1 observation)

[Gets attacked by a headcrab] Aaah... no... ah. Not really showing my aptitude here.

(*Half-Life 2*, Participant 4 observation)

While we had expected to see a balance between PAIDIA and LUDUS at the video gaming level indicated in participants' discussions of their play, we in fact observed more of LUDUS. The one exception to this was when real world time limits came into play, leading participants to be more likely to just "play around" (PAIDIA) rather than focus on specific, rule-bound activity:

[Some people] spending ages dressing themselves up and stuff. ["Do you?"] Not really. If you're playing it for a few hours, you can waste a bit of time doing that, but if you just want to jump on and have fun it's a kind of secondary objective.

(*Grand Theft Auto*, Participant 3 observation)

In general, however, it was the value of LUDUS that was most prominently expressed when participants talked about why they played a game. One facet was the idea that competence or expertise could be developed and demonstrated in play. Thus, a game can serve as a testing-ground in which to perform (LUDUS). While this is unsurprising in connection with multi-player games, even in single-player games participants found their competence a motivating factor in almost all case studies:

Because I guess, ultimately, games are about proving how good you as a player are at playing. Or that's one of the things I imagine we get a kick out of, anyway.

(*Fable*, Participant 5 interview)

Because there's a bit of a nasty battle up here, I'm not sure if I'm going to do well. I want to do well. I suppose you want to do well because it's best to do well, rather than not well.

(*Half-Life 2*, Participant 2 observation)

But, probably what I like most about it is working out the patterns and the likelihoods and making the most of them and using them to my advantage. When I can predict what the AI is going to do then I can outwit them, because I understand the game.

(*Civilization III*, Participant 1 interview)

And generally the point of the game is to clock it... to get all the values as high as possible until they turn over and the game breaks. Came from the old spacies machine where you literally just clocked them.

(*Grand Theft Auto*, Participant 5 interview)

As stated in the final quote above, the desire to *complete* the game was an important motive for many participants (LUDUS). Most games have some form of end-point, such as conquering the world in *Civilization III* or reaching old age (and death) in *The Sims 2*, and reaching this point was sometimes seen as the key motive in play, even at the expense of fun:

I think how I play is more fast, get it over and done with. That's more the style I play in other games, because I don't want to sit around... I just want to get it over and done with.

(*The Sims 2*, Participant 3 interview)

I still did them, because I'd played this game for so many hours, I wanted to see what happened. But I didn't really like it by the end, I was just sort of playing it to win it, and then I could be done with Fable. I felt like I had to finish it.

(*Fable*, Participant 4 interview)

This desire to finish or to achieve results in a game often affected the participants' real lives, particularly because of the amount of time required. For example, the overwhelming value of LUDUS associated with particular games led participants to play on late into the night, for example, in order to continue accomplishing the goals set by the game:

In the end you still want to play a bit more. That's why you suddenly end up at three o'clock at night playing a game, because you just want a bit more of the story, or just to see what's around the next corner.

(*Half-Life 2*, Participant 1 interview)

I can waste seven hours on the game and not realise that it's gone by.

And it's ... so addictive in terms of "one more turn, one more turn."

(*Civilization III*, Participant 1 interview)

Finally, players are likely to differ from one another according to their personal emphases on PAIDIA or LUDUS. Although our case study participants spent the most time speaking of LUDUS-related motivations, there was some acknowledgement that other modes of conduct were possible:

Some people will play a game, finish it, and not play it again. Whereas some people will spend hours and hours playing with a game like this and not worrying about finishing it.

(*Grand Theft Auto*, Participant 3 interview)

While our studies were not demographically balanced, we can hypothesise, based on other research, that there may be gender or ages biases concerning PAIDIA and LUDUS. While it is tempting to suggest that male players are more oriented to LUDUS and female players more oriented to PAIDIA, we found no evidence of this in our data. Further, the *genres* of the games being played might well be relevant to which fundamental value was regarded as most important. *Grand Theft Auto* emphasises playful elements far more than *Civilization III*, for instance.

5.2.4 Artifacts

The central Artifacts of the video gaming activity are the software or, at least, a physical medium with the software imprinted on it, and hardware such as a PlayStation 2, which interprets the software and displays the results on a screen. The mediation performed by these artifacts is fundamental: they make the video gaming activity possible. At this level, problems such as a scratched DVD, or a broken television will, of course, have significant effects on play.

Furthermore, other games can serve as mediating artifacts for a player's experience of play. They may compete for attention: "I enjoy playing it ... but there are other games that I'm playing at the moment" (*Grand Theft Auto*, Participant 1 interview). They may also provide expectations for how to play the current game: "And a lot of the games [in the series] are very similar ... a lot of the keyboard commands have been the same all the way through. So it's quite easy" (*Civilization III*, Participant 1 interview). Games which form part of a *series* were seen as related to previous editions in terms of their graphics, narratives, and the preferable conduct:

They've released three versions on roughly the same game engine. And I think I get sick of... there's sort of no need to play it. Games come and go and to have one style of... they're pretty similar.

(*Grand Theft Auto*, Participant 2 interview)

Oh, there we go, there's a secret over there. This is ... you sort of notice them as you're buzzing around, it's the half-life symbol. It's from the first game pretty much.

(*Half-Life 2*, Participant 3 observation)

I've been playing *Sims 1* and then I moved to *Sims 2*... they introduced this new Sort By Room thing. Since I've been playing *Sims 1* it's usually easier to use Sort By Function because that's how it was in *Sims 1*.

(*The Sims 2*, Participant 3 observation)

The presence of an online community of other players who create documents to assist or change the experience of play is also directly relevant. The walkthrough or FAQ is the quintessential example. Compiled by expert players, walkthroughs and FAQs detail exactly how to perform the various tasks set out in a game and support a player's value of LUDUS:

Follow the yellow dot back to the hotel downtown and park on the red marker to start a cut-scene. A preacher and his protection arrive outside the hotel and pick up Jizzy's girl. You need to take them both out and get the girl back to Jizzy. Follow the two cars and use your Tec-9 you got earlier to perform drive-bys on the two cars. Take the protection out first to make it easier to get to the limo. When the protection car catches fire, move out of the way and let it explode, and then start shooting at the limo.

(*Grand Theft Auto*, walkthrough by Robert Carr [56])

Grab all the items (lots of gold) in the tent. Then, to actually complete the quest, and obtain your massive amount of renown, experience, and gold, head back out to the previous area. Then, once you have obtained your goods, you should teleport back to the Hero's Guild, where you must meet up with Maze.

(*Fable*, walkthrough by Androgynous [56])

These forms of Artifact influence players' beliefs about preferable conduct very straightforwardly: they tell them exactly what to do according to the rules of the game. Other documents focus more on *how* to strategically play a game,

rather than specifically what to do, mediating the player's ability to execute preferable conduct. Again, such strategies connect strongly with LUDUS and are especially relevant to more open-ended games such as *Civilization III*, where there are numerous ways to win:

The goal is to rush to a cultural victory. I thought about doing this and I realized that the amount of culture you make per turn, which is critical, is really bounded only by the number of cities you have. ... So if you've got a typical empire of 20-30 cities, you're stuck at a max of maybe 300-400 culture per turn. In order to get to 100k culture, it'll take you at least 250 turns.

(*Civilization III*, strategy guide by Clutch-3 [55])

The key to maintaining relationships in *The Sims 2* is with parties. Hold a party every time you have a day off. It does not matter how well the party goes, it provides the best opportunity and keeps the relationship score up. Plus in many cases it will help fulfil your Sims wants. I recommend that you invite only 2 Sims to each party. This allows you to control better all interactions that take place.

(*The Sims 2*, strategy guide by James "OPM" Smith, [56])

On the other hand, there are specialist documents, such as those concerning secrets and subversions of games, which point more toward the value of PAIDIA. These documents inform players of creative options within the rules of the game which do not necessarily involve *following* the rules:

Just like in the other GTAs, shooting the moon with a sniper rifle will make it get larger and larger, until it starts over at a smaller size again.
(Grand Theft Auto, secrets FAQ by The Duff Man, [56])

This is my little guide for an interesting new way of playing *Half Life 2* that I thought up one day. I've always been a fan of the gravity gun, and amazed by the way Valve implemented the Physics engine into *Half Life 2*. ... I went from Ravenholm, using the Gravity Gun only.

(Half-Life 2, "Gravity Gun Challenge Guide" by bumcheekcity, [56])

Most participants acknowledged seeking some kind of assistance if they got completely stuck:

I'd also possibly grab... not necessarily a walkthrough, but help. If a mission were being sufficiently difficult or annoying that it was basically frustrating me.

(Grand Theft Auto, Participant 5 interview)

It depends on whether something makes sense to me or not. one or two games I'll go and look for a walkthrough because the game design logic just doesn't make sense to me.

(*Half-Life 2*, Participant 5 interview)

Others participants used guides more casually as a means to accelerate their knowledge about the most interesting elements of play. An example is checking out the best jobs in *The Sims 2* ahead of time:

So instead of having to go through the newspaper every day for about two weeks to find out what all the job options are, you can just go find out what they are and decide which one you want to go with, so it's a bit of time saving as well...

(*The Sims 2*, Participant 5 interview)

At the same time, there was a degree of pride in avoiding walk-through information. Most participants claimed they rarely, if ever, used walkthroughs as a form of mediating Artifact. Their view was that understanding the preferable conduct the game required was straightforward or it was the central enjoyable challenge:

I didn't think it was necessary. In a game like that I think it's fun... I was satisfied, so I didn't feel the need to. I never found it hard enough... I always knew what I was doing, and I always did it.

(*Grand Theft Auto*, Participant 2 interview)

I generally only read them if I get stuck. I prefer the challenge of actually working it out myself, getting through it...

(*Fable*, Participant 2 interview)

But with every game I buy I avoid having any form of help and information, because I feel that, if you know too much, it's almost like a movie as well... if you know too much it kind of ruins some of the anticipation you have.

(*Half-Life 2*, Participant 1 interview)

A final kind of mediating Artifact is the media surrounding the video game. This includes reviews and the publisher's own promotional material. Such media can have a definite influence on players' expectations of what will be possible and preferable in play. This is especially true of the media coverage on forthcoming games. One participant discussed paying substantial attention to the media surrounding a game and how this led to disappointment:

There was a lot of press before the game came out from Peter Molyneux... the head developer of the game... first he was talking about all these great things that were going to be in the game... like trees that grew and whatnot as the game progressed. And after the game came out he sort of apologised and said "well, we sort of ran out of time to implement all those wonderful ideas."

(*Fable*, Participant 1 interview)

Another example of the influence of media about a game includes the "previews" offered by many websites and magazines:

They tend to not give away too many spoilers as to what is going to happen, but they do tell you about the mechanics of the gameplay, and a general overview of maybe some of the earlier stuff that you'll come across. And telling you a bit about how you'll be interacting, and what you can actually do.

(*Fable*, Participant 2 interview)

Similarly, the advertising for a game will usually give some indication of what playing the game will be like. The "homecoming" trailer for *Grand Theft Auto*, for example, featured scenes from the game such as a helicopter flying over a city, a boxing match at a gymnasium, and a drive-by shooting on a motorbike [212]. All of these represent possible activities a player might then wish to (or have to) recreate as they play the game.

In the current climate around video games, and especially in the case of *Grand Theft Auto*, the media also includes anti-video game discussion. This affected participants' thinking about the game, generally leading to a defensive attitude:

I don't see this game as horrifically violent. Kids have the internet now. There's horrible stuff on the internet. There were plenty of bad people before computer games came along.

(*Grand Theft Auto*, Participant 1 interview)

I mean, there's all this talk in the media about how games make people [kill people] ... I don't think it makes them do it. I think those people are born to be murderers, and they'll just get ideas from games like this. I don't think games can be blamed.

(*Grand Theft Auto*, Participant 4 observation)

5.3 Generic activities: Quests, combat, and all that Jazz

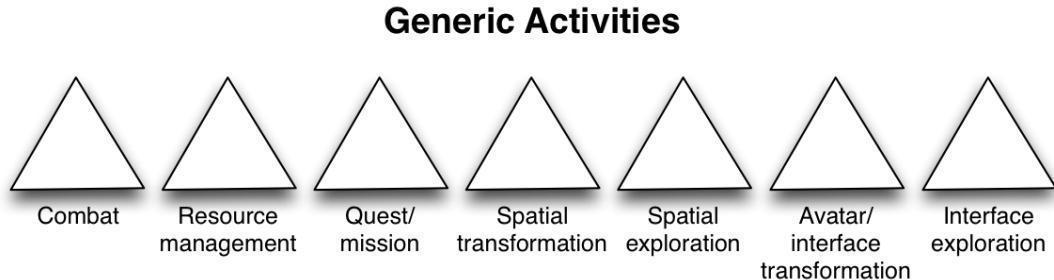


Figure 5.3: The generic activities as articulated in our case study data

The perspective players have on video games is partly shaped by *genre*. Video games are often classified into groups such as role-playing games (RPG), first person shooters (FPS), and strategy. These genres shape player expectations of what the game will involve and can affect their beliefs about preferable conduct during play. As we have discussed, there is general agreement that the interactive possibilities of video games is the key to their genre (§2.3).

In this section, we present a viewpoint on genre premised on the idea of *generic activities* (figure 5.3). Our discussion sits at a higher level than standard video game genres, as we focus on activities of play rather than the specifics of interface or narrative. During our case studies we observed that players often referred to games either explicitly in the context of a genre, or described them using abstract terms. Thus, first person shooter games involve generic activities such as fighting and running, while strategy games involve long-term planning, resource management, and so on. It is also possible that generic activities are not bounded by the more traditional definitions of genre. “Combat” is a form of activity that occurs in many different kinds of game, for instance.

Our participants provided considerable information about their expectations of genres and the generic activities associated with them. In *Fable*, for example, we saw participants recognising the fundamental importance of creating a suitable avatar, a typical activity in role-playing games:

It is an RPG, a role-playing game. So you’re basically building up your character to suit how you like playing, and what you like doing.
(*Fable*, Participant 2 interview)

Similarly, in *Half-Life 2* one participant described the game in highly generic terms as involving chiefly movement and combat:

With most 3D games, it's still, if you want to boil it down: it's still getting from point A to B. And it's just the manner of things they throw in between A and B, which in 3D games is mostly always enemies, so you have to shoot to get past.

(*Half-Life 2*, Participant 1 observation)

Participants who played *Grand Theft Auto* often talked about the game allowing for more “free-style” activity, in which they were able to move easily between different forms of conduct. This free-style approach to activity has become a genre of its own, sometimes referred to as a “sandbox game,” in which a player can focus more on the exploration of possibilities than on explicit tasks:

But, often enough, it's enough that you can just drive a car around some terrain. And if you blow up your car you can steal another one and start again. And if you get bored of this you can go and do something else. And if you get bored of that, you can go and do something else. And so on and so on.

(*Grand Theft Auto*, Participant 5 interview)

Participants for *The Sims 2*, regarded as a “simulation game,” and *Civilization III*, a strategy game, also discussed engaging in activities typical to those genres such as managing the lives of Sims or planning a military campaign:

I'd say the goal is to improve the lives of your Sims. Attend to their needs, attend to their happiness. And help them live their lives best... a sort of assistant in their lives.

(*The Sims 2*, Participant 1 interview)

To enter a war you have to calculate how much you are going to lose, by losing troops, which is like directly losing production. And military support. And what are you going to get from it?

(*Civilization III*, Participant 5 observation)

Video games include generic activities. These activities are part of the underlying design on top of which specific representations are then implemented. In this section we discuss what our data showed about the presence of generic activities in the case studies, and go on to identify what we have seen to be the core generic activities.

5.3.1 Subject

While the Subject of a generic activity is still partially the *player* of the game, as with the video gaming activity, we must now consider the player's "representative" in the world of the game. In many games this representative is a specific person or anthropomorphic "thing" which the player controls, typically referred to as an *avatar*. In other games, such as in *Civilization III* which does not have an explicit representation of the player presence in the world, this is not the case.

As we discussed in our literature review, a standard way of viewing avatars is as the collection of possible actions the player can take (2.3). In order to discuss the Subject of a generic activity, we must look to the set of interactive possibilities a player has which can be said to form a "generic avatar," independent of specific representation. Thus, in *Civilization III* the generic avatar is the combination of the player's capabilities in the world of the game, such as the control over units, the ability to build cities, engage in diplomacy, and so on.

The overall Subject of a generic activity is what we call the *player-avatar*. The player-avatar has properties of *both*: the decisions are made by the player, but are executed by the avatar.

The participants in our case studies had varying relationships with their avatars which could vary change during one session of play. In games where the avatar was obviously anthropomorphic (*Grand Theft Auto* and *Fable*), or when there was a first-person view (*Half-Life 2*), the most common perspective was one of self-identification and use of the first person when participants discussed their actions in the game:

So I'm going to try and hide from the cops for a while, because with one star they'll get off you after a while.

(*Grand Theft Auto*, Participant 4 interview)

I'll just run around here and make sure I haven't missed anything here.

(*Fable*, Participant 3 observation)

In *Half-Life 2* this was even more explicit, with one participant noting that he felt as if he *was* the avatar in the world of the game while also knowing, at another level, that he was not:

I'll be sitting there thinking: Hey, I'm that person. Even if I know I'm not, I've still got that small sense of illusion where you're running around: This is me, I've got to be careful.

(*Half-Life 2*, Participant 1 interview)

In *The Sims 2*, the relationship was more complicated because there are often *multiple* avatars and the opportunity for explicit, one-to-one identification is not possible. Sims were largely regarded as other people who were *partially* under the participant's control, with the relationship being more parental:

I guess if it is working and it's going well, you kind of [think]: That's my girl! [Laughs] There's a sort of positive emotion... you become slightly proud that your character is actually achieving things.

(*The Sims 2*, Participant 5 interview)

Finally, in *Civilization III*, we observed a yet more distant relationship. In this case, although participants were able to direct the movements and actions of units such as "settlers," there was no feeling at all of *being* the settler. Participants clearly made the distinction by using different personal pronouns to refer to themselves and the unit:

Now, this is another little bit of risky business. Obviously *I'm* going to send *him* out by *himself*. *I* could send the warrior out with *him* but *I'm* not going to.

(*Civilization III*, Participant 1 observation, emphasis added)

In this case, the avatar is associated with its possibilities of action rather than with its particular representation. The game itself denotes the player's role as the immortal ruler of a civilisation whose existence is defined by their ability to lead the civilisation to success and glory, complete with a palace to "live" in:

The people admire your achievements so much, they offer to expand your palace.

(*Civilization III*, game text)

This distancing between player and avatar can occur even in those games with specific, anthropomorphic avatars. In *Fable*, for instance, one participant was clear about treating the avatar as a character, rather than as himself:

I tend to think of it as somebody else... much in the same if you're reading a book and there's the main character in a book... I tend to think of it more in that way than "hey that's me on the screen."

(*Fable*, Participant 2 interview)

The generic player-avatar is the combination of the player with the set of possible actions provided in the game. There is obvious potential for this relationship

to affect a player's beliefs about preferable conduct. Most fundamentally, the set of possibilities defined by the generic avatar provide the basis for determining *preferable* conduct by literally defining the *possible* conduct. We address these ideas in depth in the following chapter (§6.3).

5.3.2 Object

In identifying the generic activities in our case studies, we focused chiefly on the presence of generic *Objects*. The Object of an activity is especially useful in identifying activities because it is *transformed* during the activity and is therefore likely to be more visible than other elements (§2.4.2). In order to identify generic Objects, therefore, we focused on generic elements in the game which were the focus of *transformation*.

Enemies

The most typical Objects of transformation in our case studies were various forms of *enemy* or *opponent* which appeared in every game except *The Sims 2*. These opponents provided an Object for various forms of combat, with the outcome of the transformation being chiefly the death or destruction of the enemy:

But in 3D games in general it would be people who do try to hurt you and kill you. Which means you have to kill them, to make sure you live. ["The way of the world."] Yes, or at least the game world.
(Half-Life 2, Participant 1 interview)

It's other civilisations. They act independently and have different traits. Some civilisations are quite aggressive. ... I guess they've got the same goals and motivation... well, the same goals as you do in playing the game. But different ways of realising them.
(Civilization III, Participant 3 interview)

There's missions where you've got to kill people, and they'll kill you before you kill them. So they're opposition.
(Grand Theft Auto, Participant 2 interview)

Something which the game tells you you have to kill. Generally an entity in that world which thinks for itself, in some definition of "thinks for itself." Someone you have to fight, I guess.
(Fable, Participant 5 interview)

Avatar

Another generic Object which is frequently transformed is the avatar itself. This transformation occurs at different levels ranging from the acquisition of new weapons which make them more formidable, to changes in quantified skills and abilities:

Should probably switch to a ranged weapon because I'm sure there's enemies around here somewhere. It just gives you the advantage of being able to shoot them without having to go right up to them and hit them with the crowbar.

(*Half-Life 2*, Participant 3 observation)

If you wanna make it a big strong dude you just bump up the strength statistics, if you want to make him a bit wily you primarily spend your experience points on the skill, and if you want to make him a magic user, as some people tend to do, then you focus on the will statistics.

(*Fable*, Participant 1 observation)

[“What will you do now?”] Probably build up his body. And I’ll need a mirror to build up his Charisma as well. I’ve been through this job track before and I know that he needs a bit of charisma near the end.

(*The Sims 2*, Participant 3 observation)

If you build up a character and spend a lot of time, you’ll know all the attributes of the character and you’ll basically be way more focused.

(*Grand Theft Auto*, Participant 3 observation)

Taking into account our definition of an avatar as the set of interactive possibilities, we can also suggest that some elements of play, such as building a large army in *Civilization III*, are also forms of avatar transformation: they change the player-avatar’s ability to act in the world.

Space

Another generic Object is the *space* of the game itself. This is transformed in different ways in different games with the core distinction being whether transformation concerns the space itself or the player’s *knowledge* of that space. In *Civilization III*, for example, the player-avatar alters the landscape of the game by building cities and capturing territory:

Building on hills is always quite good, because they flatten, and I think all cities have the same resource values. And hills are a bit shit for resources, so if you can build on them, and they're in the middle of useful things it's always quite a nice place to situate your city.

(*Civilization III*, Participant 3 observation)

Participants also engaged in exploration, transforming their knowledge of the terrain for future advantage:

Going to explore this little area. See if it is a dead end. Just because the geography of the coastline makes me think that it might be. And it'd be nice to know that that's a dead end, because then I know there's no threats coming from that direction.

(*Civilization III*, Participant 2 observation)

Although *Civilization III* is the most obvious example of the importance of space as an Object to be transformed, our other case studies revealed similar concerns. Exploration was central to both *Fable* and *Grand Theft Auto*:

If I go this way it looks like I can get off to Hobbes... this may be Orchard Farm over here. Greatwood Lake... [*This is not what he was expecting*] I can't remember how to get to Orchard Farm... not sure if it's off here, but I thought I remembered it was out of that Woods area...

(*Fable*, Participant 5 observation)

And, also, I'm just driving around not doing missions because it means you get to see things like this [*He found a secret mission*], which are just the random events they put into the game... never been here before.

(*Grand Theft Auto*, Participant 5 observation)

The idea of transforming space is also important in *The Sims 2*, where participants spent considerable time altering the layout and contents of their Sims' homes:

I'm just taking down a wall I don't think needs to be there. [*Goes into Build mode*]. Just that one. [*Removes a wall*]. If I can get rid of that wall I can give them a bigger bedroom...

(*The Sims 2*, Participant 5 observation)

Resources

A generic Object visible in all the games was the notion of some kind of “resource” the player could use in the game to their advantage. These resources had to be transformed in order to reap the benefits, and also had to be kept *organised*. Examples ranged from explicit resources such as “luxuries” in *Civilization III* to furniture in *The Sims 2* to weapons and potions in *Fable*:

You want to expand to include the luxury resources and strategic resources, like Iron, you want to be able to get them, because that means you can use them and your opponents can't. I would look to place cities to make the most of those things.

(*Civilization III*, Participant 2 observation)

I think I'll study the house first. [“What do you look for?”] Good furniture, the furniture that gives more values, like Environment, Skill, or Fun, or something. Because it impacts their Needs.

(*The Sims 2*, Participant 4 observation)

[“What are you doing?”] At the moment, blindly wandering around until I trip across a store to buy some stuff that can give me more health immediately, and plenty of stocked up health, such that I can survive more encounters.

(*Fable*, Participant 5 observation)

Interface

Another kind of generic Object observed was the interface itself. Participants directed at least some of their attention toward exploring and experiencing the interface, largely to transform their own *knowledge* of how it worked. This included efforts to understand the physical properties of the world:

You want to see the different parts of the world, the different characters, all the different cut-scenes. See where it goes. And drive, fly, whatever, all the vehicles. See what the different controls are, the different physics properties each things has.

(*Grand Theft Auto*, Participant 3 interview)

These small things... that in the end they might have no relevance at all, except to do this... I just shot a brick at a guy to look at the pretty physics of the game.

(*Half-Life 2*, Participant 1 observation)

Participants were also interested in exploring the limits of what the *designer* might have thought of in creating the game, seeking to use the interface in potentially unanticipated ways:

I know in *The Sims 1* my brother drowned a woman in the bath. Got her really tired and then made her run a bath and got in. So she drowned. She fell asleep... It's quite interesting that they realised that she's fallen asleep and that she's in water. That they've actually gone to the work to put that together.

(*The Sims 2*, Participant 5 interview)

Grand Theft Auto, I mean, I've had quests where you have to... I think there was one where you have to pick something up. As soon as you pick it up all the cars in the parking lot start trying to kill you. So, all I did was I went and did it first time and got killed. Went in the second time, grabbed a Mac truck, destroyed all the cars in the parking lot, picked up the case and walked off.

(*Fable*, Participant 2 interview)

As we have already identified the avatar closely with the interactive capabilities available to the player, avatar transformation can be seen more broadly as a transformation of the interface itself. When the avatar in *Fable* learns a new spell, for example, the player's interface to the game is altered with the potential of a new command.

Quests

A final form of generic Object in our case studies occurs in the various kinds of *quest* available. This applies most specifically in *Grand Theft Auto* and *Fable*, where the player is presented with explicit to pursue. In all these quests there is one or more Objects which must be transformed in a particular way to complete the quest. Thus, in *Fable* the player may have to locate and rescue a young boy, while in *Grand Theft Auto* the player may have to eliminate a rival pimp:

I do need to know what she's telling me about where he might be. But, equally, I do care that they've put effort into making her tell me this in a nice... in a more interesting way than just bringing up a little dialog box saying "Go to the caves and rescue the boy."

(*Fable*, Participant 5 observation)

I've got to get in the car. Go behind these buildings here... to that red triangle. And then I'm gonna waste him. Okay, here we go.
(Grand Theft Auto, Participant 2 observation)

Even in games without explicit quests, however, we can think in terms of generic Objects of quests. *The Sims 2*, for example, provides pre-written “plots” for certain families in the game, suggesting particular Objects for transformation such as the Sims’ relationships with one another:

Cassandra is smitten with Don and wants to get hitched. Perhaps an affectionate gesture will put the relationship on a strong footing.
(The Sims 2, game text)

5.3.3 Motive

The Motives of generic activities are most obviously shaped by the narrative of a game. Video game narratives are often *generic* largely because they tend to follow tried and true approaches to story telling. The typical narrative, for example, tends to pit a lone, embattled avatar against more powerful adversaries (*Grand Theft Auto, Fable*, and *Half-Life 2*):

You're a member of the resistance... well, not a member, but you're involved with them. You help them out. And their end goal is to try push back these invaders, but they're way out gunned.
(Half-Life 2, Participant 4 interview)

Supposedly it's a ramble through the 90s drug underworld in this mysterious city based on Southern California. Generic location. And you're just some dude who's been double crossed and has to sort his stuff out. And there's a story line attached.

(Grand Theft Auto, Participant 5 interview)

Ultimately there'll be some quest in the game you'll be trying to fulfil. In this case get vengeance of whoever destroyed your family, grow into the hero that your blood determines you to be.

(Fable, Participant 5 interview)

The narrative of *Civilization III* similarly invokes values of domination and success against opposition:

The people have vested absolute power in you, trusting that you can build a Civilization to stand the test of time.
(Civilization III, game text)

As we have discussed, a Subject's Motive can also be influenced by their values. The core video game values of PAIDIA and LUDUS influence the fundamental Motives of generic activities and also shape *how* players relate to them. Further, many generic activities have a particular leaning toward conduct which promotes a value of PAIDIA or LUDUS or both.

A typical example was when participants were interested in completing designated activities such as *quests*. These kinds of prescribed activities triggered the value of LUDUS, because they defined what "doing well" according to the rules means:

[“Why do the mission?”] I don’t care about the mission so much as I really like to complete things. I want to construct what’s supposed to be constructed. I’m meant to do it because... it tells me to do it [*Laughs*].
(Grand Theft Auto, Participant 2 observation)

You’re meant to be doing the quests, obviously. And that’s pretty much the main thing you’re meant to be doing to advance the story on, and basically to lead you to the next cut scene, which will advance the story a little bit more. It’s kind of what you’re looking at with the game is “do this quest, get another cut scene” to tell you... fill in the story piece of what’s happened. And then go off and do another quest...

(Fable, Participant 2 interview)

Conversely, other available generic activities could tend toward a value of PAIDIA, such as the exploration of the interface and possibilities of the game world:

But when you come back to it you don’t exactly want to do crazy goal-oriented things that the game forces you to do, because it’s so free-form that you just want to mission around and break stuff. Because that’s sort of what the game’s about.

(Grand Theft Auto, Participant 3 observation)

I had the gravity gun and was holding a button and all of a sudden I saw a sawblade hovering above me and I thought: Woah, I’ve got to try this out.

(Half-Life 2, Participant 1 interview)

It is not a simple case, however, of quests being motivated by LUDUS and exploring the interface being motivated by PAIDIA. The reverse can be true when, for example, participants wanted to “see what happens” when they do something

unusual in a quest in *Fable*, or they were determined to explore the *entire* interface in *Grand Theft Auto*:

So now, I guess, I can go and show the wife her husband's grisly, severed, Balverine head. I'm actually kind of curious to do that just to see if she reacts. It's attention to detail, and I like to see that kind of thing.

(*Fable*, Participant 4 observation)

The overall goal in this game, above all else, is to get that barrier, to get that value up to 100 percent. Because everything else in the game is associated with it. Going around and buying a house will put it up by 0.1 percent. Increasing your muscle a tad will affect it. Everything affects this value. Thus, it's got to be associated with the main point of the game.

(*Grand Theft Auto*, Participant 5 interview)

In games like *The Sims 2*, where there are no obvious quests to pursue, a value of LUDUS is associated with the maximising of the various quantifications of success present in the game, such as the bars measuring a Sim's happiness:

What I'm wanting is to get those bars, all those bars, at max. I'd see that as a good achievement...

(*The Sims 2*, Participant 1 observation)

You feel good, you have good friends, a good relationship, got a good job... everything kind of is Green, which is what means "good" in Sims. Then you'd be... like you've accomplished something, in a sense. Especially when you've maxed out a career or something like that...

(*The Sims 2*, Participant 5 interview)

In *Civilization III*, the usually playful idea of exploring the interface of the game sometimes took on a strongly LUDUS orientation, as participants attempted to understand how the game worked so as to succeed more easily:

But, probably what I like most about it is working out the patterns and the likelihoods and making the most of them and using them to my advantage. When I can predict what the AI is going to do then I can outwit them, because I understand the game.

(*Civilization III*, Participant 2 interview)

The Motives for generic activities focus on the values of PAIDIA and LUDUS primarily, with a secondary emphasis on generic narrative Motives for the avatar. These motives help to explain why players are drawn to particular patterns of activity in the games.

5.3.4 Artifacts

A final means of identifying generic activities is to consider the generic Artifacts which are available for use in those activities. At this level of our video game activity framework the Artifacts may include elements specifically from the interface, such as menu systems, and also game world Artifacts such as weapons. Different kinds of generic Artifact aid our investigation of the generic activities because they facilitate particular kinds of activity.

Perhaps the most obvious kind of Artifact visible in games is a *weapon*. In both *Half-Life 2* and *Grand Theft Auto* the player has access to various guns, grenades, and so on, and in *Fable*, there is a large collection of swords, axes, and bows available for use. The generic category of *weapons* is a major part of the play of all these games and mediates much of the possible conduct. In *Civilization III* specific weapons are not represented but, instead, the people who *use* them are presented as Artifacts. In playing the game a player does not use a sword but a "Knight" or a "Warrior" instead

Another aspect of play in the case study games was the presence of Artifacts devoted to the traversal and transformation of space. In *Grand Theft Auto*, *Half-Life 2*, and *Civilization III* we encounter particular vehicles for traversing space and, in all games except *Half-Life 2*, the use of a *map* as Artifact is central to play. In *The Sims 2* there are large numbers of Artifacts, generally presented in menu systems, for transforming space through "Buy Mode" (obtaining furniture) and "Build Mode" (creating a home and landscape).

Menu systems are a form of generic Artifact used to enable many different forms of conduct. In *Fable* the "Experience Menu" is used to explicitly alter the avatar's statistical measures. In *Grand Theft Auto*, a menu system allows the player access to statistics concerning their progress through the game as well as information about the current mission being engaged in. Menus in *Civilization III* are used for tasks as diverse as conducting diplomacy, managing a city's production capabilities, and determining budget allocations to science research.

As we have already noted, the avatar itself can be viewed as partly equivalent to the interface of the game, and, therefore, is also an Artifact which mediates the player's conduct in the world of the game (§2.3). In this sense, the avatar's abilities, such as running, jumping, washing dishes, and so on, are all part of how

the player is able to interact. Many avatars, such as those in *Fable*, *Grand Theft Auto*, and *Half-Life 2*, share a number of generic abilities such as movement and some form of attack (often with weapons, as noted above).

The generic Artifacts in our case studies further help us to identify the different generic activities. By considering what the different categories of artifact mediate and facilitate, we can better understand what kinds of generic activity are available.

5.3.5 Identifying generic activities

Now that we have examined the evidence for various generic activities in our case studies, we are in a position to identify explicitly what those activities are. By combining our understanding of the different components, especially the Objects and Artifacts, we now present a list of the generic activities in our case studies.

Combat The most clear generic activity was *combat*. Apart from *The Sims 2*, all the case study games included Objects denoted as “enemies” which were to be transformed toward death or destruction. The generic category of weapons Artifacts reinforces this activity.

Resource Management The identification of the generic “resource” Object points us toward a generic activity of *resource management*. In this activity participants organised generic resources to gain advantages during play. Resources included weapons, health potions, cities, money, furniture, and so on.

Spatial exploration The importance of space in all the case study games identified an activity of *spatial exploration*. In all the games spatial exploration or traversal was critical to gain an understanding of the space play took place in. Artifacts such as vehicles, maps, and the ability of avatars to traverse space emphasised the centrality of this generic activity.

Spatial transformation In conjunction with the idea of traversing space was the presence of activities of *spatial transformation*. These were not found across the case studies, but were limited to *Civilization III* and *The Sims 2*. In both these games transforming space is emphasised in order to assist in other activities such as resource management or combat. In *Civilization III* spatial transformation is the key to the game, with the conquest of more and more space the defining feature of successful play.

Interface exploration Participants often directed their attention toward the interface itself to understand how it worked and what could be done, indicating an activity of *interface exploration*. This activity involved participants moving

away from the more obvious routes of play toward a desire to understand the interface itself.

Avatar/interface transformation As with the two generic activities concerning space, an activity of *avatar/interface transformation* is often paired with the exploration activity. This generic activity was observed in all case studies. Here a player transforms some aspect of the interface, most often the avatar itself, toward a more powerful state.

Quests A final generic activity is the *quest* activity. The reason for its comparative obscurity in our previous discussion is that it generally *includes* other activities. A quest in *Fable* may entail spatial exploration followed by combat, for example. Quests are most visible as generic activities when they are explicit in the design of the game, such as Quests and Missions in *Fable* and *Grand Theft Auto* respectively.

The purpose of identifying these generic activities is to provide a framework to advance our focus on preferable conduct. The generic activities help us to conceptualise the possible forms of conduct in a game. By identifying the set of generic activities, we begin to identify a subset of potential conduct which is the conduct which must be selected amongst when playing the game. Players' beliefs about preferable conduct in a game are necessarily shaped by the potential generic activities and the ways they are sign-posted, especially by their Objects and Artifacts.

5.4 Summary

In this chapter we established our second key contribution to video game HCI, presenting a *video game activity framework* for describing and analysing video game play at multiple levels of detail and context.

In this chapter we introduced our second key contribution to video game HCI, presenting a *video game activity framework* for describing and analysing video game play at multiple levels of detail and context. We first introduced the video game activity framework, which forms the basis of our discussion of video game play as human-computer interaction (§5.1). Next, we presented the perspective of viewing play as a real world activity that we have called *video gaming* (§5.2). We discussed this activity using Leontiev's model of activity, identifying elements which had an impact on players' beliefs about preferable conduct during play, such as their real world physical and social context. Following this, we introduced the second level of our hierarchy, discussing the presence of *generic activities* in video games (§5.3).

In that section, we identified the generic activities which define the play in our case study games.

This chapter provided an overview of the video game play activity and introduced the major contexts of play outside its representation on screen. The next step is to assess the nature of play as it is represented “in the game world.” In the following chapter, we examine the moment-to-moment actions a player takes as shaped by their beliefs about preferable conduct. Such actions take place in the context of both the video gaming and generic activities, and are shaped by them.

Chapter 6

Specific Activities: Push X to Save the World

Vincent and Mario meet up to play *Grand Theft Auto*. Vincent takes control and attempts the “Outrider” mission, one of the required narrative missions for completing the game. This involves guarding a “shipment” for a gang member and an eccentric FBI agent who Carl, the avatar, is working for in order to free his brother, Sweet, from jail.

Vincent directs Carl to drive to a gas station on the water-front of San Fierro. He is instructed to take a rocket launcher and sniper rifle and to ride a dirt-bike ahead of a truck, clearing the way of any opposition. Reaching the first road block, he gets off the bike. He launches a missile at a group of cars, destroying it easily, but leaving a few more enemies standing around waiting for him down the street.

Vincent uses the L2 button to switch from the rocket launcher to the sniper rifle. He holds the R1 button to bring up the rifle’s sights and zooms in on the remaining enemies using the square button, lining one up in the cross-hairs with the left analogue thumb-stick. Once the enemy is lined up, he presses the circle button to fire and the enemy collapses to the ground.

In the previous chapter we introduced two levels of activity in the play of video games: the video gaming activity and generic activities. These two levels related to the external context of play as well as genre effects. As is indicated by the above example of Vincent and Mario, however, we can also discuss video game play in more detail. In the example we see that Vincent is engaged in activities represented on a screen such as the “Outrider” mission he is undertaking, is performing particular actions such as shooting a gang member in aid of that mission, and is pressing buttons automatically to accomplish those actions.

In this chapter we complete our second key contribution to video game HCI by discussing the *specific activities* in our video game activity framework. Much of the data in our case studies concerned these specific activities represented on screen during play. As we indicated in our video game activity framework (§5.1), the specific activities are what the player most often focuses on during play, and can be seen as the implementation of the generic activities in a particular video game (figure 6.1).

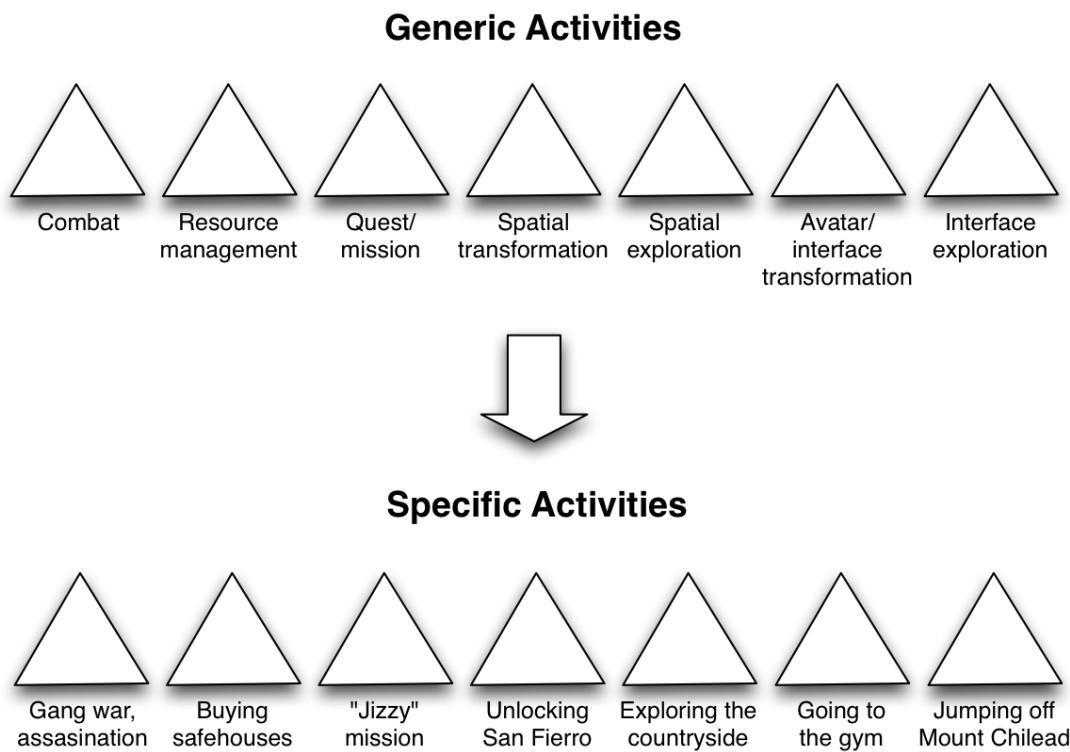


Figure 6.1: Selected specific activities which implement the generic activities in *Grand Theft Auto*

In this chapter we use the activity hierarchy to discuss the representation of specific activities in our case studies. In the following section, we show how the activity hierarchy applies to the discussion of specific video game activities (§6.1). Next, we address the *output* of video games by focusing on the ways in which the interface represents preferable conduct (§6.2). Following this, we focus on the ways in which players relate to the possibilities for *input* into a video game and how this mediates their beliefs about preferable conduct (§6.3). Finally, we summarise the results of the chapter and point toward the next (§6.4).

6.1 The video game activity hierarchy: Levels of play

The activity hierarchy as developed by Leontiev is composed of three levels corresponding to different perspectives on human activity (§2.4.3). Each level provides a particular perspective on what is happening when a person acts in the world. The levels of the hierarchy are *Activity-Motive*, which we have already seen represented in Leontiev's activity model (§2.4.2), *Actions-Goals*, the conscious conduct of a player, and *Operations-Conditions*, the automatic conduct. We discuss these levels in video game play and in the example of Vincent and Mario playing *Grand Theft Auto* (figure 6.2).

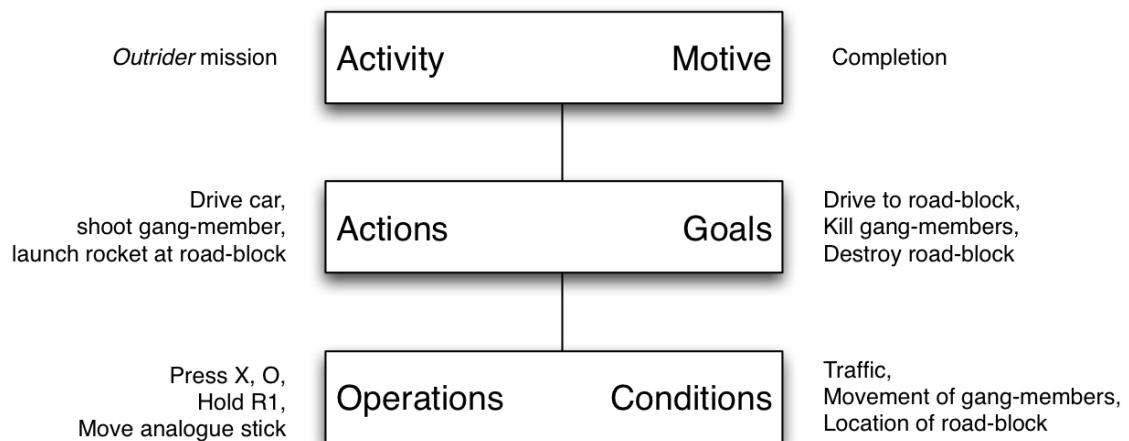


Figure 6.2: The activity hierarchy as applied to *Grand Theft Auto*

Activity-Motive The highest level of the hierarchy is the level of *activity* and takes the same perspective as we have seen in Leontiev's activity model in the previous chapter. This level provides a natural continuation from the work on the video gaming and generic activities (chapter 5), so we can discuss the specific activities in the same way.

At this level we can consider the activity in terms of its specific representation in the game, including the world that the activity takes place in, the narrative setting of the activity, the mediating Artifacts, and the particular Objects of transformation. As in our prior discussions, our focus is on elements of the specific activities which influence players' beliefs about preferable conduct. We are most interested, therefore, in the representations of "preferable activities" to players and the influence of the interface on the *possible* activities.

Actions-Goals The level of actions describes the *conscious conduct* a player engages in while playing. Thus, while the Activity-Motive level concerns the overall structuring of a player’s conduct, the Actions-Goals level concerns their awareness of that conduct. This level also includes a player’s conscious *goals* as he plays at any given moment.

At this level, instead of thinking in terms of a mission activity such as “Outrider,” we can address the individual actions a player takes and the goals he develops over the course of the activity. In the “Outrider” mission, this will include goals such as “drive to the road-block” and “clear the road-block” along with actions such as “drive car” and “shoot the gang member” which achieve these goals.

Operations-Conditions The lowest level of the hierarchy concerns the *unconscious* interactions. As we will discuss more fully, this level most obviously corresponds to the physical use of the interface, for example by pressing buttons or moving the mouse (§6.3.1). Here the hierarchy details both the operations as well as the *conditions* which trigger their use.

To examine video games specifically, we look at the aspects of play which are *automated*. In an action such as “drive the motor-bike” there are numerous operations required, such as moving the left-analogue stick for steering and pressing the “X” and “square” buttons to accelerate and decelerate. In addition, conditions are represented on screen, such as moment-to-moment traffic patterns and the condition of the car, which affect which operations are selected.

6.1.1 Relating the levels of hierarchy

A key part of the activity hierarchy is the *relationships* between the levels. There are three core forms of relationship in the hierarchy: direction, contextualisation, and execution:

Direction At each level of the hierarchy there is a particular factor toward which conduct is directed. At the level of Activity-Motive, this is the Object of the activity along with the concept of Motive. All activity is directed toward the Object and its transformation, so that the *video gaming* activity, for example, is directed toward the video game itself. The level of Actions-Goals is directed toward the specific goals a player has during play. Thus, a player’s actions when driving a car may be directed toward the goal of reaching a particular location in the game world. Finally, the Operations-Conditions level is directed toward the conditions which form the context of play. The operation

of pressing the “X” button in *Grand Theft Auto* may be driven by the need to accelerate the car to overtake. The factors toward which a level is *directed* are the first point of contact for understanding *why* a player engages in particular conduct throughout the three levels of hierarchy.

Contextualisation A further relationship is the way in which higher levels give a *context* to lower levels. The overall activity helps to contextualise particular actions and goals which may not make sense in isolation. For example, the actions and goals surrounding the conduct of “shooting the gang member,” only make sense in the context of a larger activity of “capturing territory.” This activity requires killing a set number of gang members. The actions and goals a player is engaged in are what give a context to the operations and conditions which take place unconsciously. Knowing that a player is pressing “X” makes little sense except in the context that they are driving and that they need to accelerate.

Execution The final relationship works in reverse to contextualisation. The lower levels of the hierarchy are what *execute* the higher levels. Thus, an action can only take place through the operations which make it up. Without pressing “X” and moving the analogue stick, the player cannot engage in the action of driving. Similarly, the actions are what make an activity literally happen. The actions of shooting, driving, studying the map, and so on, are what allow the “Outrider” mission activity to take place.

6.1.2 Represented activity

A key aspect of activity theory which we have yet to address explicitly is the nature of *represented* activity. In the previous chapter both the video gaming and generic activities could be seen as taking place in the context of the *real world*, as neither involved the specific representation of a game world. When we discuss play, however, we often refer to actions and events “taking place” in the game world as represented on the screen.

As we discussed in our literature review, activity theorists studying HCI have spent time analysing the situation in which the Object of transformation in an activity is *represented* by an interface, rather than existing in the real world (§2.4.2). Deferring to their work, our discussion here is premised on the assertion that it is possible to discuss the represented action on screen during a video game in terms of activity. Where appropriate, we will further consider the importance of the idea that the games are “only” representations of conduct, rather than real conduct.

6.2 Output:

Watching the world go by

In this section we present the results from our case studies concerning the representations of activity in video games. This corresponds to our earlier discussion of the *cognitive aspect* of value because the representations mediate players' interpretation of the preferable conduct (§4.1).

When observing participants in our case studies, it was typical for highly specific interactions to take place relating to what was visible on the screen. The data emphasised the importance of the representations on screen to players, such as to this participant in *Fable*:

Just making sure I pick up all the experience thingies... and apparently killing a dead thing again [*Accidentally attacks a dead scorpion*]. Sweet. Really wishing I could find out what's making all the giggling noise... aaah [*Sees the pixie which is the source of the giggling*]... Thinking I'm just gonna skip these [enemies], because I can't seem to hit the uh... the annoying flying thing, but they seem to be attracting all these other... scorpions. [*Runs away*] Aaaand... I'm in the wrong part, I'm just going to escape out of there because I'm getting far too much attention...

(*Fable*, Participant 2 observation)

As we can see, the participant was focused on the represented activity such as killing the scorpions, reaching a particular destination in the game world, collecting experience points, or learning about the pixie he could not kill. All of these are concrete goals contextualised by the specific activities. The central activity in this example was a quest which the participant was pursuing when he met up with the pixie. We can also see from the way he collected experience points, that his actions were also part of the avatar transformation activity for which experience points are the major resource.

Another example of this level of conscious action occurred in *The Sims 2*. While this game is of a different genre, we saw the same phenomenon of a participant largely thinking in terms of the represented world on screen:

He wants to buy a chair. Cause, I think, if you're rich I think you want to show you're rich. So that's why his Fortune Aspiration is he wants to buy stuff which costs a lot...

I just need to check if I need to get any more body points. I don't because I've done it all, done it before I became one of these guys [he

got a promotion]. And since I don't work tomorrow it means I can do other stuff late tonight and not worry about when he wakes up tomorrow, or worry about the morning tomorrow.

Forgot to buy lights. It's really dark in the house and that puts down his environment. [*Buys lights and distributes them*]

(*The Sims 2*, Participant 3 observation)

Once again, we see the participant was focused on the represented world, such as buying and placing lighting in the home, or having the Sim work out on an exercise machine. These actions executed higher level specific activities, such as "Mood management" and "Career management," which required the goals the participant decided on (gaining skill points, making sure the home is well-lit).

In the following sections, we address the representations of preferable conduct identified in the interfaces of our case study games. First, we address how participants understood what the potential specific activities *were* in the case study games, particularly how the interface suggested specific Objects. Second, we consider the ways the interface influences the more specific actions participants took by shaping their *goals*.

6.2.1 Activity-Motive

During analysis of the data from our case studies, we identified a number of distinct forms of representation which affected participants' beliefs about their conduct. What was common to all games was that the participants, with little apparent effort, derived preferable conduct from the representations and were able to discuss this process.

The key impact the representations have at this level is to influence players' identification of the Objects of transformation in the game. The representations can also emphasise the Motives for this transformation in the world of the game. In the following, we identify the different represented Objects and the forms of activity which are directed toward them.

The heads-up display

Video game interfaces frequently include constant elements on-screen. These elements are often referred to as the "heads-up display" (HUD), and contain the most important information about the state of play. While the HUD is mostly used in moment-to-moment decisions, it also *connotes* potential Objects of transformation.

This connotation works on the assumption made by players that information presented in the interface, and especially in the HUD, is *relevant* to their play.

This assumed connection allows players to derive intelligence about the potential activities of play by determining Objects the HUD information is relevant to.

The HUD in *Grand Theft Auto*, for example, includes information on the current weapon and ammunition the avatar has, the time of day, the amount of money possessed, and a map of the surrounding area. The map, for instance, is used to indicate the locations of missions which the player can undertake:

[The map] tells me where I am, it tells me what I have to do. That is the purpose in a way, in a broad sense, I guess. All you can... that's all it does. Tells me what I have to do.

(*Grand Theft Auto*, Participant 2 interview)

Extending the uses of the HUD, *Grand Theft Auto* and *Fable* also include certain icons in the world of the game which emphasise other important Objects of transformation. The importance and desirability of killing enemies in a mission, for example, is emphasised by the use of contextual markers:

Just because the big arrow comes down on them... a big red one, red meaning bad.

(*Grand Theft Auto*, Participant 1 observation)

It tells you they're bad by outlining them in red. There's that nice distinction between bandits with red around them and traders with blue around them.

(*Fable*, Participant 5 observation)

In *The Sims 2*, we see a number of elements in the interface, The Career panel, for example, presents the player with a description of a Sim's job and what skills and how many friends she needs in order to increase her likelihood of promotion. This panel summary is a complete description of the specific activity of "pursuing a career" in *The Sims 2*, combining the generic Quest and Resource Management activities. The measures provided in the on-screen panels tell the player exactly what the activity requires: gaining skills and making friends:

[Looking at Career panel] I'd probably start looking at these skills. Because then they can do more interesting things, and get more interesting jobs, earn more money, and buy cooler stuff.

(*The Sims 2*, Participant 1 observation)

Once you advance a bit you need a couple of friends [*Showing the indicator in the Career panel*]. That's why I'm trying to set up relationships,

but not go into it any further. When I need it, I'll set up the friends as they come by. [*Showing the Relationships panel*]
(The Sims 2, Participant 3 observation)

Half-Life 2, Fable, and Grand Theft Auto share a set of combat-related HUD elements which emphasise the importance of that activity. How to track avatar's health, armour, weapon, and ammunition is prominent in all these interfaces:

Probably the car. The car and handgun, in terms of being directly important to any situation in the game. Your car and the weapon you have would definitely be the most important things in the GUI.
(Grand Theft Auto, Participant 5 interview)

In *Half-Life 2*, these are the *only* interface elements, demonstrating the central importance of combat in the game:

Depending on the weapon there'll be a small HUD at the bottom telling you how much ammo you've got in your clip, how much in total, alternate ammo. And that changes depending on the weapons ... There's also a bar telling you how much health you've got, so you know how close you are to death.

(Half-Life 2, Participant 1 interview)

The *map* interface elements in *Grand Theft Auto, Fable, and Civilization III* underscore the *space* of the game world as an Object of activity. The maps immediately suggest exploration and navigation to players, who frequently engage in the activity of spatial exploration simply because the map is available:

Actually, I'm looking at the map in the bottom left hand corner at the moment I just realised. I'm sort of semi-navigating somewhere. But ... in this case I'm so high that I can't really see the ground, so I kind of vaguely know where I am by looking at that map...
(Grand Theft Auto, Participant 3 observation)

The maps in the games often indicate other Objects in the vicinity, which players can navigate toward. Thus, in *Fable* and *Grand Theft Auto*, the map displays the location of the nearest Quest or Mission:

But uh... using the map... green dots are people on the level that I'm on. White dots places I can go to... places leading off to things of interest...
(Fable, Participant 1 observation)

There was a mission there, and there was an icon there [on the map] that needed some serious attention, basically.

(*Grand Theft Auto*, Participant 2 interview)

In *Civilization III* the map takes on an even great importance as it represents the amount of space the player has captured relative to the space captured by other civilisations. This demonstrates the central activity of capturing territory and expanding the civilisation in a form of the generic Spatial Transformation activity (§5.3). The central role of relative territory is revealed by its prominence both on the large and miniature maps:

I can have a look at the map as well... it would make more sense if I could see some of my opponents as well, a comparison between them... how much is yellow, which is my colour, and how much is red or green or whatever other colour the mysterious fourth opponent is.

(*Civilization III*, Participant 4 interview)

Menu systems

In addition to the immediately visible interface elements on screen, most of the case study games allow players to bring up menu systems with further information. As in the case of the HUD, these menu system connote further Objects and activities.

One of the clearest indicators of activities and their Objects in the games were the *statistics* presented in separate menu systems. This was most often observed in *Grand Theft Auto*, *Fable*, and *Civilization III*. In *Grand Theft Auto*, for instance, players can view a specific “stats” menu which quantifies the progress of their play by such entries as “percentage of territory owned” and “missions completed.” These statistics indicate possible activities in play such as capturing territory and pursuing missions. Further, the map in this menu system displays the entire space of the game to the player and the amount of space not yet explored, lending further impetus to an exploration activity:

[Sees an area in the map that is unexplored] That bit hasn't been... well, I'll go for a drive through here because that hasn't been uncovered.

(*Grand Theft Auto*, Participant 3 observation)

Fable has a similar statistics menu which also promotes activities with quantifications such as “times had sex,” “best chicken kick,” and “crimes and punishments.” Such statistics suggest potential activities such as pursuing a life of crime. In addition, statistics are important indicators of an activity in which the statistics themselves are the Object of activity with the player directly manipulating them:

It's all very statistics oriented. In *Fable* every quest you carry out has a consequence, whether it be improvement of your statistics or... the main structure of the game never changes throughout the levels, they're always the same... choosing to play differently affects the character's statistics. And by proxy they also affect the game play.

(*Fable*, Participant 1 interview)

Use the stats menu to figure out what I need to do, in terms of maxing out the game. And generally the point of the game is to clock it... to get all the values as high as possible.

(*Grand Theft Auto*, Participant 5 interview)

This is especially true of measures not of accomplishments, but of the avatar itself. In *Grand Theft Auto*, *Fable*, and *The Sims 2*, quantifications of the avatar, such as their strength, stamina, or skills, help to indicate the avatar as an Object of an activity focused on changing these statistics. In other words, the quantification of the avatar immediately suggests an activity of avatar transformation:

But sometimes they can do it by themselves if their Logic is high. Right here... [*Shows it in Skills panel*] so they can think and do things by themselves. If their logic is low they're quite stupid... to increase their logic you can assign them to read more, or play chess.

(*The Sims 2*, Participant 4 observation)

The other option to running around the map is actually between missions taking the experience or the points that you acquired from completing missions and using them to acquire strength, stealth, or capacity to continue onwards later. That could be the physical "make your guy stronger" strength, or the... practical buying weapons and armour sort.

(*Fable*, Participant 1 observation)

If you build up a character and spend a lot of time, like, you'll know all the attributes of the character and you'll basically be way more focused. I've known a lot of people to spend a serious amount of time building up their character's attributes.

(*Grand Theft Auto*, Participant 3 observation)

In *Civilization III* the interface also helps to indicate the possible activities in the "Advisor menus." These menus detail some of the fundamental Objects of play by providing the player with targeted information using the character of an advisor to the player. In each menu a particular advisor suggests courses of action while

presenting relevant statistics related to areas of the civilisation such as warfare, diplomacy, and technology development. The advisors promote particular kinds of activity: the Military Advisor promotes the activity of war, the Domestic Advisor suggests “population management” and “production management,” and the Foreign advisor relates to the activity of “diplomacy” with other nations.

Tutorials

One of the most straightforward ways in which a video game indicates preferable conduct to players is during a *tutorial*. Many games include either an explicit option or a tutorial during the beginning of play. Tutorials represent preferable activities to players by instructing them. All our case study games include some form of tutorial.

The Sims 2 has a tutorial during which the player is given control over “Tutorial Joe” and is instructed at first on the basic commands, but quickly advances to how to play the game successfully:

If you’ve never played *The Sims* before, this is a great place to get to know the game. Part One will teach you how to give commands to a friendly chap named Tutorial Joe and walk you through taking care of his basic needs.

(*The Sims 2*, game text)

The tutorial reinforces players’ interpretations of the interface elements we have already discussed, confirming the basic Objects and activities:

Notice the Hygiene bar. The green arrows show this need is improving and Joe’s mood is getting better. A Sim in a bad mood may have trouble building relationships or earning money. Mouse-over the Needs below. Each one will show you examples of the objects that satisfy that need.

(*The Sims 2*, game text)

In *Grand Theft Auto*, *Fable*, and *Half-Life 2* the role of tutorials is less overt. In these games the beginning of play takes place in relatively harm-free environments where the player can learn the basic skills and objectives of the game. *Grand Theft Auto* opens with the avatar, Carl, in an alleyway. The player is carefully instructed on getting home by stealing a bike, and then on the basic mechanism for entering into missions:

Go and see Ryder. He lives down the street. Follow the ‘R’ blip on the radar to find Ryder’s place.

(*Grand Theft Auto*, game text)

Fable has an opening sequence in which the avatar as a young boy is given a very simple quest to obtain money by performing good deeds. This environment is entirely safe and the avatar cannot be harmed by anyone in the game. Although the game does not dictate every move the player makes, there are frequent indicators of “good” conduct as the player goes about her activity:

You performed a good deed. Remember, talk to your Father to receive your reward.

(*Fable*, game text)

Finally, *Civilization III* includes a tutorial mode which schools the player on useful activities to engage in during play. The tutorial takes place in a specially created environment and initially each potential decision, such as the management of resources around a city, is discussed in detail:

Your first job is to find a good site for your capital city. The best city sites are near rivers, on grasslands, coastal areas, or areas near special resources. The settler is in a coastal area, which is a good place to found new cities. Coastal areas are good for food and commerce production. Later the city will be able to build ships and harbors - good for expanding trade interests.

(*Civilization III*, game text)

We can see in the tutorial elements of the case study games that considerable effort is made to introduce players to the basic activities of play. The tutorials provide safe environments in which players can be instructed as to the kinds of activity they will be involved in later at a greater level difficulty.

Game narrative

The narrative a game presents to the player helps to indicate the specific activities. Most popular video games, other than abstract games such as Tetris, present a narrative which players participate in as they play the game. Such narratives influence a player’s perception of the kinds of activity it “makes sense” to pursue by providing a context for conduct.

The importance of narrative is especially true of games such as *Half-Life 2*. Here the introductory passage of play presents the player with a narrative about a fascist regime, the Combine, confronted by “rebels.” This narrative setting establishes the idea that the Combine will have to be fought. Within the narrative of the game world this is positioned as the appropriate kind of activity:

Barney: Gordon! I have never seen the citadel on full alert like that! Take the old canals out of City 17 to Eli, it's dangerous but there is a whole network of resistance members who run the underground railroad. I would come with you but I have to look after Dr. Kliener.
(Half-Life 2, game text)

Rebel: There is a secret path along the cliff-side, but no one is going anywhere until we fight off this attack. Having you here to fight alongside us is going to make a big difference for morale. Oh crap!
 Here come the drop-ships!

(Half-Life 2, game text)

Fable is based on a traditional heroic narrative and similarly sets the stage for particular kind of activities, such as brave quests, daring combat, and sensational rescue missions. As one participant noted, this helps to explain the basic activities of play, framing them within a story of revenge and heroism:

In this case get vengeance of whoever destroyed your family, grow into the hero that your blood determines you to be, and along the way do all sorts of little side quests...

(Fable, Participant 5 interview)

Even in a game like *Civilization III*, which is ostensibly a simulation game and not narrative-centric, we see a narrative of "world domination":

It is the year 4000 BC. Your ancestors were nomads. But over the generations your people have learned the secrets of farming, road-building, and irrigation, and they are ready to settle down... The people have vested absolute power in you, trusting that you can build a Civilization to stand the test of time.

(Civilization III, game text)

This is the first dialogue a player sees when beginning a game of *Civilization III*. It immediately suggests a number of activities which characterise the play: military activities, production activities, and the overall objective of a powerful and "great" civilisation. This is further emphasised by the cinematic introductory sequence which plays when the game is loaded:

Camera rushes over rocky, dry ground, then over water, where we see boats. We are approaching a citadel. People are working on the docks. There is vaguely "Egyptian-sounding" music. There is mist.

The citadel is under construction, with scaffolding and cranes. It gets more modern higher up, ending up with a modern crane at the top and reflective glass. A fighter plane flies past when we reach the top.

(*Civilization III*, participant observation notes)

The Sims 2 does not generally operate with a pre-determined narrative, but it does offer some initial stories which can suggest lines of activity to a player. On starting a game in the “Goth” household, for instance, the player is informed about one Sim’s love for another, and is pushed to evolve that relationship:

Cassandra is smitten with Don and wants to get hitched. Perhaps an affectionate gesture will put the relationship on strong footing.

(*The Sims 2*, game text)

Finally, in *Grand Theft Auto*, the narrative is again an important part of how players understand preferable conduct. On being confronted by a situation in which many of the avatar’s fellow gang-members are dead, for example, one participant speculated about the appropriate course of action:

Thinking about how it corresponds to the plot. Cause I was previously going to a meeting with these people, and now they blew up my friends... so now I assume I’ll have to kill them all, which is the general theme of the game.

(*Grand Theft Auto*, Participant 4 observation)

In each of these cases, a narrative of the game world is presented which contextualises the player’s understanding of what the *preferable* kinds of conduct must be, often in conjunction with genre traditions (§5.3).

Game world

In addition to the narrative of the game, a further element which suggests possible activities and Objects to the player is the game world itself. The setting of the world and the events that occur in it independently of the player’s input help to indicate the kinds of activities that might reasonably take place there. The setting of *Civilization III* in a world similar to our own, as well as the general story of progress, was appealing to participants and suggested particular approaches:

It definitely has its charm, that you are driving a civilisation from the Stone Age to the space-ship, I think it adds a lot of charm to the game.

(*Civilization III*, Participant 5 interview)

The game world settings often make the game more *comprehensible*. The above participant also noted that it would be possible to represent the underlying game of *Civilization III* in terms of squares and triangles on a grid, but the absence of the setting would make choosing preferable conduct difficult:

Well, if it was grids you couldn't make any sense of what was going on... I mean, things need to be different, of course, in terms of seeing the game. ... You just need some logic, some inside logic in it, so you can understand why things are linked. ... Otherwise... if food was triangles, and squares, and round, and numbers... you would never understand it, because you could never link things together.

(*Civilization III*, Participant 5 interview)

The game world of *Grand Theft Auto* is another good example of this. Set in a version of '90s America, the environment evokes particular Objects and activities. If a player simply pauses on a city street to observe the game world, she will often hear pedestrians yelling abuse at her, will see a police car careen into a wall while in pursuit of another car, and, if unlucky, might well be attacked by gang members. These events suggest activities that make sense: fleeing the insanity of the police, gang wars, and "disciplining" irritating pedestrians.

This game interested me because I'm really into hip-hop and I liked the angle they were coming at aesthetically with the narrative and just the world of the game. I could relate to it in terms of my experiences of music and the stories of that era, that kind of American culture.

(*Grand Theft Auto*, Participant 3 interview)

In *Half-Life 2*, the emphasis is on traversing space paired with combat. This is apparent in the game world setting which positions a particular structure, the citadel, as the core objective of play from the beginning:

It's pretty clever how early on in the game you can see this huge citadel, and it's this monolith and you're wondering "what is this?" And you're drawn towards it. And as you go through the game you're going away from it, but then you're actually going towards it again, and you know this is going to be the final showdown.

(*Half-Life 2*, Participant 1 interview)

Here the setting of the game suggests to the player that the citadel is some kind of symbol of the oppressive regime which is in control at the outset. The

citadel, like the regime it represents, is indicated as an Object to be transformed by destruction.

The Sims 2's domestic environment, by way of contrast, suggests significantly different Objects and activities. Throughout the game, the setting represents a "normal" world which suggests everyday interactions and everyday Objects such as careers, the self (Sim), and relationships. The pseudo-realistic world of the game, and the cartoonish Sims themselves, all indicate the potential for exaggerated activities drawn from life. This element was emphasised both by our participants and the introductory sequence of the game:

I think it's supposed to simulate real life. And I think people like that because they usually wouldn't be able to do things like that at home... say have four different relationships at once, or follow a career path to the end.

(*The Sims 2*, Participant 3 interview)

Exciting music kicks in and we see scenes of Sims having (largely) great times. Emphasises a value of happy life. A Sim lands on the ground and her outfit changes repeatedly. She starts dancing and this leads to a whole lot of Sims dancing in a red room. A man who has gone mad looking at a paper cup with a face drawn on it. He slaps it comically. Two elderly people do sophisticated yoga, balanced on one finger. Women admire a hot young stud walking through the park. One fans herself, points at him. There's a wolf whistle.

(*The Sims 2*, participant observation notes)

Finally, the fantasy world of *Fable*, with its cities full of good-natured peasants, forests full of monsters, and shops full of swords and armour, suggests its own kinds of activity. This typical fantasy setting encourages the expected activities, such as combat with evil bandits and monsters, shopping in small towns, and adventures in a mythical landscape.

In all the case study games, the setting as represented by the game world had a substantial influence on what a player believed would be the potential Objects and activities in the game. The settings encouraged these activities by making them the most exciting options in the context of the world.

6.2.2 Actions-Goals

The actions that comprise an activity are the players' conscious conduct and therefore reflect their beliefs about *preferable* conduct: their video game values.

Actions are oriented toward goals they are intended to achieve. The Actions-Goals level of the hierarchy corresponds well to players' conscious experience of play. Our participants did not think in terms of high level activities such as "exploring the game world," but were attuned to specific goals such as "seeing what's over that hill" or "stealing that motorbike."

The specific activities, while not necessarily foremost in the mind of the player as they act in the game world, shape the actions that the player takes and, importantly, the particular goals they are oriented toward. In our data, the most overt influence the interface had over player conduct at the action level was in its presentation of both implicit and explicit *goals* during play.

Implicit goals

Participants often adopted their own goals based on their interpretation of the specific activities. They selected goals, and actions to achieve them, which aided in the pursuit of the specific activities as they understood them.

We can see this clearly in *Half-Life 2*. Rather than explicitly assigning a goal such as "proceed due East," the game instead removes all other possibilities: the space is entirely linear. The goal of movement, and combat too, is always obvious:

The levels are designed so there's a set path. In one area there's one way to get in and one way to get out. There might be a few shortcuts, but ultimately, at the end of the day, you're going to end up at the same place, however you play it.

(*Half-Life 2*, Participant 3 interview)

It wants you to get to the end, really. It's almost like being in a corridor with a light at the end. And you can only go forwards, it's linear in that fashion.

(*Half-Life 2*, Participant 2 interview)

While these two examples concern the implied goal of progressing through the space of the game, one participant suggested this response applied to everything about the game. He felt that there was only ever one response "allowed" by the game, making all goals implicitly set by the interface:

I think they've pretty much blocked off the choices. Any time you try to do something fundamentally dumb it either kills you or you get bored. There's no in-between with it.

(*Half-Life 2*, Participant 5 interview)

In *Civilization III*, a game which does not generally present explicit goals, participants adopted goals in response to the perceived specific activities of the game. Thus, participants adopted promoted goals such as exploring the landscape in order to begin expanding a civilisation and taking advantage of the resources:

Now I'm scoping the next place for a city. At a pinch I'd put one down there [*On an area of tundra which has an extra resource*], but probably not straight away, because it's not going to grow very fast. But eventually it'd get the whale, and it'd get me access to furs.

(*Civilization III*, Participant 3 observation)

Although these goals are not explicitly stated (the game does not bring up a text-box saying “build a city near the whale resource” in this instance), participants gravitated toward goals which contribute to what they had perceived the key activities of play to be.

In *Grand Theft Auto*, such implied goals frequently take priority over other, explicit goals. The world is represented as an open environment in which players can choose their own goals. Nonetheless, the kinds of goals participants chose tended to conform to what the game facilitates, such as spatial exploration:

I'm determined to do that... basically, there's a way you can get into San Fierro airport by driving through the tunnel and doing a massive jump. ... Because then, if you get into the airport, you can mission around in planes and you don't have to have unlocked the planes.

(*Grand Theft Auto*, Participant 3 observation)

Even though this is theoretically something you are “not meant to do” in the sense of the game world’s setting of a contemporary city, it is a goal implied by the design of the game. These kinds of goals, therefore, are not subversive, but rather show the player adopting goals which have been subtly portrayed.

Explicit goals

The most overt influence the interface had on participants’ actions was in the form of explicit goals set by the game. The video games often explicitly assigned goals to direct actions so that they conformed to the specific activities such as quests, exploration of the game world, and resource management promoted by the game.

In *Grand Theft Auto*, for example, the “mission” activity is broken into specific goals for the player to pursue as they progress. In the course of the early “Ryder” mission the player receives textual instructions on screen in stages as they carry out each appropriate action:

Go and see Ryder. He lives down the street ... Get in Ryder's car ... Go with Ryder to the barber's ... Enter the pizza shop and buy some food ... Get in Ryder's car! ... Drive Ryder home.

(*Grand Theft Auto*, game text)

These goals guide the player through actions which carry out the activity of the "Ryder" mission, in which Ryder and the player's avatar get a haircut and then attempt to rob a pizza store before being chased away by an angry employee with a shotgun. After driving Ryder home, the mission is complete, and we see that a complete set of goals was defined for the player to guide their participation in this particular mission activity. Explicit goals of this kind often lead to a highly constrained experience:

Your goals are pretty straightforward, set out, you don't have much of a choice in choosing your path. You do what you're told pretty much.

(*Grand Theft Auto*, Participant 4 interview)

Fable is another game which includes explicit goals. In quests in Fable, the player receives a briefing at the outset which states the goals of the quest, along with information from various characters encountered along the way:

Protect Orchard Farm:

Summary- Help the guards defend Orchard Farm from a Bandit assault.

Money Reward- 750

Renown Reward- 400

(*Fable*, game text)

As in *Grand Theft Auto*, this is a highly defined and constrained path through the quest, with the player's goals dictated to a large extent:

Well, from the very beginning of the game... the introduction of the game will tell you basically "you're here, we want you to run to here." And that's a habit it doesn't really break throughout the entire rest of the game. Like, at the beginning of every quest it'll tell you what it wants you to do. So it's really up to you to just follow through on that. There's not really much ambiguity as to what it actually wants you to do. There's always some indication.

(*Fable*, Participant 1 interview)

In *The Sims 2*, which does not have quests, goals are still explicitly defined by the visibility of meters and "Wants," effectively subdividing activities such as "having a career" or "fulfilling aspirations" into manageable, actionable goals:

When he gets back I'll check the job to see what he needs before he can advance to the next job, or if he has advanced I'll see what he needs to do to advance. Then after that I'll go toward that advancement, fill up a couple of these Wants so his Aspiration will go up.

(*The Sims 2*, Participant 3 interview)

Here we see how the game sets particular goals by indicating what a Sim requires in order to progress through the larger activity of "having a career." The activity is broken down by the game into specific goals such as gaining a skill point in a particular area. The player can then act on this by buying the appropriate household item and instructing the Sim to use it. *The Sims 2* also indicates a Sim's "Wants" which the player interprets as specific goals to pursue, such as "kiss Brandy" or "get a job in the Science career."

Half-Life 2 assigns goals through the narrative, with characters along the way constantly reminding the player of Gordon Freeman's basic activity:

Citizen: Hey, Dr. Freeman, I had been hoping you would show up, got this air-boat all gassed up and ready to go. Its gonna be tough dodging civil protection out there in the open, but drive hard and you will make it. You will find more help at station 7, just up the river, it's the red barn. Climb on in, and fire her up. You had better get going now!

(*Half-Life 2*, game text)

Explicit goals are an key part of players' beliefs about preferable conduct because they define exactly what that conduct should be. Further, these explicit goals are integrated with the higher level specific activities, generally guiding the player to take the particular actions which make up specific activities such as "fighting the Combine" or "managing a career."

6.3 Input: Making things happen

In the previous section we discussed the ways in which a video game represents preferable conduct to players (§6.2). In this section we take the reverse position and discuss the *input* a player provides to a video game. This corresponds to our prior discussion of value mediation in terms of how the interface mediates a player's actions in the game (§4.1).

We begin by examining the level of operations and conditions in the case study games, identifying the operations made available for players to execute their

conduct. We then examine how the operations available in a game necessarily influence the possible *actions* a player can take when pursuing their goals. Finally, we examine how the restrictions placed on possible conduct by the interface is another form of the promotion of preferable conduct.

6.3.1 Operations-Conditions

In identifying the operations level of play, we looked for the actions participants took which were automated. In our case studies the basic use of the interface was the most promising candidate. There were three key forms of evidence which support this idea and we present evidence here from *Fable*.

First, several participants spent the first minute or two reminding themselves of the controls, in order not to think about them during play itself:

Sweet. First I'm gonna work out how the hell to play again... punching, blocking, and that's right... on that part of the screen, isn't it... down the bottom. Right... magic [*Uses lightning magic*] ... and locking on [*Targets a number of people in the area*] ... Okay.

(*Fable*, Participant 2 observation)

Second, some participants, when asked about the specific controls they used during play had to think hard about what the controls were. This suggests they had become automatic operations:

In general it seems to be the A button, which is I think an action one, so that adapts to what you're doing, and in this game the X button, which is "hit." And... mainly the coloured ones here, and the left thumbstick. And, actually, without thinking probably I'm using the left trigger which helps me lock on to things. Tends to be a lot of reflex action, not really thinking about it.

(*Fable*, Participant 2 observation)

Finally, we observed that during play participants only paid attention to the controls when a problem occurred, suggesting that they were only brought to their attention at these times:

[*Draws bow and tries to kill a bandit but accidentally aims in the wrong direction*] This has got inverted Y control...

(*Fable*, Participant 5 observation)

In the following subsections, we discuss the operations in each case study game. We look at the evidence available for establishing the elements of each game's interface that are used automatically and thus represent a level of operations. Finally, we discuss the instances of "automated" play in which players' operations are triggered by particular conditions.

Grand Theft Auto

In our case study, *Grand Theft Auto* was played on the PlayStation 2 console, using a standard controller (figure 6.3). The commands possible in the game are presented as a table in figure 6.4.



Figure 6.3: The standard PlayStation 2 controller

Input	Command
X	Accelerate (vehicle), run, sprint, confirm menu option
Square	Brake, reverse, jump
Triangle	Exit vehicle, steal/enter vehicle, exit menu
Circle	Fire weapon, throw weapon, punch/kick
Top shoulder	Target and fire weapon
Lower shoulder	Select weapon, rotate helicopter, steer boat/plane
Left thumbstick	Direct avatar, steer vehicle, navigate menu, crouch
Right thumbstick	Direct camera angle, start vehicle-mission
Start and Select	Enter menu system, change camera zoom
D-Pad	Change radio station, social reply, navigate menus

Figure 6.4: Operations in *Grand Theft Auto* for PlayStation 2

Our observations supported the view that the controls as enumerated form the basic operations of play. Participants only discussed the control system when they were trying to figure out which button performed which action, such as the ability to set the level of zoom of the game camera:

How do you change the view in the car? Like zoom out... is there a button for it? There we go, that's better. [*Selects a zoomed out view of car*].

Yeah, so you can see where you're going better. ... What's reverse? Just getting used to the controls.

(*Grand Theft Auto*, Participant 4 observation)

The viewpoint was also expressed that the pressing of buttons should not enter into a player's mind if they were taking the game "seriously." In other words, participants felt that the buttons ought to be unconscious in order to focus on the represented action on screen:

[“New plan?”] Yeah. I’m going to take it more seriously. But sometimes the confusion buttons will stuff me up... like then, I had a perfect shot at him, but then I just screwed it up because I was thinking about what button to press.

(*Grand Theft Auto*, Participant 4 observation)

Finally, when the controls were changed in some way, such as through the difference between playing *Grand Theft Auto* on a PlayStation 2 (analog thumbsticks, buttons) instead of a PC (mouse and keyboard), one participant became highly aware of the commands he had previously not needed to think about:

Woah, Jesus! [*Has problems with the controls immediately*]. So I’ve just got to wait for them to fly into my path then...? Can I aim with this? It’s not inverted as well... yeah, so this is quite hard. Down... down. No, the other down. [*Struggling*]. [“What is the problem?”] Because I’m used to aiming with my mouse and not my thumb. And I’m used to inverted aiming as well, when I do play games on PlayStation.

(*Grand Theft Auto*, Participant 4 observation)

Fable

In our case studies, *Fable* was played using the standard X-Box controller (figure 6.5). As with *Grand Theft Auto*, we were able to enumerate all the possible commands (figure 6.6).

As we have seen in the previous two games, and as is evidenced by the limitations of the controller itself, the operations in *Fable* are closely tied to individual button presses and movements of the analogue thumb-sticks. Participants only became aware of their use of the controller when it was the source of mistakes, such as when one button ("down" on the D-Pad) caused a participant to go fishing rather than teleport because of the context in which it was used:



Figure 6.5: The standard X-Box controller

Input	Command
A	Generic interaction, confirm in menu, magic spell 1
B	Sprint, flourish attack, cancel in menu, magic spell 2
X	Swing melee weapon, fire ranged weapon, magic spell 3
Y	Block, dodge, change spells
White	Draw/sheathe melee weapon
Black	Draw/sheathe ranged weapon
Triggers	Target weapon, target magic
Left thumbstick	Direct avatar, zoom ranged weapon, aim ranged weapon
Right thumbstick	Direct camera angle, change mini-map size
Start and Select	Enter main/inventory menu systems
D-Pad	Use item, social expression

Figure 6.6: Operations in *Fable* for X-Box

Right... I think... I might head back to... or apparently I'm going to do some fishing... I was actually trying to teleport but I hit the wrong button, and it was a fishing area... Oh... in fact no, it is the same button [*Accidentally goes fishing again*] It's just that pressing down in that particular place, which is the normal teleport one...

(*Fable*, Participant 2 observation)

One participant experienced considerable difficulty as he attempted to do several things at once in the game, sneaking up on bandits, drawing his bow, hiding, and so on. In these cases his attention returned to the controller as he made various mistakes which made him aware of it:

[*Struggling with controls for sneaking*] Because I'm trying to press it down to walk slowly, and as soon as I let it go it zooms in for the ... [*Distracted as bandits starts attacking him*] ... oh, crap. Oops, where'd he go? Yeah, this is suddenly a lot more... it's coming back now.

(*Fable*, Participant 3 observation)

I found it kind of awk... oops [*Puts away his bow by mistake*]... accidentally let something go there.

(*Fable*, Participant 3 observation)

Similarly, another participant noticed that he tended to press the wrong button to enter his inventory, ending up in the “game menu” instead:

I always push the wrong button between start and select as well...

(*Fable*, Participant 4 observation)

Participants only discussed the controls when they caused problems, supporting our suggestion that the basic controls of the game, once learned, are at the operations level of play.

Half-Life 2

Half-Life 2 was played on a PC in our case studies, using the keyboard and mouse as control devices (figure 6.7). Once again, the possible commands in *Half-Life 2* are limited and can be fully listed in tabular form (figure 6.8).

In *Half-Life 2*, the basic use of the mouse and keyboard was only noticed when they were not functioning as expected. A typical example was when participants found that the mapping of the mouse movement onto viewpoint movement was “inverted” so that moving the mouse forward and backward had the opposite effect to that desired:



Figure 6.7: A standard mouse and keyboard

Input	Command
Move mouse	Direct first person view
Mouse button 1	Fire weapon, swing crowbar, push with gravity gun
Mouse button 2	Fire secondary weapon, pull with gravity gun
W, A, S, D keys	Move forwards, backwards, strafe, steer vehicle
Space	Jump
Shift	Sprint, turbo
Alt	Walk
Control	Crouch, crawl
Q	Switch to previous weapon
F	Flashlight
E	Generic use command
Numbers	Switch to specific weapon
C	Give order to squad
Z	Zoom in

Figure 6.8: Operations in *Half-Life 2* for PC with a standard keyboard layout

[Immediately notices mouse is wrong for him] Actually the mouse is the wrong way.

(*Half-Life 2*, Participant 2 observation)

This has got inverted mouse, hasn't it? It's strange, I used to prefer inverted mouse, and now I've actually changed. [Waves the mouse around to test the change] Still doesn't quite feel right... but that'll do.

(*Half-Life 2*, Participant 5 observation)

At one point, in the heat of a battle with Combine soldiers, a participant accidentally pressed the "Windows" key which returned him to the Windows desktop. This proved jarring and brought the keyboard back into his conscious awareness:

[The Windows desktop appears] Oh, shit... what happened there? Windows key. That's something that Windows should get rid of. That was quite annoying... I have to get back into the action really quickly. It was not good. I think games should disable those or something.

(*Half-Life 2*, Participant 2 observation)

[Drops into Windows again] Oooh... Is there any way to disable the windows key?

(*Half-Life 2*, Participant 2 observation)

Similarly, participants' attention was focused on the use of the keyboard accidentally when they found themselves issuing a command they had not intended, such as picking an object up or picking up the wrong object:

[Accidentally picks up a health pack] Oh that's right, you can pick stuff up. Forgot about that.

(*Half-Life 2*, Participant 4 observation)

This is one thing that irritates me with *Half-Life 2*, the selection mechanism occasionally gets very confused about what you want to grab.

(*Half-Life 2*, Participant 5 observation)

The Sims 2

The interface for *The Sims 2* is keyboard and mouse-driven with a focus on mouse-based interactions. A basic interaction in the game involves clicking on an piece of furniture, for example, and selecting one of the available options. Thus, if a player clicks on a computer, they see options such as "Turn Off," "Check Email," "Send

Email," "Find A Job," or "Play SSX." Because these options must be read to be selected between, they generally did not feature as automatic operations, but were instead conscious actions:

[“How do you choose an interaction?”] You click on the person and then you [choose] whether to do anything on this [menu] here, on this option thing here.

(*The Sims 2*, Participant 3 observation)

[Notices he has selected the wrong Sim when he reads the options for his action with regard to some spilled water and sees they are options for a child (e.g. “Play”) rather than an adult (e.g. “Clean Up”).]

(*The Sims 2*, Participant 1 observation)

[Sees the Juggle Bottles option and chooses it] I've not seen that before... I've not seen him juggle bottles, so... [Laughs]

(*The Sims 2*, Participant 5 observation)

The operations, therefore, took place at a lower level and corresponded most closely to basic movement and clicking of the mouse. When beginning play, one participant was forced to recall how to move the camera view in order to look for a particular Sim, but once he had done so the movement became automatic again:

Now, where'd that other kid disappear to? *[Figuring out the camera controls, rotating, panning]* That's right...

(*The Sims 2*, Participant 1 observation)

As with the other games, the mouse controls were most obviously operations because they only became apparent to participants when something went wrong:

[Tries to move the camera, but struggles] One point that does slightly drive me nuts is this... I find it actually quite difficult to get around and get myself in the right place. Might be the mouse at home, but... it's just not the most easy thing to do.

(*The Sims 2*, Participant 5 observation)

There was some evidence that larger scale interactions, such as the routine actions of taking a shower and making a meal, could become operations. We observed one participant click through these options much too fast to have been properly reading them while talking about how they were automated at the same time:

You notice that you're going through the same routine. Because once you get home, in the Sims, you eat, take a shower, go to sleep.
(*The Sims 2*, Participant 3 interview)

In general, however, our observations support the idea that it was only the basic operations involving mouse movements and clicks that constituted the operations in *The Sims 2*.

Civilization III

Civilization III is also a keyboard and mouse oriented game, though with a focus on keyboard shortcuts for expert players. The most important factor in determining the operations in *Civilization III* is that it is a *turn-based* game. During play, events do not occur in real time, but only as a player makes each decision. A player is able to wait for a long time before deciding what to do:

I think it's one of the rare games where you can stop and have a cigarette, and have a general look.

(*Civilization III*, Participant 5 observation)

The fact that as much time as needed can be taken before acting suggests that *Civilization III* is largely a game of conscious *actions*: before doing anything, the player can *think* about what to do. The automatic operations of participants in this game focused on basic use of the mouse and keyboard, noticed only when they led to problems, such as when one participant moved the mouse too forcefully and moved his view of the map further than intended:

If I can block it off then the Japanese and the Americans will have to go around the long way, which is ... crap ... [Waves the mouse a bit too vigorously] which is far more ... good for what I'm doing.

(*Civilization III*, Participant 1 observation)

Similarly, while beginning play, one participant was distracted by trying to understand how to move his units using the mouse:

I think the most important thing in the game is the ... does this work?

[Distracted by figuring out movement control].

(*Civilization III*, Participant 5 observation)

These struggles with the mouse continued throughout the game and he was highly frustrated by his inability to automate its use in order to focus on higher level actions such as the control of units:

Sorry, I'm not used to moving with the mouse [*Having trouble selecting where to move*].

(*Civilization III*, Participant 5 observation)

Our observation of the situations in which participants were momentarily distracted into paying attention to their operations during play emphasise that it is the basic use of the mouse and keyboard which are unconscious operations for players of *Civilization III*. Most of the time participants moved the mouse and pressed keys without comment while discussing the actions these operations helped to execute.

Automated conduct

In addition to our evidence that players' basic commands correspond to operations, we observed some data relating to the nature of *conditions* in play. In particular, we saw that certain aspects of play were *automated* in that participants' operations were triggered by particular conditions and contexts. These automatic responses can be viewed as the results of learning during play. As players become more proficient, more and more parts of play become automated. Examples are the ability to weave through traffic in *Grand Theft Auto* or to notice and respond immediately to changes in the meters in *The Sims 2*.

Focusing specifically on conditions and automated responses, we can see an important reflection of beliefs about preferable conduct, the video game values. While at the level of goals players are consciously selecting their objectives and the actions which will achieve them, the conditions are reacted to automatically. A classic example occurs in combative games, where the mere presence of someone who *can* be shot is regarded as an automatic condition triggering the operation:

Move. Shoot. ["What if that had been a friend you shot?"] It was dark.

There was a dead body here. Not very likely place for meeting a friend.

(*Half-Life 2*, Participant 2 observation)

Oh, I don't have a weapon. I was just going to kill all those guys, I'm not too sure why. [Laughs] Maybe it was the way they were standing in a wee group and it would have been quite easy to kill a lot at once.

(*Grand Theft Auto*, Participant 2 observation)

In the latter case the participant was only prevented from automatically shooting a group of pedestrians by his lack of a gun. That the participant was only interrupted from this operation by another condition, however, makes it clear that

he held a very strong belief that it was preferable to shoot pedestrians. It was such a firm belief that taking action was automatic, requiring no consideration.

In *Civilization III*, participants often had a default pattern of reactions to the conditions in beginning a game which they rarely thought about. They assumed, instead, that these were *always* the right things to do:

I've just followed my own pattern, and I think that does mean that sometimes you miss other things about the game, because you get into your style of play and you don't really appreciate the benefits of such-and-such style of government which you never use.

(*Civilization III*, Participant 2 interview)

I guess my standard operation, my standard mode of doing things is every new city builds a temple first up.

(*Civilization III*, Participant 3 observation)

Part of it also, is just making automatic movements. Like going... for me, building a road and irrigating, build a road and irrigate, when you've got a worker.

(*Civilization III*, Participant 4 observation)

At times this automatic way of responding to the conditions of the game also came to be regarded negatively because it prevented participants from experiencing the full range of possibilities:

I've been trying recently to mix and match. Just so that I don't get stuck into any particular mode. Try to make sure I understand what things work better with different people. Which is a bit difficult because, you do develop a certain style

(*Civilization III*, Participant 2 observation)

Again, in both *Fable* and *Half-Life 2*, participants noted that it was an automated form of conduct to break barrels or crates in order to obtain items from within them. This was related not only to the learned conventions of those specific games, but also to the wider field of video games in general:

Smash, smash. Once again, they're glowing purple so that means smash them up. Past game knowledge. I played *Diablo*, and if you've ever played that you just smash everything you encounter basically. It's quite compulsive... it's strangely good.

(*Fable*, Participant 4 observation)

Cool. It's a reflex action from constantly playing computer games.
There's always good stuff in chests.
(*Fable*, Participant 2 observation)

That was useful stuff that comes in boxes. You just hit apart boxes you see and ... it's almost like you try to collect as much as you can.
(*Half-Life 2*, Participant 2 observation)

Further, in *Fable* and other games, there was a tendency to try pressing the generic "use" button in circumstances where it was not clear what else to do, as when encountering new objects:

So now I'm going to figure out which stone is which letter... [Presses 'A' button in front of each one] It's just the kind of thing you do...
(*Fable*, Participant 4 observation)

Just seeing if they were meant to do anything. I also pressed E against one of them, don't know if you saw that. First try to do something with it, then you try to shoot it, if nothing happens then you're probably not meant to do anything.

(*Half-Life 2*, Participant 2 observation)

Automated responses even related to the conditions of participants' personal beliefs about aesthetics, such as selecting clothes or make-up in *The Sims 2*:

[“How are you choosing clothes?”] I don't know... I do have things I automatically go for, like... that outfit. But, I'm not sure. [“Based on real life preferences?”] I think so...
(*The Sims 2*, Participant 2 observation)

I always give them arched eyebrows. Probably because, as a female who plucks my own eyebrows, you're always trying to get the perfect arch.

(*The Sims 2*, Participant 5 observation)

The automatic responses to particular conditions in video game play can be seen as representative of the preferable forms of conduct a player has learnt to the extent of internalising them completely. These instant value judgements are also highly related to skillful play. The extent to which the player's automated reactions to conditions are the "right" ones in the context of being successful during play.

6.3.2 Actions-Goals

We now return to the question of conscious actions, but this time our interest is in the influence the operations have on them. As we have seen, actions in the sense of activity theory are the conscious conduct of a player, but they are executed by operations. Given the limitations of the operations level, we also saw corresponding limits at the level of conscious action. Below, we describe the categories of action possible in each case study game based on our prior description of the operations (§6.3.1). As we will conclude in the following section, the actions supported by the interface in terms of the operations lead us back to categories of action which mirror the specific activities in each game (§6.3.3).

Grand Theft Auto

In examining the possible operations in *Grand Theft Auto*, we see a number of categories of action which players can consciously pursue. These categories are limited and each includes a number of operations as part of their execution.

Fighting A large percentage of the operations in *Grand Theft Auto* are devoted to the use of weaponry such as guns, knives, and rocket launchers. Operations include the ability to aim and fire guns, and so on. These operations suggest a category of conscious action revolving around players' attempts to kill or injure other characters in the game world.

Traversing space The number of operations facilitating movement suggests a category of conscious movement in the world of the game. This may take place on foot or in one of the many forms of vehicle in the game world, such as cars, bicycles, and boats.

Menu interactions A final category of interaction involves the ability to navigate the menus in the game. This allows for more sophisticated actions such as changing clothing, shopping for food, and playing pool.

Mini-games The basic controls can also be used to participate in various mini-games in the world of *Grand Theft Auto*, including playing pool at local bars and playing virtual video games at home.

Fable

The operations in *Fable* can be similarly categorised into a small number of themes. These areas of potential conscious action are very similar to those found in *Grand Theft Auto*.

Fighting The availability of the operations relating to combat very clearly implicate conduct that centres on killing.

Traversing space The availability of the movement operations allows for moving through the space of the game world. It also allows for related conduct such as searching for a particular location, exploring an area, and so on.

Social interaction The primitive social operations, such as “give gift” or “instruct to follow” allow for very basic social conduct.

Menu interactions Using the basic operations of menu navigation, the player can engage in actions such as managing the inventory of the hero, upgrading the statistics of the hero, and reading statistics or descriptions.

Mini-games Other conduct which can be engaged in using operations includes fishing and digging for treasure (designed “mini-games”).

Half-Life 2

The very limited set of operations in *Half-Life 2* underscores the simplicity of the game, leading to only two central categories of interaction:

Fighting Many of the operations provide the ability to aim and fire various weapons. These facilitate the players’ routine actions of locating and killing the enemies in the game, such as Combine soldiers or zombies.

Traversing space The only other key aspect of conscious interaction concerns players’ ability to make their way through the space of the game either on foot or in a vehicle such as a car or air-boat.

The Sims 2

The operations of *The Sims 2* concern the basic use of the mouse and keyboard. These operations do not, by themselves, define any particular set of possible actions. Instead, it is at the level of conscious action that we find the game limits players’ potential interactions by closely defining the possible actions which can be executed with the operations. There are a number of themes of conscious action:

Using household items The most common form of interaction in *The Sims 2* is when players click on household items, such as fridges and beds, and examine the potential interactions. Clicking on a bed brings up a pie menu of options such as going to sleep (in pyjamas or underwear), napping, relaxing, and so on. These options define what can be done with a bed and the same

format applies to all other household items. An exception to this limitation is that more actions become available as a Sim gains skills such as cooking (new meals are available) or “mechanical” skills (the ability to fix broken shower-heads and so on).

Interacting with other Sims As with interactions with household items, players are also able to click on other Sims and instigate some form of interaction. Thus, clicking on a Sim will yield categories of interaction and then specific interactions such as “Friendly Hug,” which the Sim will then carry out. As with household items, more or fewer options are visible based on the rating of the Sims’ relationship. The possibilities for action are again defined by the menus which come up when clicking on another Sim.

Building and furnishing a house In “Build Mode” and “Buy Mode” players have access to numerous controls with which to alter the appearance of the house their Sims live in, such buying everything from beds to blenders, and constructing gardens, grottoes, and more.

Shopping and going out of the house A further category of actions enables a Sim to leave the house and go to certain communal areas. This introduces the ability to go shopping and interact with Sims in other areas. This category of action is a repurposing of the use of household items and interaction with other Sims, which are used to accomplish the shopping actions.

Creating Sims A final category of action is players’ ability to literally create Sims to populate their neighbourhoods. This is a case of basic menu interaction in order to assign everything from the colour of a Sim’s eyes to their clothing to their star sign.

Civilization III

As with *The Sims 2*, the operations available to make up the actions in *Civilization III* are basic uses of the mouse and keyboard. Again, it is at the level of actions that the interface most obviously defines players’ options. The conscious actions which can be taken in the game fall into roughly four themes:

Fighting As with most of the other case study games, significant amounts of the potential action in *Civilization III* concerns fighting enemies. In this case, fighting takes place through movement, by moving a unit into the same space as an opposing unit, much as one takes a piece in chess.

Diplomacy Many actions in the game take place using menu interactions, most notably the diplomacy actions in which players are able to negotiate on various issues with opposing civilisations, make truces or swap resources for mutual benefit.

Empire/city planning A key set of actions concern the process of building an empire from the starting point of a single settler unit. This process involves actions from examination and exploration of the space on the map, to evaluations of the landscape and potential transformation of that landscape into an empire.

Empire/city management Once the empire has been more or less established, the key sets of actions concern players' actions in managing it. This includes actions of creating buildings in their cities, such as temples and barracks, and creating units such as soldiers or more settlers. In the "City Menu," players can further manage their populace, and in the Advisor Menus they can focus on tax rates, science spending, and so on.

6.3.3 Preferable input

In examining the sets of operations available in each of our case studies, we have seen that they often define limited categories of action. This was especially the case in *Grand Theft Auto*, *Fable*, and *Half-Life 2*, in which the operations corresponded to basic interactions with the world which were combined into actions. The operations were highly constraining on possible conscious actions. In *Grand Theft Auto*, for example, we saw that only certain actions were possible through the combination of operations. Thus, actions such as "killing a pedestrian" or "driving to the mission marker" were possible, but an action like "joining the police force" was not. There are no operations for accomplishing this latter action, no "fill out form" or "swear oath of allegiance" button available, whereas the operations do indicate that shooting people is a priority:

I haven't shot anyone yet, and that's quite strange I imagine. [Laughs]
 ... I think, in general you do a lot of shooting in this game, so it would
 be kind of strange if you didn't...
 (*Grand Theft Auto*, Participant 3 observation)

Given that the actions in these games are fully defined by the operations, it is also the case that only certain *goals* are meaningful. Having a goal in a video game only makes sense to the extent that it is attainable. The goal of "reach truce with Combine soldier" in *Half-Life 2*, therefore, is meaningless because actions to

achieve this are not enabled by the operations. There are no button presses which allow any form of communication with Combines soldier beyond shooting them.

I would identify what the game wants me to do, by what the game allows me to do. You have a very limited set of options, you can count them on one hand: move around, jump on things, climb up things, shoot things, activate things.

(*Half-Life 2*, Participant 4 interview)

Similarly, a goal of “learning about my fellow gang members’ music preferences” in *Grand Theft Auto* is doomed to go unrealised because operations such as talking to gang members, asking them questions, and engaging in dialogue are all impossible. The possibilities for conversation with characters in the game amount to the operations of “positive response to comment/question” or “negative response to comment/question.” This does not lead to inspired dialogue.

In *The Sims 2* and *Civilization III* the situation is different because the operations are moving the mouse and using the keyboard to interact in a largely menu-driven manner. In these games it is the options offered in those menus which represent the potential conscious actions a player can take and the interface creates constraints on conduct mostly at the level of conscious action.

The result of these restrictions was that participants generally did not *have* goals that were unattainable in their play. That is, they adjusted to the set of operations provided, and performed actions within the bounds of those operations. In all the case study games, we saw conduct which matched the operations and we saw goals which were appropriate to the forms of action available:

Games like this encourage a bit of wanton destruction. You’ve got a weapon, a large supply of bullets. It’s like: Hey, I can do what I want.

(*Half-Life 2*, Participant 2 observation)

As we began to see in our identification of the categories of possible action, above, participants were pushed by the available operations and actions toward the specific and generic *activities* of play. The categories of action available in *Half-Life 2*, for example, closely correspond to the specific activities promoted by the game as discussed in our section on output, moving through space and killing everything in the way (§6.2). Similarly, the categories of action defined in the menu systems of *The Sims 2*, as outlined above, strongly led participants toward the specific activities of personal, relationship, and household management:

You still have to have your meter... all your Needs and everything Green. And quite often the only way to get your Social Need Green is

to be nice to someone. So there are a lot of things you have to do, so I guess it's not as open ended as it seems, but you can do those things in a lot of different ways.

(*The Sims 2*, Participant 5 interview)

[“The game starts off paused...”] Yeah, because it obviously makes you want to furnish stuff.

(*The Sims 2*, Participant 3 observation)

In the operations and actions we have discussed in terms of players' possible input into the game, we see the generic activities plainly reflected. The operations and actions readily lend themselves to generic activities of combat, spatial exploration, resource management, and so on. The operations themselves, in games such as *Fable*, *Grand Theft Auto*, and *Half-Life 2*, were highly generic, with moving and attacking forming the majority of possible operations. The operations, and the particular actions they allow for, reinforce our prior discussion of the promoted activities of play, completing a full circle of reinforcement of those activities. The specific and generic activities are not only represented as the appropriate form of play, but are often the only *possible* form of interaction based on the potential inputs a player can provide.

6.4 Summary

In this chapter we completed our second key contribution to video game HCI by discussing the *specific activities* of play and thus finishing the exposition of our video game activity framework. We used the activity hierarchy as a means to analyse levels of detail in the specific activities, and to further understand the role of the interface in mediating players' beliefs about preferable conduct. First, we discussed the applicability of the hierarchy to video games, showing how it can be used to characterise specific activities and their components (§6.1). Next, we discussed the representation of specific activities in our case study games, focusing on the ways in which the Objects of transformation were suggested to players and how goals were promoted (§6.2). Following this, we explored how the available operations and the relevant conditions in the case studies also promoted particular actions and goals during play (§6.3).

Having looked at play from these two perspectives, we were able to examine the implications for the possible specific activities in our case study games. In each of the case studies, as we examined the categories of action, we saw a close match between the *possible* actions, in terms of the mediation of player input, and

the *promoted* actions, in terms of the mediation of interface output. In other words, a full circle is engendered in which players' actions and activities in the case study games are doubly promoted (§6.3.3). From the perspective of representation, the activities are promoted by narrative, explicit goals, and specific conditions, driving players toward a particular mindset in which they take action. From the perspective of input, the limited set of operations and actions available for players to act with, define a very similar kind of preferable conduct which meshes well with the promoted specific activities.

To this point, we have largely discussed play as though it involved little or no conflict between the player and the game, yet all our case study games included both representations and experiences of conflict during play. In the follow chapter, we address this idea by discussing the place of *breakdowns* and *contradictions* in our video game activity framework.

Chapter 7

Contradictions and Breakdowns: Things Fall Apart

Mario and Vincent are attempting the “Black Project” mission for the first time. After watching a cut-scene, Mario drives to the designated location on the map, a secret military compound in the desert. The base inside is guarded by rifle-carrying soldiers, snipers in towers, and the area is swept by search-lights. The mission requires stealing a particular piece of mysterious technology, the “Black Project.”

Mario has Carl sneak around inside the compound, but gets caught in a search-light. Soldiers quickly kill Carl before Mario can switch to a suitable weapon. Mario reloads and tries again, making more progress, but getting caught just before entering the base. Carl is killed again after a sustained and exciting fire-fight. Warming to the challenge, Mario and Vincent discuss what to do, and decide to emphasise stealth. This time Mario is very careful and enters the base successfully.

Pleased with this success, Mario forgets to pay attention and Carl is mowed down by guards in the base. Vincent laughs at Mario’s mistake and jokingly suggests they walk into the compound and ask for the “Black Project” politely. Mario agrees and directs Carl to walk slowly and calmly into the base with no weapons, approaching the first soldier encountered. Mario presses the “talking buttons” while guard steadily shoots Carl until he dies and Mario and Vincent laugh.

The example of Vincent and Mario’s play illustrates a key feature of video games we have not yet fully addressed. We have discussed video game play as a framework of related activities in which the player proceeds smoothly from operations to actions to goals, but video games typically include *conflict*. A major

component of Vincent and Mario's experience was being searched for, guarded against, shot at, and killed.

To some extent this experience of being opposed was regarded as part of the fun of play. At other times, playing in the face of these challenges prompted Vincent and Mario to learn how to play more successfully. We also saw Vincent and Mario try to play the mission in an obviously "incorrect" manner when they thought they would just ask politely for what the military was guarding. Unsurprisingly, Carl was killed by the soldier who had no ability to engage in such a conversation. Playing "against the grain" of a video game is interesting beyond its obvious amusement factor, however, and tells us something about how the game does and does not work.

In this chapter, we make our third key contribution to video game HCI, extending the video game activity framework to include *contradictions and breakdowns* as a means to describe and analyse the role of conflict and challenge in video game play. First, we show how activity theory can account for these experiences through the ideas of *breakdown* and *contradiction* (§7.1). We then discuss three applications of contradiction in understanding the place of challenge and opposition in games. The first is how some breakdowns are purely representational and not directly interacted with by players, but are still key to enjoyable play (§7.2). The second is how players *are challenged* by certain designed contradictions in video games (§7.3). The third is playing "incorrectly" in an analysis method we call *oppositional play* (§7.4). We conclude by summarising the chapter (§7.5).

7.1 Contradictions in play: Conflict and opposition

A contradiction is a *systematic tension* within or between activities. A simple example is a contradiction between a video game player and the design of the controller. A controller may be difficult to use because its button placement and poor design *systematically* lead to problems for the player.

It is important to distinguish between contradictions and *breakdowns* (§2.4.4). A breakdown happens when the flow of an activity has been disrupted in some way. An example is when a player hits the wrong button on her controller in the heat of the moment and causes the avatar to jump instead of duck.

Breakdowns are related to contradictions in that *systematic* breakdowns in an activity are likely to indicate an *underlying* contradiction. In reverse, if an activity contains a contradiction of some kind, we can expect to observe repeated breakdowns in that activity. Contradictions *cause* breakdowns, while breakdowns

can *indicate* underlying contradictions. Continuing our example of the previous paragraph, the underlying contradiction between the player and the controller design *led to* the observed breakdown of the player pressing the wrong button.

Breakdowns must be *systematic* to infer a contradiction. Specifically, in video games it is exceedingly common to experience problems: being shot at, mis-timing a jump across a chasm, or getting divorced. Such one-off breakdowns, however, are not necessarily indicative of an underlying contradiction in the player's activity: breakdowns are *normal* in the context of play.

One way of conceptualising the difference between contradictions and breakdowns is that contradictions exist at the *activity* level of the activity hierarchy while breakdowns exist at the conscious *action* level (§6.1). Breakdowns are noticed by players of a video game. Pressing the wrong button is experienced at the level of conscious action ("oops!"). The contradiction based on the controller design, however, is not part of the conscious play, but instead a higher level way of understanding the breakdowns: systematic breakdowns make sense in the context of a contradiction. It is the contradiction between the player and the poor design of the controller which explains why the player constantly presses the wrong buttons.

Locating contradictions

Part of understanding contradiction concerns the "places" a contradiction can occur. As we have seen, Yrjö Engeström identified a number of specific locations in an activity system which a contradiction can occur (§2.4.4). In our own work we draw on Engeström's basic suggestions to identify three key locations of contradiction in our case studies (figure 7.1):

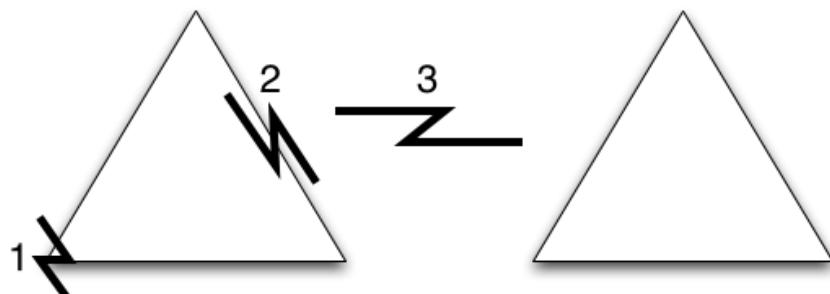


Figure 7.1: Three categories of contradiction in the video game activity framework:
1) Within a node; 2) Between nodes; and 3) Between activities

Within a node The most basic form of contradiction occurs *within* a specific node of an activity, such as Subject, Artifact, or Object. This corresponds to Engeström's *primary* contradiction type and is labelled "1" in the figure.

Example: A contradiction could occur within the Artifact node of the combat activity of *Fable* when the player must choose between wielding a more powerful, but unattractive hammer (LUDUS) or a better-looking, but less powerful sword (PAIDIA).

Between nodes A contradiction occurs *between* nodes when there is a systematic conflict between the two (Engeström's *secondary* contradiction type). Such contradictions can occur between pairings of nodes such as between Subject and Artifact or between Artifact and Object. This type of contradiction is labelled "2" in the figure.

Example: A contradiction might arise between a player-avatar (Subject) and a powerful civilisation (Object) in the combat activity of *Civilization III*. When the opposing civilisation is too powerful for the player to fight against, systematic breakdowns such as losing battles are likely to occur.

Between activities Contradictions *within* a level of our video game activity framework correspond to Engeström's *quaternary* contradiction type. Specifically, these are contradictions between co-occurring activities. In our framework, this can occur in either the level of generic or specific activities. This type of contradiction is labelled "3" in the figure.

Example: A contradiction could arise between the combat and the spatial exploration activities in *Fable*. In a situation where there are a large number of enemies attacking the player, the player is not likely to conduct a thorough exploration because of the need to focus on combat. The spatial exploration activity breaks down as the player is distracted by the combat activity.

PAIDIA and LUDUS as the source of primary contradictions

Engeström identified the opposition between use-value and exchange-value as the underlying reason for primary or within-node contradictions (§2.4.4). This is because the two concepts are interdependent *and* in conflict: one cannot use and exchange something at the same time.

In our observations and analyses of the case studies, we found evidence to support the assertion that in video game activities the primary contradiction is due to conflict between PAIDIA and LUDUS. In part this is due to a correspondence between these video game values and use- and exchange-value in the video game domain. PAIDIA is similar to use-value in that the focus is on the enjoyment of interaction itself. LUDUS, on the other hand, corresponds to exchange value in that the focus is on following rules and conventions in order to earn rewards or to

make progress in the game. This can be thought of as *exchanging* interaction for other rewards such as further potential interactions, points, status, and so on.

Further, as we have already discussed, PAIDIA and LUDUS are not purely in conflict, or purely in synchrony (§4.2). Rather, the two values often support one another in time, but also directly conflict when a player attempts to follow both at the same time. Being playful during a LUDUS-oriented mission rarely aids in completing the mission and following the rules generally does not lead to satisfying PAIDIA. These observations correspond well to Engeström's discussion of use- and exchange-values.

Our data consistently showed PAIDIA and LUDUS as the final arbiters of what it means for a game to be fun and indeed to be a game at all. A contradiction involving either one of these video game values was observed to be critical: if not resolved, it caused play to break down entirely.

Resolving contradictions

Contradictions in an activity must be *resolved* in order to remove the systematic tension which leads to breakdowns. The resolution of a contradiction involves *transforming* the activity in some way, such as by using new Artifacts, new strategies, and so on. In order to resolve a contradiction a player must first perceive the systematic nature of breakdowns in his activity, then identify the underlying contradiction, and finally resolve the contradiction by transforming his activity.

An example of this in *Half-Life 2* is a sequence in the Route Kanal level involving an encounter with a Combine gunship which guards a particular area. The first time a player encounters the gunship, he may be killed by its rockets while attempting to move through the space. Further, he may continue to try to shoot down the gunship with his pistol and never succeed at this. Examining these breakdowns, he establishes that there is a contradiction between the way he moves in a straight line and the targeting abilities of the gunship. Additionally, he works out that there is a contradiction between the available weaponry and the defences of the gunship which is invulnerable to them. The player then transforms his activity by running in a zig-zag pattern, finding cover, and not attempting to shoot at the gunship but instead to avoid it. This resolves the contradiction and allows him to move through the space the gunship is guarding without dying.

This process of encountering breakdowns, identifying contradictions, and transforming the play activity to resolve them, serves as a useful representation of much of video game play. Although, as we shall see, much play specifically does *not* involve contradiction, a great deal of the fun and challenge of play does rely on this process.

As we will demonstrate in the rest of this chapter, the ideas of breakdowns, contradictions, and the resolution of contradictions provide us with a set of inter-related concepts with which to analyse video game play. Critically, these concepts provide further tools for understanding how players' beliefs about preferable conduct are shaped during play. The process of transforming play activities so as to resolve contradictions encountered is at least partly a process of changing *beliefs* about preferable conduct in that situation. Thus, when a player changes his tactics from attempting to sneak past guards in a military base in *Grand Theft Auto* to shooting them all, we see both the transformation of the activity and the player's beliefs about preferable conduct.

7.2 Represented contradictions: Breakdowns in the game world

The conflict between Carl and the military in the example of Vincent and Mario is typical of video games. In most video games there is some form of narrative or representation of a world in which there are fundamental problems. In this section, we emphasise the presence of *represented contradictions*. These contradictions and related breakdowns exist more in the narrative and gameworld than in the playing of the game itself. In video games, it is perfectly usual for things to "go wrong": zombies are clawing at your face, your Sim is having an argument with her husband, or France has troops hovering on your borders.

Although the player has a role to play in the resolution of these represented contradictions, to a large extent the breakdowns and the underlying contradictions exist more for the *avatar*. There are two main reasons for this. First, it can be the case that the breakdowns as represented are entirely outside the player's direct influence. An example is when the family members of the avatar in *Fable* are abducted or killed in a cut scene. Second, it can also be the case that something represented in the game can *appear* to be a breakdown, but not be *experienced* as such by the player. A Combine soldier firing a machine-gun at the avatar might appear to be a breakdown situation, but it is what players *expect* will happen and so it is not considered a breakdown at all.

These represented contradictions serve a purpose, creating a dramatic situation in which the player acts. Narratives of all kinds typically involve a systematic tension between the protagonist and some other characters or events, and games are no different. Part of the excitement of play is being an agent in such a situation: Gordon Freeman saving the world or Julius Caesar conquering it.

7.2.1 Identifying represented contradictions

In each case study game, we saw that the game represented particular contradictions to the player through systematic breakdowns in the world of the game. The most common form of breakdown was caused by some form of basic opposition in the world. In *Fable*, for example, the avatar's life is quickly set on its course by a bandit attack on his village in which his father is killed and his mother and sister are abducted: "Evil had come to Oakvale" (*Fable*, game text). This fundamental conflict between the avatar and the evils of the world continues throughout the game. In the same way, in *Half-Life 2*, the avatar, Gordon Freeman, is explicitly set up in opposition to the Combine regime: "This is the Freeman, the reckoning of the Combine has come" (*Half-Life 2*, game text). In *Civilization III*, the major contradiction is stated in the opening text of the game: "The people have vested *absolute power* in you, trusting that you can build a Civilization to stand the test of time" (*Civilization III*, game text). This text, in the context of opposing civilisations and a hostile terrain, leads to represented breakdowns. The underlying contradictions are those that occur between competing nations: war, resource scarcity, rioting in cities, and so on. Even in *The Sims 2*, which does not include the same kind of direct opponent as in the other games, represented contradictions concern the trials and tribulations of life itself. The Broke family's scenario provides an example: "Brandi was left to raise her two boys alone following her husband's suspicious pool ladder accident. With Dustin acting out, can Brandi teach young Beau to make the right choices in life?" (*The Sims 2*, game text).

Along with the overarching contradictions embodied in the narratives of video games, a common kind of represented contradiction is found in the *social* and *personal* tensions of the avatar. These are especially relevant because there are rarely any social interactions which the player controls. This passivity suggests social tensions are indicative of purely represented contradictions. In *Fable*, there is a constant tension between the avatar and a character called Whisper, who is a fellow hero and competitor for glory. Throughout play, breakdowns occur when Whisper conflicts with the avatar, seeking to best him in combat, quests, and renown which are the indicators of success in the world of the game: "Whisper calls me "Farmboy" as a derogatory comment: not renowned, not a hero" (*Fable*, participant observation notes).

The relationship between Carl and his brother Sweet in *Grand Theft Auto* draws on a fraught narrative based on a contradiction between Carl and his family. Sweet feels that Carl abandoned the family: "Your word don't mean shit around here" (*Grand Theft Auto*, game text). This tension continues throughout the game, reaching a climax in a melt-down by Sweet:

You keep yapping on what you done did, let me tell you what I done did. When Kendl needed shoes. I went out and got the money. When Moms needed an operation, I robbed people for the bread. While you were off in Liberty City thinking about your own shit. For five years, come on man. Now you do something, you want a fucking parade?

(*Grand Theft Auto*, game text)

These examples reveal an important point which is that many of the represented breakdowns in social relationships, or even in the larger scale world of the game, take place in *cut-scenes*. These situations are specifically *not* under the player's control, emphasising that these contradictions are representational and not directly related to the player's play beyond any vicarious identification they have with the avatar.

Further breakdowns in the games are triggered by explicit *opponents*. Opponents are typically represented in such a way as to make them immediately identifiable as a "problem" for the avatar in the narrative of the game. Thus, in *Half-Life 2*, the Combine soldiers "look less human. You're always facing aliens or people in masks and uniforms" (*Half-Life 2*, Participant 2 interview). Similarly, in *Fable*, the ultimate enemy is Jack of Blades. He is "built up during the game to be menacing... he kills people in cold blood and so on" (*Fable*, Participant 4 interview). Note that in both of these examples, it is not the participant who must face up to the fearsomeness of Jack of Blades, or the evil doings of the Combine, but the avatar he controls. The extent to which these opponents represent breakdowns in the game world is a matter of representation rather than player interaction, beyond matters of identification and immersion.

This concept of represented breakdowns as "routine" for a player occurred in all the case studies. In *Civilization III*, the opponents, represented as the source of major breakdowns, are trivialised: "They're absolutely not smart. I wonder how they do things" (*Civilization III*, Participant 5 interview). One participant took an extreme position with regard to *Grand Theft Auto*:

I wouldn't really say this game has opponents... The police aren't your opponents, because if you're skilled they're dead, or you just never annoyed them in the first place

(*Grand Theft Auto*, Participant 5 interview)

In other words, the opposition does not cause breakdowns because it is easy to overcome. Similarly, in *Fable*, opponents "can be divided into utterly useless, and bosses, which might not be useless, but generally are" (*Fable*, Participant 4 interview). In *Half-Life 2*, the enemies "move around and they make funny

noises and they shoot back, but essentially they're obstacles, they're in the way" (*Half-Life 2*, Participant 3 interview). During much play, the events that look like breakdowns are experienced as normal.

7.2.2 Resolving represented contradictions

Represented contradictions may initially seem unimportant, but they serve a central role in making play enjoyable. Specifically, resolving the represented contradictions helps to make the player's actions *meaningful*. Although killing Combine soldiers in *Half-Life 2* was not especially challenging for our participants, the links with the contradictions in the narrative of the game world make the activity meaningful. This is not about shooting paper targets or grey cubes. Similarly, causing a city to stop rioting in *Civilization III* is regarded as a positive part of play, although players are not concerned with the imaginary population of the city.

Participants enjoyed the *resolution* of the larger contradictions represented in game worlds such as that of *Grand Theft Auto*. Although they did not directly affect many of the tensions involved in Carl's progression through the world of crime of the game, the resolution of the contradictions created were key to the satisfaction of play: "the objective is to start off as a nobody and crawl your way up, in a cartel sort of crime-world, and become like the big boss" (*Grand Theft Auto*, Participant 2 interview). Similarly, in *Fable*:

The actual point of the game is following the story. Following your character and what he did, how his life has come about, what's happened to his family...

(*Fable*, Participant 2 interview)

Video games often represent one or more central contradictions which, although only leading to *represented* breakdowns, are resolved by the player's play. There is little doubt that this resolution was enjoyable for participants:

[The narrative is] not important at all, I think. But it definitely has its charm, that you are driving a civilization from the Stone Age to the space-ship, I think it adds a lot of charm to the game.

(*Civilization III*, Participant 5 interview)

You want to have that certain amount of detail in the characters. You want to see what happens to your family, or you want to see what happens around the next corner, you want to see who this dodgy character you've hooked up with really is, and who is behind, who's

pulling the strings behind them.

(*Grand Theft Auto*, Participant 3 interview)

Most of these represented large-scale contradictions are designed to be resolved over the course of play, but there is usually only *one* way of resolving them, and this sometimes frustrated our participants:

The end product of this is all telling a story, with you as more of an interactive passenger, walking along. The story is set: This is what's going to happen. You can play it as different as you want to but the story's still set. You're not going to get another story at the end.

(*Half-Life 2*, Participant 1 interview)

I sort of found out the last time I played that the alignment doesn't really matter that much. It just comes down to this one decision at the end basically. Whether or not you get the good ending or the bad ending. Which I found a bit cheap, really.

(*Fable*, Participant 4 observation)

Although participants did not directly experience many of the represented contradictions as breakdowns in their own activities of play, it is clear that they were important to the pleasure of play. In particular, the represented breakdowns and contradictions are what help to make players' actions *meaningful*: they are resolving major narrative tensions which, without their intervention, would have remained in place.

7.2.3 Represented morals and ethics

The represented conduct and events in a video game can fundamentally conflict with a player's real world values. When engaging in some of this conflicting conduct our participants did explore their moral reactions:

It's a step away from reality. I'm not going to say whether it's a good or a bad thing, because it has its good points and its bad points. But it does kind of desensitise... oh, it does kind of comedify violence and death and destruction, which is probably not a good thing.

(*Grand Theft Auto*, Participant 5 observation)

These experiences led participants to a number of different resolutions of the represented moral contradictions. One of the most common responses was to focus on the necessity of performing morally questionable actions in order to succeed in the game. This approach effectively appealed to the value of LUDUS:

I don't know if I'd really be too interested in killing bandits in the real world either... but, when I was running through that quest there, I wasn't really thinking of it as a real thing, it was just... "if you don't do this, then you can't actually finish it."

(*Fable*, Participant 3 interview)

As you can see I don't have too much care for most pedestrian life [*He is running people over*]. But that's not... I don't think it's because you're like a sick twisted individual... it's just because I want to get there as fast as possible.

(*Grand Theft Auto*, Participant 1 observation)

It's impossible to go through the game without smashing things, running people over, doing things that accidentally cause those kinds of moral questions...

(*Grand Theft Auto*, Participant 3 interview)

The second common resolution of the represented moral issues was an appeal to PAIDIA. In this situation, participants felt that engaging in questionable conduct was justified because the game was designed for such actions as a form of entertainment:

[“Why burn zombies if it’s inefficient?”] Because I like burning zombies.

[“You do it for entertainment?”] Pretty much, yeah.

(*Half-Life 2*, Participant 5 observation)

The fundamental appeal was that the *ability* to perform such actions made them justifiable, particularly because they were “only” representations rather than authentic moral contradictions:

But otherwise, why not try it? You have the chance, and it's a curiosity kind of thing. “What happens if I do this?” Which is a good thing about games, because even if it could be wrong in several senses... breaking the gameplay mechanics, could be morally wrong if it was in the real world, it could go against what you believe in, whatever... but it's still, in the end, just pixels on the screen. It looks real, but you can try it and it doesn't really hurt you at all.

(*Half-Life 2*, Participant 1 interview)

Sometimes you'll just be in a mood where you're not that interested in the consequences of it and you'll just kill people to see what happens.

It's not really killing people, I guess, it's just killing these soulless little computer generated people.

(*Fable*, Participant 1 interview)

I'd hate to say that's what I'm like, but I'm not. But I think everyone has certain parts of their personality that they want to explore. And games give them an opportunity. With *GTA* they have an opportunity to explore the violent or destructive side of themselves. And with *The Sims*, having that character...

(*The Sims 2*, Participant 1 interview)

Probably because... like many people you can just separate "this is just a game." I mean, I don't see... even though the game is to represent people, like those people walking on the road, they're just animated sprites that have been put at the wrong place at the wrong time.

(*Grand Theft Auto*, Participant 1 observation)

At times, however, participants did begin to question their conduct, even as they continued to engage in it:

Not sure that I'm too happy about the kid being in the bathroom while she's in there [on the toilet].

(*The Sims 2*, Participant 1 observation)

I don't like to analyse my morality and say... I don't know. I think that I'm probably a better dictator than the other dictators in the game.

(*Civilization III*, Participant 3 interview)

I'm not sure if I really would have felt comfortable killing bandits then, if they were supposed to be on my side. So maybe I'm just thinking of them being on the Other Side. But then, if they went to attack the villagers I'm not sure I would have felt good about attacking the villagers either. It's not something I feel comfortable thinking about too deeply, to be honest.

(*Fable*, Participant 3 interview)

Like I said there is that slight twinge of guilt when you start slaughtering innocent people but... once you go off the rails... the consequence of that in the game does tend to go away, but I think a slight tinge of evil... that slight guilty feeling you're still aware of...

(*Fable*, Participant 1 interview)

Finally, we did observe instances in which participants resolved the moral contradictions by siding with their moral concerns and *not* performing the actions in question:

And preferably not killing that guy... being a Trader he is Good, and I generally prefer being good in these games. I guess somewhat as a reflection of the real world, I find it rather difficult being Evil.

(*Fable*, Participant 5 observation)

That awful noise they make when they catch fire. There's that whole concept there's actually a sentient human still in there that these things have taken over, and it still experiences pain and... I do recall at one stage not doing that any more in the game, not burning people up any more, because I didn't like the way they were [screaming].

(*Half-Life 2*, Participant 4 observation)

There was a game these guys did, Rockstar Games did, called *Manhunt*. Where... it was going around making a snuff film. That touched me on a bad vein. I didn't play it, just didn't agree with the concept of it.

(*Grand Theft Auto*, Participant 5 observation)

7.3 Challenge contradictions: Breakdowns in play

Along with our observations of the *representation* of breakdowns and contradictions, participants also encountered breakdowns in their play which caused genuine problems. In this section we argue that systematic breakdowns in the activities of play often indicate underlying contradictions which are designed into the game. In particular, we show that such systematic tensions can be thought of as *challenge* in play. While dying once is generally acceptable for players, repeated breakdowns issue a challenge: the current activity must be transformed in some way to account for an underlying tension that is causing it to fail. The ensuing transformation of the player's activity is often driven by changing beliefs about preferable conduct in the context of the game.

In order to analyse contradictions as a form of challenge, we examine typical challenges we observed in the play of the case study games. For each game, we discuss a particular kind of repeated breakdown, identify the underlying contradiction, and discuss how participants resolved the contradiction. This process of transforming play activities is one way of describing *learning* in video

game play, and also characterises the way in which challenge forms a central part of what players respond to during play. After discussing the case study games, we examine the relationship of *cheating* to the “challenge contradictions” and also consider how players sometimes challenge themselves.

7.3.1 Opponent contradictions in *Civilization III*

Whether it is a rock troll in *Fable* or the police in *Grand Theft Auto*, opponents are the archetype of challenge. As we saw in the previous section, however, opponents are often more representational than functional. Nonetheless, in *Civilization III*, we did observe the computer-generated opponents causing problems for the participants which suggested underlying contradictions.

Identifying breakdown situations

In *Civilization III* the player is in control of a newly founded civilisation and must take over the world. As we saw in previous chapters, the activities include various forms of resources management, combat, and spatial transformation. A unique feature of *Civilization III*, however, is that opposing civilisations are engaged in the *same* activities, and this causes conflict. In a world with limited resources, such as land and iron ore, the player and opponent activities come into conflict:

[*Sees the border of another civilisation*] So we've got some opponents over there who could... come over here and start stealing my resources.

(*Civilization III*, Participant 4 observation)

[*Sees a nearby city*] The bloody Greeks have just moved in on me here. What I don't want them to do, actually, is take these dyes [a resource in the game]. So when I create a settler I might send them up there.

(*Civilization III*, Participant 4 observation)

Breakdowns over the space available in the game were very common. Participants were constantly aware of potential breakdowns based on opposing civilisations exploring and claiming more land:

From what I've seen of the Russians and French I can probably develop a couple more cities and some technologies, and with some iron I can produce some decent units and either wipe them out or more likely just harass them and make sure they don't expand into my territory.

(*Civilization III*, Participant 2 observation)

It's a Zulu settler. Hmm. He probably wanted to settle... if I move and he settles first, I'm fucked. I have to build it now. Because I think he'll build a city and I will lose the territory.

(*Civilization III*, Participant 5 observation)

Finally, the most obvious form in which the opponents in *Civilization III* can cause breakdowns is by attacking the player's civilisation:

[*There is an enemy unit near his cities*] Obviously the enemy units such as this are a concern, because most of my cities only have one military unit. So if my military unit fails for whatever reason then my city will be ransacked.

(*Civilization III*, Participant 1 observation)

It always sucks if you end up near the Aztecs early on in the game, because my theory of building temples and not defending things early on quite often backfires because they're more prepared to jump in and steal your city than other civilisations are.

(*Civilization III*, Participant 3 interview)

Identifying and resolving contradictions

In examining the breakdown situations above, we can see that they all occur in the specific activities of play, chiefly focused on waging war, gaining resources, and capturing territory. In the case of *Civilization III*, the key factor is that the opposing civilisations are engaged in the *same* activities. Thus, the contradictions causing the breakdowns are between the player's specific activities, such as "capturing territory," and the opponents' specific activities of the same nature (figure 7.2). These contradictions exist *because* the same activity is being pursued by multiple Subjects.

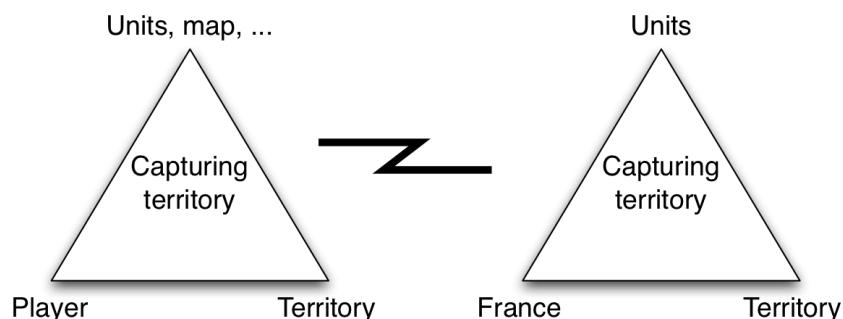


Figure 7.2: Example of a contradiction between the player's and opponents' specific activities of capturing territory in *Civilization III*

The resolution of these contradictions involves examining the breakdown situations which occur, particularly when the game is lost. The player then assesses her play in order to discern what the contradiction is that causes the breakdowns, considers how to transform her activity to resolve the contradiction, and then implements this course of action. In particular, the player must examine her beliefs about preferable conduct in that situation.

This process was well-illustrated by the discussion of one participant about his experience of playing *Civilization III* at the “Emperor” difficulty level. This increase in difficulty led to particular breakdown situations and resulted in a loss. The participant then examined his play to understand this:

You have to think about it when you lose: Why did I lose? Like in any other game. The first time I played this game in Emperor I lost, I was just crushed. In the Middle Ages I just stopped because I saw it wasn't going to happen.

(*Civilization III*, Participant 5 interview)

Here we see that the participant was aware there must be a fundamental contradiction in his play and realised that the contradiction had left him in a situation where he could not win. He then considered the breakdowns and assessed what had brought them about:

I was too confined, I was surrounded by three neighbours and they had at least six technology advances on me... and once they have such an advance you can't even have the proper troops to fight, so you can't even fight them, you can't do anything, you just lost.

(*Civilization III*, Participant 5 interview)

Here the participant determined two major causes of breakdown. First, he had not captured enough territory so he had developed a less productive civilisation than his opponents. Second, he had not made enough scientific progress to produce military units that could defeat the more sophisticated civilisations. In this situation, as the participant concluded, the game was over.

Having assessed the situation, the participant felt that he had identified the core contradictions in his play. The first was between his activity of capturing territory and opposing civilisations' parallel activities. This contradiction led to further problems in other activities, such as his ability to exploit resources to create a more powerful army. The second contradiction was between his science activity and the opposing civilisations' science activities, leading to an inferior army and military defeat. The participant reasoned about this situation in order to transform his own activity toward a resolution:

And I'd seen, Okay, I didn't produce enough Science. So, probably one reason is that I didn't have enough space, and the second way to produce a lot of science is to grow large cities and build Universities and Libraries in it. So I just thought of different ways to get more Science. How to get more room.

(*Civilization III*, Participant 5 interview)

On applying these principles, the participant's activity changed. In this case, the participant chose to transform his activity with a stronger focus on the "capturing land" activity at the beginning of the game:

The first goal is to spread, and then to grow. Especially since the resources were introduced, you have a large interest in having the maximum of land, even if they're not optimal cities.

(*Civilization III*, Participant 5 interview)

The participant then focused on the activity of developing technology to avoid the second contradiction identified, as well as using other diplomatic strategies:

Then, in order to grow more you have to play smart and get technology a few turns first, or start a war by using politics and using somebody else. It's another game. It starts to be another game.

(*Civilization III*, Participant 5 interview)

In this example we can see the process that one participant went through to identify and resolve contradictions in play. In this case, the contradictions were between the participant's specific activities and the same activities as pursued by the opposing civilisations. The resolution was found by focusing on the *timing* of various activities and prioritising the capture of territory and development of technology over other potential activities such as warfare or diplomacy. The participant changed his beliefs about preferable conduct in the early stages of the game from military ambitions and toward developing his civilisation faster.

7.3.2 Spatial contradictions in *Grand Theft Auto*

Much as in the real world, the space of a game can cause numerous problems for players which suggest contradictions in their activities. Another form of breakdown relates to the spatial environment and is well illustrated by the landscape of *Grand Theft Auto*. This game is set in a fictional US state called San Andreas, which includes three cities, numerous smaller towns, and an expansive countryside.

Identifying breakdowns

The specific activity of traversing or exploring space is a central aspect of play, with the player often instructed to drive long distances in order to complete missions. A typical breakdown in these activities is getting *lost*:

This sucks, though. Getting lost. Where did I put the helicopter?
(Grand Theft Auto, Participant 3 observation)

And I think I've lost myself here... I'll go tiki-touring up here.
(Grand Theft Auto, Participant 4 observation)

[Examining the map] I'm here... which means I need to go down here and up this road. I'm just confused and lost in the map.
(Grand Theft Auto, Participant 5 observation)

A second form of breakdown observed was the feeling of spatial *constraint*. The design of *Grand Theft Auto* restricts the areas players have access to until they have performed certain tasks, most commonly a set of missions:

If you go into one of the main areas when you haven't advanced far enough through the levels... as soon as you touch the ground you'll get police running after you shooting you until... there's no way of getting through that, because it's just a total onslaught.
(Grand Theft Auto, Participant 3 observation)

It is impossible to survive in these restricted areas because the player's "wanted level" is raised immediately on entry and cannot be reduced. In these cases the game creates a total breakdown to maintain the restricted space. At another level, many smaller areas are inaccessible until some particular achievement has been made, such as gaining a pilot's license to get into an airport.

Another spatial form of constraint participants recognised was the effort of traversing the world's very large distances while performing various tasks. This constraint was sometimes regarded as a breakdown situation:

The sheer size of the game is your opponent. The game is massive, it stands in your way. Like, if you want to get here [*He points to a spot on the map*], you have to drive from here [*He points to another spot*]. Here to here is a long way, it takes about five, ten, fifteen minutes to actually do that drive if you're doing it slowly.

(Grand Theft Auto, Participant 5 interview)

Identifying and resolving contradictions

The breakdown of becoming *lost* in the space of a game points to a contradiction within the specific spatial traversal or exploration activities. In particular, a contradiction exists between the player as Subject and the space as the Object of transformation (figure 7.3). In this case, the space itself is what causes breakdowns.

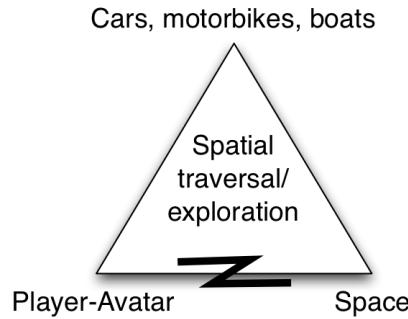


Figure 7.3: Example of a contradiction between the Subject and Object of the spatial traversal/exploration specific activity *Grand Theft Auto*

The most common resolution of the “getting lost” contradiction was to learn more about the space of the game by becoming familiar with landmarks and common locations, for example:

But now, I guess, I can see the mountain up ahead, that big wall. I’m driving straight toward it.

(*Grand Theft Auto*, Participant 3 observation)

[“How are you navigating?”] Partially based on knowledge, and partially based on where the dot [on the map] is. [“You know the city?”]
Yeah, it’s a big gridlock, really.

(*Grand Theft Auto*, Participant 4 observation)

At times, participants used their increased knowledge of the space by interacting with it differently, ignoring the roads, for example, and attempting to move in a straight line toward destinations:

Another thing is, if I had the motocross bike here there’s a couple of shortcuts I could take, which would be much easier.

(*Grand Theft Auto*, Participant 3 observation)

[“You’re not driving on the road?”] No, because I’ve got a vague knowledge of the terrain, so I kind of know where I can go... because the road isn’t always the best way.

(*Grand Theft Auto*, Participant 4 observation)

An alternative resolution for participants was to *tolerate* the multiple breakdowns, attempting to enjoy that they were directed into activities other than the one they were initially pursuing. In this case, participants chose to believe it was okay to be lost because there were often rewards:

[*He hits a truck and careens off a cliff and into the sea*] Ah crap. Cliffs. Big cliffs. Really big cliffs. [*Swimming back to a beach*] But... it did have a reward. A dinghy.

(*Grand Theft Auto*, Participant 5 observation)

In summary, we see that participants transformed their activity to resolve the contradiction, either by accepting the likelihood of becoming lost, learning to better navigate with the map and landmarks, or attempting to drive in a straight line, effectively ignoring the space.

In the case of the spatial restrictions encountered because insufficient progress has been made in the game, there is a contradiction between the player's activity of spatial exploration and the mission activity (figure 7.4). The mission activity becomes a gatekeeper for unlocking new spaces in the game. In *Grand Theft Auto*, players must complete the "Are You Going to San Fierro?" mission, in which they burn a crop of marijuana, shoot down a helicopter, and drive to San Fierro, before they are "legally" allowed into the city of San Fierro. The only possible resolution of this contradiction is to complete the missions.

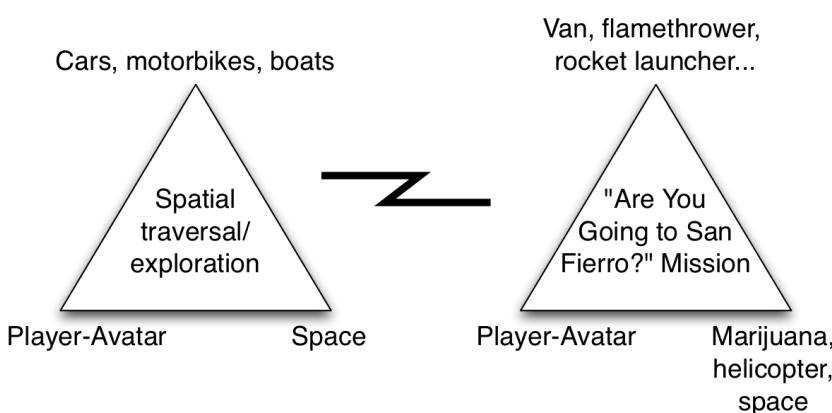


Figure 7.4: Example of a contradiction between the spatial traversal/exploration and mission specific activities in *Grand Theft Auto*

In the context of the more minor restrictions, such as the requirement of a pilot's license to enter the airport in San Fierro, creative resolutions were observed. Specifically, participants did discover ways to transform their spatial exploration activity in order to access this area without completing the necessary missions:

Here you've got an example where there's a part of the island that you've got access to, but there's a locked gate. You can get in here... this is a legal part of the world for the character to be in at that stage of the game, but the access by the road is locked.

(*Grand Theft Auto*, Participant 3 observation)

The participant then demonstrated how access could be obtained to the airport *without* the license by taking a creative approach:

[Drives fast through the tunnel and jumps straight out over water, lands on the roof of a hangar, crashes off the edge onto the airport's tarmac, car catches on fire] So I'm now in the airport. And this part of the game is locked, but because of the nature of the way the world is set up, you can get in there. It's just sitting there waiting for you. But that's the only way I've figured out to get in there.

(*Grand Theft Auto*, Participant 3 observation)

In this case the participant resolved the contradiction not by completing the mission but by transforming his activity using a new Artifact, namely the area of raised land at the end of the tunnel, to jump his car into the airport. Again, we see a change in a participant's beliefs about preferable conduct as he discovers the possibility of using non-standard conduct to achieve otherwise impossible goals.

7.3.3 Avatar contradictions in *Fable*

In many games there is a contradiction centring on the capabilities of the avatar. Avatars often have abilities which can be changed in the course of play and these improved abilities are often *demanded* by the rigours of the game. Breakdowns can occur when the avatar is not sufficiently well-developed to meet the opposition faced during play. The potential for the avatar transformation activity to be the source of breakdowns is well-illustrated in the play of *Fable*, a game which involves avatar transformation as a central activity.

Identifying breakdowns

In *Fable*, the avatar is quantified according to a number of statistics, such as physical strength, aptitude for magic, skill with bow and arrow, and so on. Breakdowns commonly occur when one of these skills or abilities is mismatched with what a player wants the avatar to do:

[He finds a Great-hammer] Oooh. And I'm going to try out the great-hammer and see if it's any better than the sword I've got... *[Tries to use the hammer, dragging it around, trying to swing it, but the avatar cannot do it and the participant starts to laugh]* I think I might be a little too puny for it... yeeeeahh... that's going to be too slow. For those of you listening on the audio, he's having real trouble lifting that.

(*Fable*, Participant 2 observation)

In this case, the participant found a new weapon which he wished to use, but quickly encountered a breakdown situation in which the avatar was demonstrably unable to lift the hammer into the air. On checking the statistics of the hammer the participant recognised the mismatch between avatar and weapon:

And looking at that... I'm guessing since it shows the weight is heavy in red, I could have been able to guess from that.

(*Fable*, Participant 2 observation)

At a higher level, breakdowns can occur when the player enters into a specific quest activity with an underpowered avatar. Again, breakdowns can potentially occur that make the quest impossible:

Yep. That's an incentive to have a more powerful character if you want the later missions to actually be possible.

(*Fable*, Participant 1 interview)

These breakdowns related to avatar transformation centre on the avatar's abilities in the specific *combat* activity. With the wrong kind of avatar, combat is prone to breakdown:

It's probably not in the best interest of a character whose primarily developed around the idea of stealth to run headlong into a fight. Or someone with a fairly magic based character to do the same thing. Stand back and throw fireballs or something, but it's probably not in their best interest to run in with a big sword and expect good things to happen to them.

(*Fable*, Participant 1 interview)

Identifying and resolving contradictions

Considering the nature of the breakdowns, the *avatar* component of the player-avatar Subject has an important role to play in any underlying contradiction. At

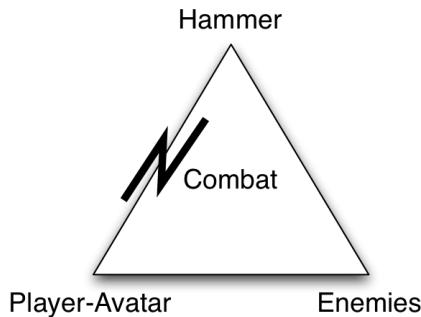


Figure 7.5: Example of a contradiction between the player-avatar and an artifact in the combat activity of *Fable*

a straightforward level, for example, in the case of the too-heavy hammer, the fundamental contradiction is between the avatar as Subject and the hammer as Artifact (figure 7.5).

This contradiction leads to further breakdowns when the underpowered avatar is faced with more dangerous enemies and is not able to defeat them in combat. In considering this, contradictions may exist between *all* the nodes of the activity. The Subject and Artifact may be in contradiction, as we have already discussed, if the hammer is too heavy; a lesser weapon as Artifact may be in contradiction with a heavily armoured enemy as the Object; and the avatar may be too weak or slow to fight with the enemy as Object successfully.

The straightforward resolution to these contradictions is to engage in the avatar transformation activity. Thus, the participant increased the avatar's strength to a point where he could lift the hammer and thus be more successful in combat:

You use this menu to enhance your skills and statistics. Sort of weighing up which direction to develop the character in... let's make him a muscle man. [*He raises the avatar's Strength attributes*]

(*Fable*, Participant 1 observation)

The result of the upgrade was that the avatar could now wield the hammer:

So now he's marginally more muscular. He should be able to carry that heavier weapon, or if he can't he should be... there we go [*Makes his avatar use the heavy weapon*]. Now he can... looks a bit weird but, he can uh... carry a heavier weapon and hit things and hurt them more.

(*Fable*, Participant 1 observation)

7.3.4 Management contradictions in *The Sims 2*

In some games, breakdowns can occur in games when there is *too much* happening and the player cannot cope. A breakdown occurs when players make a mistake

or become stressed because of the multitude of potential actions they could or should be taking. This kind of breakdown was commonly observed in *The Sims 2*, in which many things happen simultaneously.

Identifying breakdowns

The basic objective for most participants playing *The Sims 2* was to have “everything under control” in the world of the game. This was frequently presented by our participants as being at the heart of play:

Try and make everyone happy first, I think. Just so that everything's under control. [“What does that mean?”] All their immediate needs are attended to, and they're at a reasonable level of happiness.

(*The Sims 2*, Participant 1 observation)

This led to decisions being made in play to make sure that control was maintained where possible. Often safer actions were chosen in order to avoid risks, such as a new baby introducing further complication to the household:

I don't think that baby's able to make any sort of independent decisions itself. Yeah, put him in the crib, good idea. Then he's under control.

(*The Sims 2*, Participant 1 observation)

Problems arose when there were multiple Sims to deal with: “It's just too many people around at the moment, I'm not really sure what's going on” (*The Sims 2*, Participant 1 observation). This meant that multiple needs required attention simultaneously, or that Sims not under the participant's control would disrupt her plans:

[Opposition is] when another Sim comes and stops my Sim from doing the little task they want to do... an opponent, and not an opponent, too, because I could just assign another task. But the point is I have to control it, I have to look at the Sim all the time.

(*The Sims 2*, Participant 4 interview)

The challenge of control in *The Sims 2* can even lead to drastic events such as Sims dying in kitchen fires, for instance:

I didn't do it on purpose, actually. It was because of a fire. It was too stressful... that's why when I lose control they can die.

(*The Sims 2*, Participant 4 interview)

Identifying and resolving contradictions

These breakdowns indicate a contradiction within the player-avatar as Subject of specific activities (figure 7.6). The contradiction concerns the ways in which a player cannot necessarily control her avatar at all times, especially when she is in charge of multiple Sims.

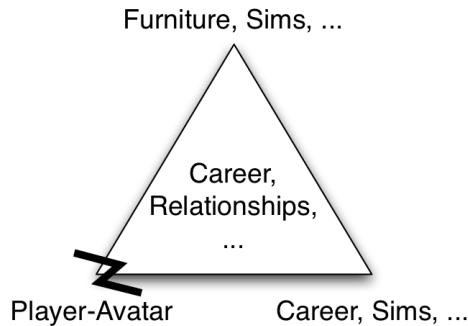


Figure 7.6: Example of a contradiction within the player-avatar node of the specific activities of *The Sims 2*

The resolution of this kind of contradiction most often resulted in participants deciding to reduce the number of Sims under their control in order to minimise the number of possible breakdowns. This helped to resolve the contradiction by playing the game with fewer objects of transformation, thus enhancing the participants' ability to focus more closely on every facet of a single Sim's life:

I tend to play... I like to play only one person, it's easier to take care.
(The Sims 2, Participant 4 observation)

So, I think I'll just create a family [of one], because I find it easier to control just one character rather than two or three.
(The Sims 2, Participant 3 observation)

The other major form of resolution observed was the development of highly regimented routines in playing *The Sims 2*. Participants would often have timetables for their Sims in which they would have a Sim get up in the morning and do various tasks which were designed specifically to keep him or her under control:

I keep saying "everything under control," I do mean that. Once I've got things to a point where I'm happy that everyone's needs are being attended to, we're into some routine, then I'll start introducing new elements to the family.
(The Sims 2, Participant 1 observation)

[“How do you establish a routine?”] Some of it’s just basic kind of things. I mean, I found out that after you take the shower, if you go to the bathroom your hygiene goes down, so that’s why I go to the bathroom first, then the shower... then your bladder goes down as well... so you eat food, go to the toilet, then take a shower. Orderings.
(The Sims 2, Participant 3 interview)

In this way, the contradiction was resolved by actively preventing the breakdowns of control that the participant knew could occur. The activity was transformed into a more routine-oriented playing of the game. This resolution can, of course, introduce a further contradiction in the video game activity, because play may become formulaic and dull:

I suppose it starts getting boring once you notice that you’re going through the same routine. Because once you get home, in *The Sims*, you eat, take a shower, go to sleep. And then some days you have days off, so that builds another [routine].

(The Sims 2, Participant 3 interview)

7.3.5 Perfection contradictions in *Half-Life 2*

During play in which there are few true challenges, players may become demotivated. At this point, a particular kind of play emerges with the aim of not only making conventional progress in the game, but also to play “optimally.” The challenge becomes the level of skill which can be demonstrated in play by, for example, avoiding being shot, conserving ammunition, and proceeding through spaces very rapidly. Given this increased challenge, new forms of breakdown emerge which are well-illustrated in the play of *Half-Life 2*.

Identifying breakdowns

The participants who played *Half-Life 2* generally aimed not just to progress through its levels, but to demonstrate their skill. This objective was most commonly expressed in the desire to do everything perfectly, which meant that being injured or going the wrong way was perceived as a breakdown. Our first participant’s discussion of his play illuminated this approach to the game:

The main criteria would always of course be: I survived. [*He laughs*] After that, it depends on how I’m playing. Again, touching on saving ammo and health, but trying to avoid doing the stupid mistakes... when you’ve played things, and you try to play again, you try to tell

yourself: I know what's going to happen, I can do better than this, I shouldn't be making these stupid mistakes.

(*Half-Life 2*, Participant 1 interview)

When encountering enemies, for example, the participant became distressed at "wasting" ammunition. At one point, he became irritated by being forced to use more shots than was optimal because he missed a "headshot" which would have killed a zombie and its attached "headcrab":

So you see, they're jumping really fast, and the problem is, especially with these it seems, it's a lot harder to hit the headcrabs, so once you kill the zombie the headcrab still lives on. So you're basically using more ammo than you want to, especially with the shotgun. I don't really want to use more than a shot on him.

(*Half-Life 2*, Participant 1 observation)

The overall feeling was that, because *Half-Life 2* is not essentially a challenging game, it was necessary to play it perfectly. Any mistakes in playing were seen as breakdowns in the activity of a *perfect* playing:

I'm sure there's enough people who play really well the first time around anyway, but I think in the end the first time you play a game, you always do a lot more things wrong, even if you've got prior experience with that type of thing.

(*Half-Life 2*, Participant 1 interview)

Yeah, even if it's simple things that have no bearing on the game itself... if you can get through a segment without losing health, losing as little ammunition as possible, you feel like... a better achievement, rather than wasting everything and barely scratching through.

(*Half-Life 2*, Participant 1 interview)

Identifying and resolving contradictions

These kinds of breakdowns are interesting because they are not caused by the basic challenges in the game. Instead, these are breakdowns in the participants' ideal conception of play, in which they are never injured and are always efficient. This can be seen as a contradiction between the participant's video game activity, specifically his value of PERFECTION, and the activity of combat which permeates the game (figure 7.7).

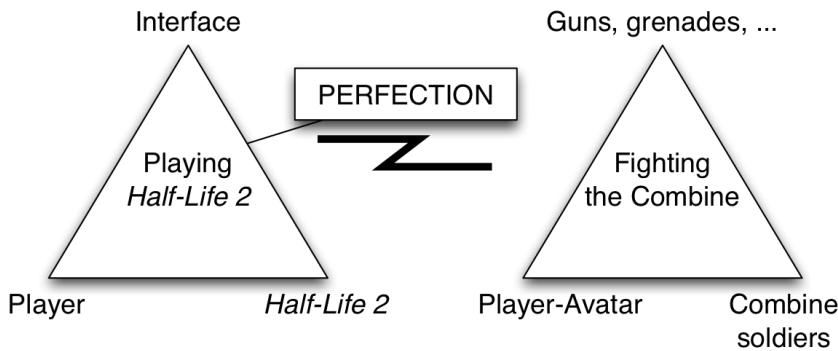


Figure 7.7: Example of a contradiction between the player and his value of PERFECTION and the specific combat activity of *Half-Life 2*

That could be, for instance, with enemies... particularly enemies you don't see often in the game. The first time you meet them you're probably using the wrong tactics, the wrong weapons. You might have enemies that have a weakness toward a certain weapon or a certain area... and you're often not aware of all the places you can hide or get new things.

(*Half-Life 2*, Participant 1 interview)

So usually the first time around I'll get more damaged and use a lot more ammunition than I will the next time, because I kind of know what's going to happen. So I'll be trying to find some alternate ways of dealing with the problems.

(*Half-Life 2*, Participant 1 interview)

Participants resolved contradictions by learning to be extremely efficient with their weapons, for example. "Wasting" ammunition on inferior enemies was resolved by more skillful use of artifacts such as explosive barrels:

Trying to use the environment, by shooting up barrels here to kill enemies instead of wasting ammo directly on the enemies. I can use fewer shots and get possibly more than one kill at the same time.

(*Half-Life 2*, Participant 1 observation)

Participants often saw it as a higher achievement to try and kill multiple enemies at the same time. This was especially possible with the zombies which could be killed with sawblades and other items propelled by the "gravity gun":

Oh, and there's quite a few zombies... I'm going to try and line up as many as possible... there's about seven total. And there we go... got them all. [*He hits three zombies with a very nice shot*] ... It's just the sense

of achievement, when you know that it's not always as easy to get several enemies that fast basically. And when you know you just saved yourself some time and possibly ammunition.

(*Half-Life 2*, Participant 1 observation)

If it is possible to perform some action or activity “better,” then participants wanted to do so. When pursuing such a “perfect game” activity, they regarded the opposition they previously found unimpressive as the cause of breakdowns in this activity. In this kind of contradiction we saw that participants resolved it by altering their beliefs about the preferable use of their weapons by, for example, saving ammunition and precisely targeting their shots.

7.3.6 Cheating to resolve contradictions

In addition to examining the play of our participants for breakdowns which indicate designed contradictions, we can also consider the *cheats* available in a game. Cheating in a video game most basically involves taking some measure which makes the game *easier*. Specifically, cheating tends to remove one or more challenges from the game. Cheats can be seen as resolving contradictions in play: they transform the abilities of the player. Most cheats specifically transform the avatar in ways that make it immune to certain breakdowns. In the following sections we examine types of cheats present in the case studies before considering the impact they have on play.

Combat cheats

In combat-oriented games, the three most common cheats are “get all weapons,” “full health/god mode,” and “full armour.” These three cheats either literally or effectively make the avatar immortal and can be found in both *Grand Theft Auto* and *Half-Life 2*. Using these cheats allows a player to disregard most opponents, because the only threat they offer is to reduce the player-avatar’s health or deplete of his ammunition:

Say I've finished the game, I wouldn't want to go buy all the weapons,
I'd just cheat and get all the weapons.

(*Grand Theft Auto*, Participant 4 interview)

You can just wander around and you know you have complete impunity. That's when you can just ignore every enemy and keep going because you know they're not going to injure you.

(*Half-Life 2*, Participant 3 interview)

The other one would be, in this [game] one of the big problems is you're always running out of ammo, running out of weapons. A classic reason people use cheats would be to have all the weapons on hand all the time, so you get to always use the best weapons or the most fun weapons to use in that particular environment.

(*Half-Life 2*, Participant 4 interview)

Spatial cheats

Spatial cheats affect the player-avatar's ability to move through the world. In *Half-Life 2*, a "no clipping" cheat makes the avatar able to walk through solid objects which greatly simplifies navigation because a straight line can be followed. Surprisingly, however, this ability can lead to a disorienting experience which induces far worse breakdowns than would have existed without the cheat. As the player can now travel in any dimension without regard to the game world, she can become even more thoroughly lost. Without the usual reference points of walls and ground, it is easy for the player to find themselves wandering far outside the game's official space, for example. In this case, a contradiction could be introduced between the player's ability to navigate space and her understanding of that space: while the "no clipping" cheat greatly increases the ability to traverse space, it can drastically reduce spatial awareness.

In *Grand Theft Auto*, there is a cheat to summon a variety of vehicles, but perhaps most the most helpful is a jetpack which allows for unencumbered flight around the game world. The jetpack removes most challenges to navigation, such as mountains in the way or confusing street layouts.

Godlike powers

In *The Sims 2*, the cheats reflect typical breakdown situations again. One of the most popular cheats gives the player as much money as she desires:

I played with cheats and got about 50,000 or 150,000 dollars and just went and made a house with everything in it.

(*The Sims 2*, Participant 5 interview)

This cheat frees players from the obligation to budget and to direct the Sims to earn money for themselves. This is attractive because players are then able to purchase any of the many household items to experiment with their function.

The most powerful cheat in the game is the ability to drag the needs of the Sims up to their "satisfied" position manually. This option is available when players turn on the "debugging mode" of the game, left in by developers in the

final release. This mode completely removes the need to manage the Sims' lives in terms of their basic requirements, and the player is able to focus on the more creative aspects of play, such as designing houses, getting dream jobs, and so on:

This just makes it easier. [Laughs] It just makes it so you can drag up their health and stuff.

(*The Sims 2*, Participant 2 observation)

Cheat-like elements

Fable and *Civilization III* do not have any "built-in" cheats so it is not possible to resolve the kinds of contradiction we have discussed by manipulating the interface using a cheat. Despite this, "cheat-like" elements of play still exist in these games. In *Fable*, for example, players discovered work-arounds such as the "dig-glitch" in which it was possible for the avatar to pass through some solid objects by highly specialised use of the "dig" command:

Make sure you have got a spade with you and then make sure you got it in a hot key. Dig when your back is against the wall and you will somewhat be stuck in the wall. If not, your back is not close enough. Do it once more with your back still against the side you want to go through and you should be able to get through.

(*Fable*, "walk through walls glitch" described by PreciseAngle [56])

In *Civilization III*, players can download "trainer" modules. These modify the rules of the game to make things easier for them during play by giving them, for example, the ability to create buildings and military units far faster than normal. This was regarded as a valuable learning tool by one participant:

It gives you an experience... an idea of what those more advanced levels are like, without having to invest the time and effort and the "no guarantee of success."

(*Civilization III*, Participant 4 interview)

The impact of cheating on play

Participants generally claimed that the use of cheats to remove challenges from play, like walkthroughs, was largely a negative experience. Reflecting this, very few of the participants admitted to cheating during play, all contending that the removal of challenge removes *meaning* from play:

It doesn't really feel like anything once you play with cheats.

(*The Sims 2*, Participant 3 interview)

In terms of playing a game, I'll always play it for a significant period of time myself. And will not use any of the cheats, and would really rather not hear from other people who've played the game previously how it goes at the end, or what to do in certain places...

(*Fable*, Participant 5 interview)

It kind of ruins it, because... If you cheat to get past it, especially if you can't go back and do the mission without the cheat, then you think: I wouldn't have finished this game if I didn't cheat.

(*Grand Theft Auto*, Participant 4 interview)

Cheats which resolve challenge contradictions without effort from players were regarded with suspicion by the participants. Without the contradictions which forced them to transform their activities to continue playing, the games felt mechanical, with less challenge or fun.

7.3.7 Player-created contradictions

Players are sometimes inclined to create their *own* challenges. In effect, players themselves become the designers of contradictions by increasing or altering the challenges in the game. This was partly indicated in our discussion of *Half-Life 2*, above. There participants often redefined their standards of success in play to surpass conventional Motives of completion in favour of the ideal of a perfectly played game. Adopting this new value of PERFECTION then led to contradictions in play, such as ammunition usage and the perfect health status during a segment of the game. These contradictions, engendered by the players' desire for perfection, correspondingly made the game more challenging, although nothing in the game rules themselves dictate this attitude.

Designing contradictions in play is generally something pursued only by experienced players, and usually when the game itself has ceased to provide sufficient challenge. In other words, when players have resolved the designed contradictions present in the game itself, they begin to introduce their own. In many, these player-designed contradictions must take the form of new beliefs about preferable conduct, because the game itself cannot be easily changed.

One such approach is found in the specialised "No level up / No power up guide" FAQ for *Fable*. This FAQ details rules for playing *Fable* without altering the avatar during the game:

If you're like me then you probably find that playing through *Fable* normally to be very easy compared to most other games. I decided to try and challenge myself to see if I could beat the game with self-imposed handicaps. The idea is to play through the game without spending experience points or getting any health or will power ups.
(*Fable*, "No level up/No power up guide" by Jason Nicholas [56])

Following this course of action makes the game intensely more difficult because the avatar remains the same while the opposition grows steadily more powerful. This introduces a contradiction between the player-avatar and the specific combat activity the player must pursue to be successful:

It's very challenging. Most of the later enemies and bosses will kill your character in one hit or one combo attack. Early on you will die in about three or so hits from weak enemies. Be prepared to die a lot!!
(*Fable*, "No level up/No power up guide" by Jason Nicholas [56])

Another form of player designed contradiction can be seen in "speed runs." By players attempting to complete a game as fast as possible, new breakdowns emerge. Enemies, for example, can no longer be dealt with at the player's leisure but must be sped past or killed efficiently. The speed run challenge has a community of players who compete to see who is the fastest [202]. The results of these speed runs are remarkable. While *Grand Theft Auto* can easily take sixty hours to complete, it has been completed in under eight hours in a speed run. Similarly, *Half-Life 2* commonly takes over ten hours to play, but has been completed in slightly more than an hour and a half. The skill required to accomplish this kind of feat can be seen in the sophisticated new forms of action that the "speedrunners" use:

In case you think we timed our jumps too perfectly, know that this speed-run was NOT focused on timing jumps. For bunnyhopping, we used a simple macro which presses the button assigned to "jump" repeatedly, for as long as it is held in.

(*Half-Life 2*, "Half-Life 2 Done Quick" [115])

Another form of player designed contradiction favoured by *Civilization III* experts places special restrictions on gaining victory. Most common are complex sets of victory conditions in which players compete to complete the game in different ways while maximising their points. A good example is the Civilization Fanatics' Center's "Machiavelli Award":

The Machiavelli Award is an achievement players can win with a minimum of six Fastest Finish HOF [Hall of Fame] games. It is an award given to players who have submitted a valid HOF entry for each of the six in-game victory conditions (Spaceship, Conquest, 20k, 100k, Domination and Diplomatic).

(*Civilization III*, “Machiavelli Award” [55])

Similarly, the “Legacy” challenge posed by players of *The Sims 2*, gives rules for a more difficult way of playing the game. In this version, players have to play through multiple generations of Sims and achieve difficult goals, such as Sims dying in a “Platinum Mood” or having alien pregnancies. Additional “handicaps” can also be introduced to create even more difficult play:

Sims may only take new jobs on Mondays. Only the first job in the newspaper and the first job on the computer are available. The jobs behind them may not be selected. Only one Sim in the family may choose the same job listed in the same paper/computer. No jobs may be taken by anybody on any other days of the week. Your Sims may not be hired by any player-owned businesses. Your Sims may not work as a bartender, barista or cook on a community lot.

(*The Sims 2*, “Tight Job Market Restriction” [204])

In each of the cases discussed we see that players can design their own challenges to enhance play. They can create a contradiction in the specific activities, such as the denial of a particular activity (e.g. avatar transformation in *Fable*), they can invent new definitions of success (e.g. *perfection* in *Half-Life 2* or the Machiavelli Award for *Civilization III*), and so on.

7.4 Oppositional play: Quest for contradictions

In our example of Vincent and Mario playing *Grand Theft Auto*, we saw them approach their play in a way that was nonsensical in the context of the game: they decided to try to “ask” for the mysterious technology the military were guarding. They were effectively conducting themselves according to a value of BENEVOLENCE. Unsurprisingly, this idea was unsuccessful, and it is important that this is not a surprise. *Grand Theft Auto*, on many levels, does not allow such an approach to play. Although such a playing can be classified as a failure in terms of progress in the game, it does help to demonstrate something about the game itself: a peaceful resolution to the “Black Project” mission is impossible.

Had Vincent and Mario continued to apply this form of “peaceful” play in other situations, they would have encountered breakdown after breakdown. They would be unable to complete any of the game’s missions, for example, which usually involve killing. This suggests that adopting a value of BENEVOLENCE leads to a *contradiction*. At the highest level this contradiction exists between that value and various of the central activities of *Grand Theft Auto*, including missions and combat. Further, the contradiction is *irresolvable*: no matter Vincent and Mario might have tried they would have been unsuccessful.

The occurrence of an irresolvable contradiction during play indicates that adopting BENEVOLENCE as a belief about preferable conduct is not possible in the playing of *Grand Theft Auto*. Further, irresolvable contradictions provide a form of *negative evidence* for the values supported in the interface by indicating values which are *not* tenable during play. The reality that BENEVOLENCE is untenable supports an argument that an opposed value such as AGGRESSION is promoted as a belief about preferable conduct in *Grand Theft Auto*.

If we play according to a particular value and find it irresolvably contradicted, we have evidence that such a value is not supported by the interface. We call this approach to video game analysis *oppositional play*.

As part of our case studies we have performed oppositional playings of the games in order to test the method as well as to explore the games’ values. In the following subsections we discuss each of the case study games in terms of oppositional playings. In each case we identify an oppositional value to define preferable conduct for that playing. We then attempt to play according to that conduct and examine the results, leading to a decision about whether the value leads to contradictions or not.

7.4.1 Playing nice in *Half-Life 2*

One oppositional playing of *Half-Life 2* is to adopt a value of BENEVOLENCE as Vincent and Mario attempted to do in *Grand Theft Auto*. In this case, preferable conduct is to not cause harm to any living being in the game, while still attempting to follow the narrative and other elements of the game.

At first, the playing seems impossible. Encounters with large numbers of Combine soldiers or zombies are a staple of play and the usual response to is to kill them. There there is no “surrender” or “negotiate” button. The only way of playing benevolently is to *rush past* all soldiers and to leave them behind. This involves the avatar, Gordon Freeman, being injured early and often, but does not necessarily end play altogether. We were surprised to find we were able to progress a substantial way through the game without harming anyone, although

it was exceedingly challenging.

In a BENEVOLENT playing, our activity was transformed to account for the contradiction between our value of BENEVOLENCE and the specific activities of combat and traversing space. The nature of play changed from strategic positioning and shooting, to working out how best to elude the soldiers, for instance by jumping onto a banister in order to run past them instead of using the stairs.

The BENEVOLENT playing does prove impossible in the end. There are situations in *Half-Life 2* when progress *cannot* be made without doing harm. One example is the destruction of a large bridge. The bridge must be destroyed to proceed, but this causes the death of all the Combine soldiers standing on it, ending any suggestion of benevolence.

While the BENEVOLENT playing of *Half-Life 2* was possible for longer than we expected, and even enjoyable at times, it encountered unavoidable breakdowns indicating an irresolvable contradiction. As we have suggested, the contradiction is between a value of BENEVOLENCE and the central activities of play: combat and traversing space. More fundamentally, the conventions of the game are plainly to shoot the Combine rather than avoid them, controverting the core value of LUDUS. While the benevolent playing satisfied PAIDIA for some time, it palled as it became more and more difficult to accomplish.

7.4.2 Being weak in *Fable*

The activity of avatar transformation is especially important in *Fable* (§5.3). An oppositional playing, therefore, is to abstain from this, pursuing a value of NON-IMPROVEMENT. As we discussed earlier with respect to player-designed challenges, not transforming or upgrading the avatar in *Fable* is possible, but does involve a considerable amount of difficulty (§7.3.7).

The chief problem lies in the combat activity. In refusing to upgrade the avatar, he remains as weak as he was at the beginning of the game throughout play. This leads to an important problem: he dies very easily.

If we add to this vulnerability the idea that weapons are a form of improving the avatar, then we must abstain from them too, leaving us using the only two weapons that the avatar always has: his fists and a stick. This leads to another problem: it takes a *very* long time to kill anything with a stick.

There are two major forms of breakdown involved in the NON-IMPROVEMENT playing of *Fable*. First, there is the obvious breakdown of repeated death. It is very difficult to kill most enemies, especially in groups, and this is aggravated by the fact that most enemies can kill the avatar instantly if they land a blow. Dying means restoring the game to an earlier point, and thus leads to repetition and the

second form of breakdown: boredom. Boredom comes in two major forms: either we grow bored by dying all the time, or we do not die, but find it takes far too long to get through the regular encounters in the game.

There is a fundamental and irresolvable contradiction between a value of NON-IMPROVEMENT and the avatar transformation activity in *Fable*. Eliminating the avatar transformation activity removes some of the pleasure of interaction (contradicting PAIDIA) as well as makes progress according to the rules all but impossible (contradicting LUDUS).

7.4.3 Staying small in *Civilization III*

A key value emphasised in *Civilization III* is EXPANSION. Much of the game's play focuses on a civilisation spreading out to take advantage of resources, to gain strategic military advances, and to generate the most productive civilisation possible. The value is emphasised in the victory conditions of the game: military victory, cultural victory, election in to the United Nations, territorial victory, launching a spaceship, or winning according to the quantitative "histograph" at the end of the game. All of these require an expansive and dominant civilisation, which is thus regarded as essential by serious players.

Opposing this value by playing with a value of NON-EXPANSION, then, helps to illustrate the importance of that value. This value leads us to a playing in which we establish a single city (the game always begins with a settler), and maintain this city while refusing to expand.

Numerous breakdowns stem from such a playing. Foremost, there is not much to do in maintaining a single city in *Civilization III*. The city itself can support only a limited number of units, for example, which means there are very few "pieces" to move around during a turn. Further, a single city does not make very much money, because it does not have access to many resources. Finally, the city constantly generates population, requiring us to create "workers" to reduce population (the only other option is a settler, which is not permitted by our value). The playing devolves into minor maintenance jobs and the creation of worker after worker.

A civilisation consisting of a single city and a large number of workers holds very little leverage when it comes to other civilisations. Our NON-EXPANSIVE civilisation is generally overrun and eliminated swiftly without troops to defend it. Further, it has little to offer in diplomatic agreements, being neither a military nor a resource rich power in the world.

There is a contradiction between a value of NON-EXPANSION and the specific activities of play, especially combat and resource management. This, in turn, controverts the key value of LUDUS: the game stops being a game.

7.4.4 Law enforcement in *Grand Theft Auto*

Given the focus of most play in *Grand Theft Auto* on *breaking* the law, we can play in opposition by attempting to *enforce* the law, actively pursuing a value of JUSTICE. Such a playing immediately sounds as though it has potential because it suggests excitement and action and initially does seem to be possible. We can drive down the streets in a police car looking for criminals in an apparent reversal of the assumed underlying value of CRIMINALITY. Sirens blaring and speeding toward the known location of a criminal, we are certainly enjoying ourselves.

All is not, however, as it seems. A blatant breakdown in this playing is that to get to this position of hunting down criminals and enforcing the law we must first *steal* a police car, potentially killing the one or two police officers who were previously driving it. This is a bad start to enforcing the law.

Tellingly, the official name of this mode of play in the game is “vigilante mode,” denoting our actions as being specifically *outside* the law. If there were any doubt at this point that genuine law enforcement is impossible, we need look no further than that the way to bring criminals to justice in the game is to kill them.

The breakdown in this playing, then, is that it is not even possible to begin without contradicting the value of JUSTICE: the activity is composed of many illegal actions. Further, there are no available operations supporting JUSTICE such as an “arrest” or “read rights” button.

The contradiction here occurs between the value and the specific activity of law enforcement as presented in the video game. *Grand Theft Auto* presents a perverted version of law enforcement in keeping with the overall value system of the video game. Adhering strictly to a value of JUSTICE allows us to do nothing at all, contradicting both PAIDIA and LUDUS.

7.4.5 Misery in *The Sims 2*

A value of play apparent our discussion of *The Sims 2* in this dissertation is HAPPINESS. Fulfilling the Sims’ needs, addressing their wants, and avoiding their fears are all part of playing the game. This inevitably leads to an oppositional playing with a value of MISERY.

In this playing we make the Sims as unhappy as possible by ignoring their needs and pursuing their fears. We let them go hungry, making them work out repeatedly until her hygiene and energy levels are at record lows, and focus on their fears. If, for instance, they are afraid of being “rejected for flirting,” we flirt with every other Sim before establishing sufficient “relationship points” to drastically lower the “aspiration meter.”

There is a perverse entertainment in pursuing such a negative playing, and the game fully accounts this approach. When Sims' needs are dangerously low, there are comic tantrum animations such as Sims rubbing their stomachs or stamping their feet. Even more entertaining are the results of a depleted aspiration meter. This leads to a visit from the therapist who drops from the sky on a propeller and proceeds to go through a highly comical routine with the Sim to restore her sanity.

Even in death, *The Sims 2* is entertaining. The Grim Reaper arrives with his scythe and "book of the dead." Sometimes, after collecting the soul of the departed Sim, the Reaper will even stay to mix a drink at the bar or to use the toilet. All of this is an amusing response to what was intended to be oppositional.

There are, however, genuine breakdowns caused by MISERY playing. Once again, there is a contradiction between the MISERY playing and the value of PAIDIA. While playful to a degree, such a playing involves only a limited vocabulary of actions and operations and thus does not fulfil PAIDIA for long. The value of LUDUS is also contradicted by the MISERY playing, as it breaks the "rules":

If the point of playing *The Sims 2* was to kill off all your Sims, then you would be the world champion! But, unfortunately, the way things stand now, *The Sims 2* is still a LIFE simulator.

(*The Sims 2*, game text)

7.5 Summary

In this chapter we made our final key contribution to video game HCI by introducing *contradictions and breakdowns* as a means to describe and analyse the role of conflict and challenge in video game play. First, we introduced the activity theory concepts of contradiction and breakdown as they apply to video game play, showing how they help to account for notions of conflict and challenge (§7.1). Following this, we introduced the idea that much of the conflict which occurs in the case study games is purely *representational* rather than interacted with by the player, though this is an important component of play (§7.2). Next, we examined the nature of contradictions designed into the case study games in order to *challenge* players and to force them to transform their play activity in order to eliminate systematic breakdowns in play (§7.3). Finally, we introduced a method of analysis called *oppositional play* in which we explored the interactive possibilities of video games (§7.4). As we saw, untenable values of play generally came into conflict with PAIDIA or LUDUS or both.

A notable element of the oppositional playings was the instances where breakdowns did *not* occur. This was most evident in the BENEVOLENT playing of

Half-Life 2 and the MISERY playing of *The Sims 2*. Although the BENEVOLENT approach was very difficult and did lead to breakdowns, there was also the experience of an enjoyable challenge and moments of entertaining play. Similarly, during the MISERY playing of *The Sims 2*, there was the opportunity to experience elements of play that might be missed in a playing focused on happiness, such as the Therapist and Grim Reaper.

The framework as it now stands serves to integrate multiple levels at which play can be viewed, from the real world to individual button presses, and also to view play in terms of conflict. In the following chapter we summarise and discuss the results of our investigation into video game values, viewing the video game activity framework as a whole.

Chapter 8

Conclusion: The Game is Never Over

Vincent is in control as he directs Carl to chase down the speeding fire engine in *Grand Theft Auto*. The fire engine crashes spectacularly and Carl's nemesis, Officer Tenpenny, collapses onto the road, still belligerent even as he is dying: "Come on, assholes! I'll take you all! You're mine! Mine! I run this town!"

A final cut-scene is played in which Carl talks with his family and friends about what to do next. He decides to stay in his old neighbourhood, showing that he has finally learnt the value of family and community. The credits roll. Vincent and Mario recall their favourite moments of the game, from the early times of learning to ride a bicycle to the exciting battle with an army base full of soldiers.

When the credits have concluded they look on as the screen returns to Carl standing in Grove Street. Vincent hands the controller to Mario and they discuss what's next. Will it be completing stunt jumps they have missed, perfecting their helicopter flying, or simply driving around and waiting for something to happen?

Just as Vincent and Mario have finally come to the end of *Grand Theft Auto*, we have reached the end of this dissertation. Like Vincent and Mario, we can now look back on what has been achieved, though this is certainly not "Game Over."

In this dissertation we have developed a framework for understanding video game play as a form of human-computer interaction. Our focus throughout has been on the concept of *video game values*, players' beliefs about preferable conduct during play. As we have shown, video game values provide an essential connection between the nature of video games as *games* and as *software*.

Our development of the framework was in response to the problem of how to deal with video games within HCI. They can be seen both as a form of software, like *PowerPoint* or *Mac OS X*, and also as games, like *Monopoly* or chess. Traditional HCI research is not sufficient for understanding interaction with video games: people *use* software, but they *play* video games.

Unique aspects of play as interaction can be seen in the interface itself. The interfaces of traditional software are normally meant to be transparent and efficient: the software should not get in the way of what the user *really* wants to do: write a letter. In video games, however, the interface is the *focus* of interaction: the game *is* the interface. Further, video games set out to be highly obtrusive, defining goals for players to accomplish and purposefully limiting their ability to do so.

The disjunction between HCI and video games was obvious in the literature about video games both from the perspective of video game HCI and game studies (chapter 2). While, as we saw, both areas of research have a great deal to offer, they are limited by a tendency to see games as either only *games*, with rules, narratives, and goals, or only *software*, with usability concerns, technological advances, and interaction design. This limitation suggested the need for a bridge between the two perspectives, leading to the framework presented in this dissertation.

In order to study interaction with video games we conducted extensive qualitative research, selecting five video games as case studies (chapter 3). Our focus was on players' experience of video game play and their understanding of the interaction. We also studied the interfaces of each case study game in detail and used our own observations to support and extend the data gained from players.

Based on the data collected, our conclusion that there was a need for a specialised video game HCI led to the development the viewpoint of *video game values* (chapter 4). In our initial exposition we showed how the concept of value can focus attention when studying video game play. Most importantly, we demonstrated the central role of the interface in both promoting preferable conduct to the player and mediating that conduct. We introduced the core values of PAIDIA and LUDUS based on the game studies literature and our own data analysis and demonstrated their place in our analysis at the root of interaction with video games. The perspective of video game values was then applied throughout the dissertation as we described and analysed play as a form of human-computer interaction.

In chapters 5 and 6, we presented our video game activity framework. We identified three levels of activity: the video gaming activity which takes place in the real world, the generic activities which help define game genres, and the specific activities which are represented on screen. Further to this, we showed how specific activities can be analysed according to the conscious actions and unconscious operations occurring during play. Throughout these discussions we

focused on the role of players' beliefs about preferable conduct and how these beliefs were formed and expressed during play.

Finally, we considered the role of conflict and opposition in video game play (chapter 7). We showed how the concepts of breakdown and contradiction provide a platform for discussing challenge in video games and we introduced our own analysis method called *oppositional play*. We demonstrated how analysis through oppositional play can help in understanding how video games *prevent* certain forms of conduct being adopted by players. We established that challenge and opposition had a central role in shaping players' beliefs about preferable conduct, either by preventing conduct deprecated by the game, or by prompting players' actions in response to conflict.

Our activity theoretic framework allows for multiple levels of detail in describing and analysing the player of video games and accounting for the role of opposition and conflict during that play. We have shown how players' beliefs about preferable conduct are both mediated by the interfaces of video games, and that this process is key to understanding play as human-computer interaction.

8.1 Contributions

8.1.1 Video game values

We introduced *video game values*, defined as players' beliefs about preferable conduct during play, as a means to describe and analyse play as a form of human-computer interaction. We showed how the two core video game values in our case study games, PAIDIA and LUDUS, influenced all aspects of play.

In chapter 4, we defined video game values and introduced PAIDIA and LUDUS as the central video game values in our case studies. We showed how video game values can be used to discuss the unique aspects of play as a form of human-computer interaction. We returned to the concept of "beliefs about preferable conduct" throughout the dissertation, focusing on their mediation by video game interfaces. We highlighted the values of PAIDIA and LUDUS and demonstrated their impact at all levels and contexts of play. Using our case studies as a basis, we presented substantive evidence that video game values are an effective approach for the description and analysis of play as a form of human-computer interaction.

8.1.2 A video game activity framework

We developed a *video game activity framework* for describing and analysing video game play at multiple levels of detail and context. We showed how play can be

analysed using activity theory to integrate diverse contexts, from the real world experience to represented actions in a game world to individual button presses.

In chapter 5, we presented evidence relating to video game play as the real world activity we call *video gaming*. At this level we considered the influence of real world events and values on interaction. Next, we introduced *generic activities* to address the concept of genre within activity theory. We showed how the data indicated generic forms of activity such as combat and spatial exploration.

In chapter 6, we discussed *specific activities* to address play as represented on a screen. At the level of specific activity we were able to provide evidence for the applicability of the activity hierarchy and presented specific activities along with the *conscious actions* and *automatic operations* which make them up. Operations were identified with the fundamental use of the interface and input devices and connected the specific activities to the real world context of video gaming.

8.1.3 Contradictions and breakdowns

We extended our activity framework to include *contradictions and breakdowns*, describing and analysing the role of conflict and challenge in video games. We used these concepts to consider multiple forms of conflict, including represented and experienced challenges, and the use of contradiction as a basis for analysis.

In chapter 7, we introduced contradictions and breakdowns and showed how they provide the ability to view play as a series of contradictions and resolutions as the player advances. We discussed the relationship of contradictions to conflict both in terms of purely *represented* conflict and also genuinely *challenging* conflict. We introduced an analysis method based on contradiction called *oppositional play* which allows us to determine which specific values are tenable in a game.

8.2 Related work

We now examine the position of our own work with respect to existing research as discussed in chapter 2, focusing on three major bodies of literature: HCI, game studies, and activity theory. In each case, we identify aspects of work which are complementary with, or extend upon, our own research.

8.2.1 HCI

Our work can be regarded as a part of the tradition of *value sensitive design* [103, 102]. With respect to value sensitive design, we have shown how video games can be studied in terms of value. Value sensitive design is well-developed as

an approach to examining values embedded in software [103]. Most research in value sensitive design, however, concerns other forms of software and addresses specific, named values such as DIGNITY and SUSTAINABILITY [36, 182], which are not a part of our project. Further, value sensitive design has a particular focus on the evaluation and creation of software informed by human values, rather than strictly to analysing them. At present, our work does not extend to practical considerations in the same way.

The work in this dissertation can also be thought of as the study of *persuasive technology* [94]. In persuasive technology the focus on “changing attitudes or behaviours or both” fits within our discussion of video games’ influence on players’ beliefs about preferable conduct during play. Within persuasive technology research, however, there is a focus on altering beliefs about preferable conduct not only during interaction but also after it has ceased [144], and we have not examined this potential. Further, the work on persuasive technology often comes from a strong psychology background, involving quantitative analysis and other forms of testing [16]. Our own work does not aim at drawing conclusions about player psychology beyond the immediate facts of their interactions during play. Nonetheless, we believe that our framework and perspective of video game play could well translate into future work on video games as persuasive technology by providing a base level understanding of the interaction.

Studies of software in terms of its influence during use, such as those by Catherine Adams [6] and Edward Tufte [240] on *PowerPoint*, are strongly related to our own work. In particular, Adams and Tufte analyse *PowerPoint* in a similar fashion to our own analyses of video games, focusing on how the interface itself tends to influence its use. Although different approaches are used, the intention is the same. This further suggests the interesting possibility of applying our framework to other forms of software, as we will discuss below (§8.4).

Video game HCI specifically is the area we most wish to contribute to. As we have discussed, video game HCI is underdeveloped by the standards of HCI in general, although it is growing in scope and depth [131, 263]. Much video game HCI research has a highly *practical* focus, concerning the evaluation and design of video games [13, 153]. The Microsoft Playtest Group is the foremost example of this approach providing thorough and industry-validated methods for video game evaluation [197, 199]. Similarly, the various game designers who have commented extensively on video games also have focused largely on the practicalities of video game design and evaluation [60, 214]. The privileged access of these groups to the development process allows them to perform important work we have not attempted to match here.

We have instead focused specifically on understanding play as a form of

interaction and have suggested this is a missing component in existing research. In particular, many researchers either claim existing HCI methods are sufficient [154] or assume that play is already well-enough understood to proceed to higher level analyses and practical concerns [69]. While such work is important, we have found it desirable to return to the fundamental of video game HCI by describing and analysing the form of interaction itself.

8.2.2 Game studies

Game studies has a focus on understanding the nature of play in relation to video games, and provides deeper analyses of the activity than are available in video game HCI. Our own work is intended as a link between HCI and game studies in order to indicate the great deal of important work on games already available.

Game studies research includes coverage of many of the generic activities we have identified, including genre itself, spatiality, and avatar transformation [5, 44, 77]. Further, other elements of our activity framework are also addressed in depth, such as the player-avatar relationship, motives for play, and the role of PAIDIA and LUDUS [100, 159, 261]. Other key elements of our work, such as the relationship of narrative to play, game worlds as settings for play, and the importance of rules and goals are also well studied [99, 148, 135].

Despite the large amount of work on these topics, and even perhaps because of it, our research is important in integrating these ideas and applying them to HCI considerations specifically. Throughout the dissertation we have had a focus on understanding how the well-developed concepts of game studies apply to, and influence, the interactions of players with video games.

The central literature within game studies which relates to our own work concerns direct discussions of value or players' beliefs about preferable conduct. There is a significant amount of literature about how video game designs promote preferable conduct to players, such as Gonzalo Frasca's work on ideology [100], Steffen Walz' approach to video game rhetoric [246], and Miguel Sicart's discussions of ethics [221]. These discussions are highly relevant to our own work, and help address similar concepts from alternative positions. We suggest that this dissertation be read as an HCI perspective on this tradition of game studies.

Another key area of game studies we must consider our work in relation to is the study of video games in the context of *education* [67, 162]. In particular, the work of James Paul Gee has substantial cross-over with our own [110]. While we do not claim to bring an education- or learning-specific perspective to our work, links with this approach are clear. In particular, our use of contradictions and breakdowns in chapter 7 has a strong emphasis on players learning to play. Our

hope, therefore, is that our use of activity theory, itself commonly connected with learning, can contribute an HCI perspective on the of study video games from an educational perspective. The study of serious games and advergames has similar relevance to our work, and we believe that the application of our framework to such games could yield insight complementary to existing work [101, 264].

8.2.3 Activity theory

Our framework is based on standard activity theory models and concepts for understanding human conduct, specifically with respect to the use of technology. Work in activity theory, however, is generally both more detailed and more sophisticated in its use of the models and understandings the theory provides. More technical understandings of both general activity theory [139], and specific aspects such as contradiction [79], are available. With respect to connections between activity theory and HCI specifically, a number of expert activity theorists have discussed aspects relevant to our work, such as the relationship of activity theory and semiotics [40], the positioning of a computer as a mediating Artifact [53], and the nature of the Object [137]. We defer to these experts on such considerations, and have used their work as the basis of our own understanding.

Studies of play within activity theory are less common than other phenomena, but excellent work exists, beginning with Vygotsky himself [245]. Video game specific research is much more rare. In this dissertation we have partly attempted to answer Kurt Squire's call for an activity theoretic understanding of video games [226]. A handful of other researchers, notably Martin Oliver and Caroline Pelletier, have also examined video games in this light [196, 195]. At present, however, our work stands as the only full model of play as interaction within activity theory.

The framework we have developed, however, is only the beginning of an activity theoretic discussion of video game play. Throughout the dissertation we have focused on the play activity specifically, finding numerous ways in which it differs from the standard view of a *work* activity found in activity theory. This was notable, for example, in our substitution of PAIDIA and LUDUS for use and exchange value in discussion of Engeström's concept of contradiction [79]. What our work lacks in detailed application of activity theory concepts, it makes up for in developing a new perspective on how activity models can be applied to both play generally and to play as human-computer interaction specifically.

8.3 Limitations

The number and variety of video games studied was limited to five. The five games studied do represent a variety of genres of game, but they do not represent all of them, so many genres and platforms which were not examined. Any generalisation of this work must, therefore, be done with these limits in mind.

A further methodological limitation has been our selection of participants. Five participants were recruited to play each game. All of them were experienced players of the games and the selection was not controlled by any demographic information. This yielded a sample which consisted largely of European males in their twenties. Although this is a representative demographic of video game players, it does not allow for demographic generalisation. While it may be the case that the experience of video game values is similar across age, gender, and cultural divides, that cannot be asserted based on the data gathered for this study.

We have focused on description and analysis of video game play rather than on practical implications. We wanted to build an understanding and analysis of the play interaction, rather than make recommendations.

Finally, we have not addressed the specific values held by players of games, nor whether values might transfer from a game to a player after a play session is over. What we have demonstrated is that players do subscribe to particular video game values as they play.

8.4 Future work

Important future work to continue the progress made in this dissertation could address the limitations discussed above. Several studies of video games based on the video game values approach could strengthen the claims made:

- Studies using a controlled demographic mix of participants would aid in generalising the ideas discussed here. Understanding cultural, age-related, and gender differences in game players may be assisted by using our framework.
- The analysis of more games and more genres is an obvious way to continue this research. This includes studies of platforms and genres not addressed within our studies, such as mobile games and serious games, as well as studies within genres to assess the nature of generic activities in more detail.
- Finally, studies of players of differing levels of expertise would assist greatly in coming to understand the process of learning to play a video game and the differences between expert, intermediate, and novice players.

More detailed examinations of the parts of our framework could also yield important results. Focusing on aspects such as the generic activities or the relationship between the unconscious operations and conscious actions would provide an excellent expansion of our initial analyses. While these approaches would probably still require qualitative methodologies, there are possibilities to instrumenting video games to monitor controller use more closely, for example.

The more detailed extension of our theory and analysis to practical concerns of the design and evaluation of video games would be a valuable addition. This could include the observation and analysis of the complete development cycle of a commercial title in order to assess the points at which intervention according to the approach discussed here would be most effective.

Although we have focused exclusively on the description and analysis of video game play, the framework and perspective we have developed could also be applied to more traditional software. As an example, consider how similar the interaction of a user who experiments with different fonts for a presentation in *PowerPoint* is to PAIDIA-driven play. Similarly, both the step-by-step rules of a wizard and filling out a form online have a strong relationship to a value of LUDUS.

8.5 Summary

In this dissertation we have presented an activity theoretic framework based on video game values and supported by qualitative data to address the perceived limitations of current video game HCI. We have shown how our approach enables the analysis of video games as games *and* as software, allowing for a video game HCI which is capable of addressing both aspects of video games.

In the course of the research we have made three strong contributions to the growing field of video game HCI. Foremost, our introduction of video game values provides a way of understanding play as human-computer interaction. Second, our development of an activity theoretic framework for describing and analysing play has allowed us to address video game play at multiple levels of detail and context to create a holistic view of the interaction. Finally, our extension of the framework with the concepts of breakdown and contradiction acknowledges the role of conflict in shaping players' beliefs about preferable conduct during play.

Video game values help to integrate the dual nature of video games as games and as software, while our activity theoretic framework allows the extensive description and analysis of play as mediated by video game interfaces. This dissertation provides a first step toward the understanding of play as a form of human-computer interaction.

Appendix A

Video Game Activity Framework *Grand Theft Auto: San Andreas*

In this appendix we present a consolidated version of the video game activity framework developed in this dissertation. We ground our presentation by applying the framework to the game *Grand Theft Auto: San Andreas*. We apply the elements of the framework in turn, proceeding in the same order as our presentation in the main body of the dissertation, resulting in an overall characterisation of the nature of play as human-computer interaction for this particular game. As this is simply a presentation of all aspects of the framework applied to a single game, we do not present any qualitative data, nor any citations of other sources. Instead, we provide an overall picture of how the video game activity framework can be used to describe and analyse the forms of play in one particular video game.

A.1 PAIDIA and LUDUS

A.1.1 PAIDIA

The design of *Grand Theft Auto* includes many opportunities to engage in experimental or exploratory conduct. The primary expression of this comes in the player's ability to freely traverse the game world without set objectives, resulting in the potential to simply "see what happens." In addition, players can frequently discover hidden opportunities by approaching the game in an exploratory mindset, such as secret missions, hidden weapons and vehicles, and concealed "stunt jumps." Other elements which emphasise PAIDIA in the game include the devotion to aspects which are not critical to the narrative progression, such as conversations held between pedestrians and references to popular culture throughout the world.

A.1.2 LUDUS

The foremost expression of LUDUS in the game surrounds the central structuring of gameplay in terms of *missions*. It is by completing missions, which are sequences of goals assigned by the game, that the player ultimately “wins” the game. Further to this, extensive statistical tracking is provided by the game, implying the desirability of “maxing out” statistics such as “muscle,” “number of stunt jumps,” and “gang members killed.” Other aspects of the game which emphasise LUDUS include the gradated series of weapons a player can obtain (bigger is better), a hierarchy of vehicular superiority (faster or more manoeuvrable is better), and the ability of the avatar to become more skillful with weaponry and vehicles (better is better).

A.1.3 PAIDIA contradicts LUDUS

PAIDIA frequently contradicts LUDUS in that it can draw the player’s attention away from achievement oriented conduct toward more playful approaches. This is most emphatically demonstrated during missions when a player may decide to “see what happens” if they, for example, shoot someone they have been told to protect. In general, playfulness during the LUDUS-oriented missions results in a failure and restarting the mission from the beginning. Likewise, if the player is more directed toward playful Activities such as exploration, they are unlikely to pursue LUDUS-oriented missions, weapons upgrades, and so on.

A.1.4 LUDUS contradicts PAIDIA

LUDUS can contradict PAIDIA when a player becomes obsessed with the achievement-oriented aspects of the game, such as missions, as does not find the time to simply “play around.” At times, LUDUS can contradict PAIDIA because players desire a balance and, if there are no more LUDUS-oriented Activities available because they have all been completed, they may find that PAIDIA is no longer motivating. Specifically, PAIDIA is often perceived specifically as an *alternative* or *respite* from LUDUS.

A.1.5 PAIDIA complements LUDUS

Players can easily become overwrought when they struggle with missions or other LUDUS-based aspects of the game. PAIDIA provides a respite from this by allowing players to approach the game without achievement-oriented pressure. In addition, in *Grand Theft Auto* there are a number of achievements which come

about through playful approaches, such as the raising of the avatar's driving ability or the locating of hidden missions by simply exploring the world.

A.1.6 LUDUS complements PAIDIA

Similarly to the above, LUDUS frequently provides a balance to PAIDIA, allowing players to feel satisfaction in accomplishing a goal rather than pursuing purely experimental play. Also important is that LUDUS often “unlocks” areas of the game world which were previously inaccessible. This is most obviously demonstrated in the completion of certain missions allowing the player to explore entire new cities in the fictional state of San Andreas. Other occurrences include progress allowing the player to obtain new weapons and vehicles to play with and gaining money allowing the player to experiment with more styles of clothing.

A.2 Video Gaming Activity

A.2.1 Subject

The Subject of the video gaming Activity is the player as they exist in the real world outside the game. Players have real physical contexts, with *Grand Theft Auto* being most typically played using a television or PC in a domestic setting. Players also have an immediate social context, such as playing the game with their friends in the same room or having their parents looking in on them to watch them play. Further, players have a wider social context which contributes to their understanding of the morality represented in the game, the representation of the game in the media, and, for that matter, the representation of the media in the game.

A.2.2 Object

The Object of the video gaming Activity is the video game *Grand Theft Auto* as it is bought at a store or borrowed from a friend. The transformation of the Object takes place as the player transforms the state of the game by playing it. Further, the game is an Object designed and created by other people in the world, a fact which players generally have an awareness of, sometimes going so far as to regard their play as a “conversation” with the designers.

A.2.3 Motive

The Motive of a video gaming Activity is the *reason* for a player's decision to play that game. PAIDIA and LUDUS are the core motivating values in play in *Grand Theft Auto*, as discussed above. Further common motivations which contribute to playing the game include "socialising with friends," "killing time," and "competing with friends to complete the game first."

A.2.4 Artifacts

The Artifacts are the software and the DVD it is imprinted on along with the PlayStation 2 (or other console or PC) used to execute and represent the game on a screen. Other Artifacts associated with the game include official documentation such as the official manual and advertising surrounding the game which present the official image of the game to players. Unofficial documents such as walkthroughs, FAQs, and forums are artifacts which provide the player with alternative viewpoints of the aims of the game and how to achieve them.

A.3 Generic Activities

The seven generic Activities are Combat, Resource Management, Quest/Mission, Spatial Transformation, Spatial Exploration, Avatar/Interface Transformation, and Interface Exploration. All of these Activities are present in *Grand Theft Auto* except for Spatial Transformation and Resource Management, which do not feature heavily, if at all.

A.3.1 Combat

The combat Activity is heavily emphasised in the game, with many of the potential interactions revolving around firing weapons and avoiding or healing damage taken during a fight. The missions are structured to almost invariably require the player to kill one or more denoted opponents. Further, it is common for players to go on killing sprees in which they see how many people they can kill before they are captured or killed.

A.3.2 Mission

Missions are the core structuring Activity in *Grand Theft Auto* and provide a direction for players to pursue while playing. The missions involve the player receiving detailed, step-by-step instructions on what to do in order to progress the

narrative. They typically involve extensive driving and combat, and often require the player to transport an object or person from one place to another. Importantly, the Mission Activities typically involve some combination of the other Generic Activities.

A.3.3 Spatial Exploration

A key part of play in *Grand Theft Auto* involves driving a multitude of vehicles through the very large landscape provided. This may take place as a playful Activity in which the player is simply looking around to discover the possibilities. It may also occur as part of a mission, in which the player attempts to locate the correct place to go according to instructions, or it may involve the player systematically exploring the world in order to be able to claim they have seen everything.

A.3.4 Avatar/Interface Transformation

Grand Theft Auto provides the player to transform the avatar in a number of ways. Most generically, the use of varying weapons and vehicles can be regarded as a transformation of the avatar's abilities, and thus the interface which the player interacts via. Further, the game specifically provides mechanisms for transforming the avatar's appearance, such as clothing or weight or muscle gain. The avatar's physical capabilities, such as strength or stamina are also subject to transformation.

A.3.5 Interface Exploration

This is a key element of play in *Grand Theft Auto*, which encourages players to experiment with the possibilities present in the world of the game. The prioritisation of "seeing what happens" by many players is a testament to this, and the game has been designed with this in mind. In particular, many different actions are possible, and taking the same action in different contexts results in substantially different results, encouraging further exploration. Again, players may choose to pursue "doing everything," which is to have used the interface in every distinct way possible.

A.4 Specific Activities

The Specific Activities are the instantiations of the Generic Activities and include specific representations of a game world and the particular actions a player can

take as they play. We can examine the Specific Activities both in terms of how the representations or output of the game dictate the Activities a player engages in, and how the possible forms of input similarly influence play. Below, we will address these aspects of play in connection with the instantiation of Generic Activities.

A.4.1 Combat

Output: In *Grand Theft Auto* the Combat Activity is represented in terms of the avatar's conflicts with both law enforcement (police, army, FBI), other criminals (other gangs, the mafia, the yakuza), and innocent bystanders (pedestrians, shop keepers, other drivers). The Activity is formalised in the various missions a player partakes in, where they are instructed specifically who to kill in order to make progress. The game sets step-by-step goals which explicitly state that Combat-based actions are required. Further to this, playful instantiations of Combat are common, as players often experiment with killing sprees in the world of the game to observe the reactions of pedestrians and law enforcement to their Combat Activities. In this case the goals are set by the player. The Conditions relevant to the Combat Activity largely revolve around the perception of those denoted as opponents for the purposes of the Activity, either by the game or by the player.

Input: The potential Operations in *Grand Theft Auto* heavily point toward Combat-based Actions and Activities. Dedicated buttons exist for attacking, aiming, and switching weapons.

A.4.2 Mission

Output: The Mission Activity is made specific by its connection with the narrative of the game. In general, the game's narrative concerns Carl's progression from a "nobody" to the head of a powerful, state-wide gang. In order to bring this about, the player takes on an extensive series of missions which assigned goals to the player. As above, many of these goals relate to Combat, but they also tie in to Spatial Exploration and Avatar Transformation. The goals assigned tells the player exactly what to do in terms of Actions, such as "kill the pimp" or "follow the car." Very little is left to the imagination in these cases. The Conditions which arise during Missions largely relate to the player's reactions to traffic, pedestrians, and enemies.

Input: While no specific Operations exist which attest to a Mission Activity, the various Operations are used in combination to achieve the various Actions associated with such an Activity: fighting, driving, climbing, and so on.

A.4.3 Spatial Exploration

Output: The Spatial Exploration Activity is specified in the game as an Activity of walking, running, swimming, driving, flying, and so on. The landscape of the game is vast and invites exploration in terms of the player's base desire to experience what is available. The goals in this case are most frequently set by the player, who decides that they wish to know more about the landscape. Goals are also set by the game both explicitly, in missions which instruct the player to travel to a particular location, and implicitly, such as the way in which the map distinguishes between areas the player has explored and those they haven't. The Conditions involved in Spatial Exploration largely relate to the player's reactions to the terrain as they pass along and through it.

Input: As above, there are dedicated Operations for the Actions involved in moving through space: entering and exiting vehicles, walking, running, steering, and so on.

A.4.4 Avatar/Interface Transformation

Output: Avatar transformation is a central feature of *Grand Theft Auto*, with the most clear element being the ability to change the avatar's appearance. This takes place both by changing the avatar's clothing (through shopping) and physical stature (through exercise and eating). While occasionally dictated as goals by the game, this is most generally an implicit goal for players simply because it is possible. Other forms of Avatar Transformation, as we have seen, revolve around the specific weapons being used (e.g. a knife versus a rocket launcher) and the kind of vehicle being driven (e.g. a bicycle versus a tank). Again, these decisions are mostly up to the player, who might set themselves a goal of completing a mission in a tank with a machine gun or in a golf-cart with a golf club. The Conditions in this case directly concern the Avatar's appearance and function, with the player changing this more or less at will.

Input: Most Avatar Transformation is implemented by Operations which allow for interaction with menu systems (up, down, select). Other Operations lead

indirectly to transformation, such as running contributing to fitness and driving contributing to driving skills.

A.4.5 Interface Exploration

Output: Interface Exploration is an important part of playing *Grand Theft Auto*. As a Specific Activity it concerns understanding the interactions between the large number of potential actions (running, jumping, shooting, driving, shopping, and so on) and the contexts in which they can be used (the motorway, a store, an airport, etc.). These combinations provide for a wealth of possibilities, with particular interest being found in how the actions and reactions are represented in the game world. While the game does specifically encourage exploratory goals in the beginning (largely in terms of a tutorial), they quickly become the domain of implicit goals which a player pursues simply because of their possibility. In this case, the Conditions are the representations of reactions to the player's actions, which the player reacts to in turn.

Input: In this case it is ultimately the Operations themselves which are the target of the Interface Exploration Activity, in particular the various combinations of Operation and Condition which are possible in the game.

A.5 Contradictions and Breakdowns

A.5.1 Represented Contradictions

The represented contradictions in *Grand Theft Auto* chiefly occur in the game's cut-scenes. In these cases, breakdowns are shown which cannot be directly influenced by the player. Most prominent is the conflict between the main character, Carl, and his brother, Sweet. Their personal conflict about Carl's commitment to his family is entirely demonstrated in the cut-scenes of the game and the player is never able to actively change this. Other represented contradictions are also of a social nature, such as the relationship between Carl's sister and the character Cesar and Carl's sadness about the death of his mother. Another form of represented contradiction in the game concerns the place of both law enforcement and death. Specifically, either being arrested or dying does not result in a significant breakdown for the player: they lose their weapons, immediate progress, and a small amount of money. This is in contrast to the representation itself, which clearly shows a breakdown situation: the avatar's bloody death or arrest.

A.5.2 Challenge Contradictions

The challenge contradictions in *Grand Theft Auto* largely concern the player's ability to pass missions, some of which are exceedingly difficult. Breakdowns largely centre on the player's driving and shooting skills which must be improved to resolve the contradiction. Breakdowns also occur if the player adopts a problematic strategy to completing a mission, such as attempting to be "stealthy" during a mission which does not support that approach. Other challenge contradictions arise thanks to Activities the player chooses to engage in themselves, such as setting particular goals for their play which turn out to be very difficult to accomplish. Some of these goals are premised on achievements such as performing stunt jumps, while others may be quite arbitrary, such as managing to drive a firetruck to the top of a mountain. These contradictions are either resolved, again, by changes in the avatar's abilities, the player's skill or strategy, or turn out to be irresolvable.

A.5.3 Oppositional Play

Oppositional play can be used to reveal a number of aspects of *Grand Theft Auto*'s play. Prominently, it is impossible to play successfully as a law-abiding citizen as there is literally nothing to do. Essentially, all Activities in the game involve some illegal Activity: driving requires grand theft auto, missions require killing, and so on. Similarly, it is impossible to play as a pacifist in the game. The missions required for narrative completion involve murder early on, and the world of the game itself is a violent one, with other gang members targeting the player's avatar from the beginning. These playings lead to the most fundamental contradiction of all: it becomes impossible to *do* anything in the game, and thus, by definition, impossible to play at all.

Appendix B

Generic information sheet

THE ROLE OF VALUE IN [Game Title] INFORMATION SHEET

Description of research project

The research being undertaken in this study contributes toward the overall completion of a Ph.D.. The topic of the Ph.D. is the investigation of the role of value in computer game play and productivity application use. The purpose of this particular study is to understand and describe the role of value in [Game Title]. A value can be thought of as a preference for a particular mode of behaviour or state of affairs over others.

What we will be doing

Data collection in this study involves the observation and interviewing of 5 players of [Game Title]. During the observation session you will be asked to play [Game Title] as you normally would, but with the addition of thinking aloud about the actions you are taking and why you are taking them. This may initially be difficult and when needed the researcher will prompt you with questions such as what are you doing now? and why are you doing that? This part of the study will take about an hour, though may take longer if agreed.

Following the observation session will be a debrief session in which the researcher may ask for clarification on some of the observations they have made, to be sure that they are accurate to your experience. Additionally, a small number of general questions will be asked about [Game Title]. This part of the study will take about half an hour, though may take longer if agreed.

During the observation session the screen will be digitally video-recorded if

you agree. Additionally, the entire session will be audio-recorded, again, if you agree. Finally, one or more photographs of you playing [Game Title] may be taken with your consent. All data capture will be done by the primary researcher alone.

If you wish to continue participation in this research a follow-up session may be scheduled. You are also free to withdraw from the study at any time up to two weeks after your participation and any data relating to your participation would not appear in the results of the study in that case. Please do not hesitate to ask any questions you may have about this study at any time.

Use of data collected

The data collected in this study will be used to support a description and analysis of the role of value in computer game play and productivity application use. The static images will be used to illustrate the context of using the software in presentations of the research and you will not be specifically identifiable in them. The audio data will be transcribed before it is analysed. All data gathered will be confidential and will only be seen by myself and my supervisors. All data will be kept either in a locked filing cabinet in a locked room, or in password-protected files on a secure computer system. All data will be destroyed three years after the completion of the study.

Whenever the data gathered is to be used in a publication of any kind your specific participation will not be identifiable in any way. This includes the use of quotations, your perceptions, opinions, experiences, and captured images.

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Appendix C

Generic consent form

THE ROLE OF VALUE IN [Game Title] WRITTEN CONSENT FORM

I have been given and have understood an explanation of this research project and the confidentiality conditions. I have had an opportunity to ask questions and have had them answered to my satisfaction. I agree to participate in an observation session and follow-up debrief session for the purpose of this research and resulting publications. I consent to the collection, recording, and use of observations of my behaviour, my perceptions, experiences, opinions, and information in this research. I understand that I may withdraw from this study up to two weeks from todays date without explanation and that in that case no data relating to my participation will appear in the final results.

I agree to have this observation session digitally video-recorded YES / NO

I agree to have this observation session and debrief session recorded YES / NO

I agree to have photographs of me taken during observation YES / NO

If you would like to receive publications resulting from your involvement in this study, please provide an email address and/or phone number at which you can be contacted to arrange sending you a copy of the publications in question.

Please sign below (or have your guardian sign) to indicate your agreement to all of the above.

Appendix D

Interview Schedule

D.1 Basic demographic information

1. Age.
2. Gender.

D.2 Follow-up on observations

1. Statements made by the participant that were unclear.
2. Observations made by the researcher to be checked for accuracy with the participant.
3. A summary of the observation session to check with the participant.

D.3 Structured interview questions

1. What is the overall objective of the game?
2. What is the story of the game?
3. What can you do in the game?
4. What can't you do in the game?
5. If you finished and thought you had played well, what would have happened during play?
6. If you finished and thought you had played badly, what would have happened during play?

7. Do you have emotional reactions to play?
8. Do you use the statistics the game provides?
9. Who are your opponents in the game?
10. What do they do that makes them your opponent?
11. Does the game ever tell you what to do? How?
12. How can you tell if you are doing well or badly?
13. Do you ever play differently from what is “normal” on purpose? How?
14. Do you use external aids in playing? Which and why?
15. Can you describe the interface? Which elements do you use the most?
16. What do you like most and least about the game?

Appendix E

Code List

ACTIONS - Constraints lead to goals
ACTIONS - Not able
ACTIONS - Player goals
ACTIVITIES - Approaches
ACTIVITIES - General
ACTIVITIES - Creating
DESCRIBE - Opponents
EVALUATE - Aesthetics
EVALUATE - Avatar
EVALUATE - Benefit
EVALUATE - Challenge
EVALUATE - Conflict
EVALUATE - Consequences
EVALUATE - Current possibilities
EVALUATE - Design
EVALUATE - Experience
EVALUATE - From interface
EVALUATE - Fun
EVALUATE - Future
EVALUATE - Game as game
EVALUATE - Game possibilities
EVALUATE - Goal
EVALUATE - Importance or impact
EVALUATE - Interface
EVALUATE - Interpreting
EVALUATE - Mistake
EVALUATE - Motive

EVALUATE - Opposition
EVALUATE - Optimisation
EVALUATE - Performance
EVALUATE - Planning
EVALUATE - Priorities
EVALUATE - Realism
EVALUATE - Relationships and variables
EVALUATE - Rewards
EVALUATE - Risk
EVALUATE - Situation
EVALUATE - Space or terrain
EVALUATE - Task
EVALUATE - Time
EVALUATE - Tool
EVALUATE - Utility
EXPERIENCE - Boredom
EXPERIENCE - Constraints
EXPERIENCE - Freedom
EXPERIENCE - Frustration
EXPERIENCE - Gaining control
EXPERIENCE - Humour in game
EXPERIENCE - Humour in play
EXPERIENCE - Immersion
EXPERIENCE - Joking about play
EXPERIENCE - Time
EXPERIENCE - Time efficiency
EXPERIENCE - Time investment
FOCUS SHIFT - Discussion
FOCUS SHIFT - Making a mistake
FOCUS SHIFT - New events
FOCUS SHIFT - New goal from context
FOCUS SHIFT - New goals
FOCUS SHIFT - Reacting to play
FOCUS SHIFT - To controls
FOCUS SHIFT - To interface or software
GOAL - Game goals
GOAL - Goalless
GOAL - Player goal
INTERFACE - Connotation

INTERFACE - Denotation
INTERFACE - Finding things
INTERFACE - Information
INTERFACE - Lost
INTERFACE - Setting up
INTERFACE - Values
META - Cheating
META - Difficulty levels
META - Experiment context
META - Game as software
META - Game design
META - Game structure
META - Genre
META - Mods
META - Morality and ethics
META - Other games
META - Other media
META - Other players
META - Personal values
META - Real world
META - Real world values
META - Saving and restoring
META - Series
META - The game activity
META - Walkthroughs and FAQs
MOTIVE - Achievement
MOTIVE - Because I can
MOTIVE - Competence
MOTIVE - Completion
MOTIVE - Constraints
MOTIVE - Efficiency
MOTIVE - Fantasy
MOTIVE - Fun
MOTIVE - Having an effect
MOTIVE - Killing time
MOTIVE - Lack
MOTIVE - Novelty
MOTIVE - Novelty versus Repetition
MOTIVE - Power

MOTIVE - Status and recognition
NARRATIVE - Game story
NARRATIVE - Player story
PLAY - As work
PLAY - Creating play
PLAY - Explore space
PLAY - Exploring interaction
PLAY - Subversion
PROGRESS - Allows actions
PROGRESS - Evaluate
PROGRESS - Making progress
SITUATE - In space
SUBJECT - Knowledge or expertise
SUBJECT - Learning
SUBJECT - Patterns of play
SUBJECT - Player as person
SUBJECT - Skill
SUBJECT - Style
SUBJECT - Tactics and strategies
TOOLS - Mediation
TOOLS - Allow actions

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