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ISSUES

IN CULTURAL AND MEDIA STUDIES  
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## Game Cultures

### Computer Games as New Media

This book introduces the critical concepts and debates that are shaping the emerging field of game studies. Exploring games in the context of cultural studies and media studies, it analyses computer games as the most popular contemporary form of new media production and consumption.

The book:

- Argues for the centrality of play in redefining reading, consuming and creating culture
- Offers detailed research into the political economy of games to generate a model of new media production
- Examines the dynamics of power in relation to both the production and consumption of computer games

This is key reading for students, academics and industry practitioners in the fields of cultural studies, new media, media studies and game studies, as well as human-computer interaction and cyberculture.

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Dovey and Kennedy

Jon Dovey and Helen W. Kennedy

Game Cultures

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Computer Games as New Media

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*JD & HWK*

## SERIES EDITOR'S FOREWORD

Science fiction writer William Gibson once recalled the day in the early 1980s when he strolled past the video arcades on Vancouver's Granville Street, and was struck by the curious manner in which players were transfixed by the flashing screens. 'I could see in the physical intensity of their postures how rapt the kids were,' he told *Time* magazine years later. 'It was like a feedback loop, with photons coming off the screens into the kids' eyes, neurons moving through their bodies and electrons moving through the video game. These kids clearly believed in the space the games projected.' Gibson's dystopian novel *Neuromancer*, published in 1984, provided a chilling depiction of this virtual realm, which he characterised as 'cyberspace' in keeping with his sense of the young game players' engagement with it. 'They develop a belief that there's some kind of actual space behind the screen,' he added. 'Some place that you can't see but you know is there.'

Something about the strangely elusive quality of this engagement will resonate, I suspect, with everyone who has ever played a computer game. And yet efforts to attend to it in theoretical terms, while seemingly straightforward enough, promptly bump up against the limits of our current vocabulary. It is all too apparent, it seems to me, that new concepts need to be crafted in order to describe it – let alone explain its affectivity – with an adequate degree of precision. It is this rather daunting challenge that Jon Dovey and Helen W. Kennedy's *Game Cultures: Computer Games as New Media* addresses with remarkable flair and imagination. The scope of its purview stretches from the political economy of the games industry on a global scale, on the one hand, to the individual gamer at play in everyday contexts, on the other. At the same time, they also examine new co-creative spaces of cultural embodiment, where familiar academic distinctions between production and consumption are rendered problematic. For Dovey and Kennedy, technological competencies, cultural tastes and ritualised interactivity can be shown to combine in complex ways to form what they call 'technicities'

(that is, technologically mediated identities), which are being profoundly shaped by the relations of power at the very heart of the digital media revolution. This book is a bold attempt to refocus the study of computer games from a fresh vantage point, and as such will be warmly welcomed by those keen to explore the sorts of places ‘that you can’t see but you know are there’ behind the flashing screens.

The *Issues in Cultural and Media Studies* series aims to facilitate a diverse range of critical investigations into pressing questions considered to be central to current thinking and research. In light of the remarkable speed at which the conceptual agendas of cultural and media studies are changing, the series is committed to contributing to what is an ongoing process of re-evaluation and critique. Each of the books is intended to provide a lively, innovative and comprehensive introduction to a specific topical issue from a fresh perspective. The reader is offered a thorough grounding in the most salient debates indicative of the book’s subject, as well as important insights into how new modes of enquiry may be established for future explorations. Taken as a whole, then, the series is designed to cover the core components of cultural and media studies courses in an imaginatively distinctive and engaging manner.

Stuart Allan

In Caracal, Romania, three hours north of Bucharest, 11 workers keep an apartment full of PCs running 24 hours a day, seven days a week. They are not data processing nor doing any of the other computer jobs often outsourced to ‘cheap labour’ pools. They are playing online computer games. They are paid the equivalent of 28 pence per hour to play games in order to build up experience points, acquire skills and collect weapons which are then traded on the open market. Other gamers will buy ready made **avatars** and thus save themselves the time and trouble of having to enter online game worlds as a **newbie**. These Romanian gamers are employed by Gamersloot.net, based in Northern California.

(Thompson 2005)

In Southern California, Electronic Arts, the biggest games developer and publisher in the world, is fighting lawsuits brought against it by its own employees. The Silicon Valley games industry was once seen as a model of campus style employment practices, with bonuses, stock options and on site gyms offered to offset workers’ gruelling long hours. However, as computer games have moved from subculture to mainstream industry, the pressures on developers have burgeoned. At the beginning of March 2005 several hundred workers gathered in San Francisco to discuss not the latest technology or game products, but quality of life issues in the industry. Their focus was ‘crunching’, the intensive period prior to a game’s release when all the final bugs are ironed out. Here it is not unusual to find developers putting in 60 and 70 hour weeks. They argue that this should be recognized on fairly negotiated overtime payments that would increase their annual salaries by \$10,000–15,000 rather than unpredictable stock options and bonuses.

(Richtel 2005)

In 2001 the virtual economics expert Edward Castronova estimated that the value of items created in Norrath, the *Everquest* online game world, gave it a per head gross national product that ranked it 77th in the world, roughly equivalent to Russia and exceeding those of India and China here on earth. He also calculated that the Norrath exchange rate placed its currency as more valuable than the yen or the lira and that gameplay time yielded an hourly income of \$3.42 per hour (Castronova 2001). The increasingly complex relationships between real life and virtual life are not limited to economics.

It has been estimated that up to 27 million people per week pass through virtual online worlds, a third of them from South Korea, which has the highest broadband penetration of any country. In Seoul, Inspector Byong Il-sung of the Korean Cyber Terror Unit estimates that his unit has to deal with 100 real life attacks on online gamers per month. Real embodied violence and pain spills over from the virtual world as players avenge themselves on one another for online defeats and betrayals.

(Guest 2005)

## What is games culture?

These snapshots of contemporary games culture suggest that we are about to enter an intensification of the mediation of our everyday lives. An intensification in which we learn how to flow seamlessly between the virtual and the actual, with our experiences in one being just as affecting as those in the other. For millions of us, computer games will be our point of entry into this mediated and mediating world. The computer games industry is the most established of all sectors of the emergent new media landscape. It now commands a mass mainstream market; it is substantially capitalized and has survived the 'boom and bust' cycle of new technology businesses.

If we want to understand where our media culture is going we need to understand where it is coming from. The hyperbole of technoculture enthusiasts is usually resolutely a-historical. This book introduces some of the ways in which we might begin to study computer games culture by looking at its mass market as it has developed in the past ten years. The post-Playstation era has seen the game console become a ubiquitous part of the Western domestic media economy. Our study locates itself in the everyday experiences of millions of console gamers worldwide. In so doing, it attempts to understand the nature of the gameplay phenomenon.

Our approach to the study of computer games uses the methods developed within Cultural Studies to study popular culture. Within this tradition, generally speaking, popular culture is understood as a critical site of both the circulation and contestation of dominant ideologies. Cultural Studies also affords us ways of thinking about media consumption, identity and pleasure in everyday life. This broad approach will find its focus through the emergent traditions of a New Media Studies. That is to say,

a Media Studies which takes digital media as its objects of study, but which is also ‘new’ in the sense that this process is having the effect of reconfiguring traditional Media Studies itself. We find ourselves constantly having to check to see if the disciplinary tools developed during the analogue age of the late twentieth century still function during the dawning of the digital twenty-first century. This checking often produces interdisciplinary raids; for instance, **systems theory**, **cyberculture** studies, **artificial intelligence** and **human computer interaction** studies all find their way into attempts by ‘traditional’ Media Studies to explain digital culture (see Mayer 1999; Lister *et al.* 2003).

Nevertheless, many of the traditional frameworks of Media Studies will continue to serve us as starting points for our investigations, offering the non-specialist reader a pathway into the new theoretical paradigms which the study of computer games produces. For instance, political economy, textual analysis, the study of representation and of the ways in which fan cultures actively rework mediated experiences are all ‘foundational’ to our work in this book. These conceptual frameworks will only get us so far. We run the risk of misunderstanding and misrepresenting computer games if we analyse them using methods derived exclusively from literature, film or other mass media. As Espen Aarseth argues in the editorial manifesto of the first edition of *Game Studies*, the academic journal devoted to computer games:

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

(Aarseth 2001, online)

Here Aarseth calls our attention to the specificity of the computer game, which needs new ways of thinking, and breaks with existing traditions.

The table below indicates the significant conceptual debates which will underpin the issues explored in this volume. Such a listing is in no way intended to imply a steady progress between ‘old’ and ‘new’ media – on the contrary, the way we study computer games is produced *through the tension* between these approaches.

Media Studies	New Media Studies
The effects of technology are socially determined	The nature of society is technologically determined
Active audiences	Interactive users
Interpretation	Experience
Spectatorship	Immersion
Representation	Simulation
Centralized media	Ubiquitous media
Consumer	Participant/co-creator
Work	Play

## Theories of technology

In starting to consider the computer game on its own terms, a ‘common sense’ starting position would be to assume that technology in some way ‘created’ the game, that it is a ‘technologically determined’ media form. Yet traditional Media and Cultural Studies have typically taken a position that seeks to understand the effects of technology as ‘socially determined’. So an account of games that concentrated upon the successive waves of 8, 16, 32 and 64 bit technologies, explaining changes in games solely by reference to increasing chip capacities, would be a technologically determinist account of games. On the other hand, an account that stressed the role of corporate initiatives and investments, militarism and masculinity as shaping games would offer a socially determined view of game production and representation.

The opposition between these two positions has deep roots in different philosophies and profound implications for the way we understand relationships between media technologies, culture and society. This debate has been traced by reference to the different constructions of technology found in the writing of Raymond Williams and Marshall McLuhan (Kline *et al.* 2003: 31–41, 46–53; Lister *et al.* 2003: 72–92). In *Television: Technology and Cultural Form*, Williams (1990) advanced a model of technological development that, although fluid, and emphasizing the possibility for very many different outcomes, was essentially driven by what he called ‘social investment’ and ‘social need’. The former provided through the state or capital and the latter deriving from the communication needs and desires of a society at a given point in its history. McLuhan, in contrast, argued that technologies *are* the medium in which we exist, that human cultures emerge through and are shaped by technology. In his account, the importance of media technologies is not in their particular use, the ‘message’, but in the *structural* way that it changes the ‘pace and scale’ of human affairs.

This apparent dispute is important because the position of Williams grants us a critical platform from which to question the hyperbolic enthusiasms of digital technophiles who constantly tell us how far computers are going to transform society. It also undermines the more technophobic or Luddite response that particular technologies are inherently bad and necessarily have deleterious effects on social and cultural life. His ‘socially determined’ account of the effects of media technologies insists on the primacy of human agency; it is up to *us* to determine what media technologies do. However, a McLuhanite might argue that the contemporary ‘networked society’ (Castells 1996) would not be possible without the technologies of computing. Here digital technologies themselves are understood to exert powerful agency in so far as our whole relationship with the external world is now heavily mediated. Technology has become our environment, and environmental factors obviously play a major role in producing consciousness and identity.

These competing paradigms for understanding the impact of technology are usually resolved by new-media theorists through recourse to **cybernetics**, the idea that feedback is an essential part of a system, endowing it with an agency that may well be

beyond complete human control. In this case the system of technology itself has a feedback effect upon the society at large that may indeed bring qualitative changes in our experience of the world. In other words, the idea that we are all caught up in cybernetic systems of complex interactions between nature, technology and identity.

Cybercultural theorists such as Mark Poster posit far-reaching consequences for these effects:

What began as a Cold War effort to speed up communications has become cyberspace, an electronic geography that reterritorializes pre-existing geographies, opening up new social and cultural worlds that are only beginning to be explored but that quite probably are already redefining what it means to be human.

(Poster 2002: 27)

This position produces the notion of the ‘post-human’, and admits in the figure of the cyborg a complex rendering of the collapse of distinctions between the technological and the natural. Human subjectivity is no longer figured as separate or distinct from the technological realm but is, on the contrary, formed through intimately embodied relationships between technologies and people. Critically, it is cybernetics’ insistence on technological agency that underpins our understanding of ‘gameplay’ in Chapter 6. In this light, the technology – computer games – is seen as a vital part of the mediated circuit which is our environment, our nature, in the twenty-first century. Thus the computer game becomes a key site for the investigation of media and identity in the digital domain. Kline *et al.* make a profoundly McLuhanite statement in articulating their own approach to the study of games:

We examine the ways in which the video game medium is the message, interactively inculcating the skills, rhythms, speeds, and textures of the computerized environment; cultivating digital aptitudes; squeezing out or devaluing other non electronic capabilities; socializing players as subjects of and for a high-technology society; building cyborg identities of human/machine identity as gaming pleasure drives successively more sophisticated levels of virtual experience, involving new expectations about verisimilitude and complexity of interaction.

(Kline *et al.* 2003: 55)

For these authors, games figure as an important force in shaping the texture of our everyday lives and producing subjects fit for the new ‘digital society’. This statement also introduces a key concept which is central to the discussions around the ‘newness’ of digital media – **interactivity**.

## Interactivity

A major difficulty arises for traditional Media Studies when the ‘text’ which is its primary object of study becomes interactive. The idea of the ‘**interactive**’ text is one of



the key foundational notions within New Media Studies and digital culture. The affordances of interactivity are celebrated by techno-enthusiasts as offering whole new worlds of media experience and are debated at length by textual theorists, media sociologists and human computer interface designers (Lister *et al.* 2003: 19–30, 40–44). Contemporary commentators agree that it is a concept that has to be further defined if it is to have any analytical purchase. (See, for example, the arguments made by Aarseth 1997; Jensen 1999; Downes and McMillan 2000.) Originally a text was said to be ‘interactive’ when an individual could directly intervene in and *change* the images and texts that he or she sees. So the audiences for new media become ‘users’ rather than ‘viewers’ of visual culture, film and TV, or ‘readers’ of literature. Computer games are by their very nature interactive and the importance of this fundamental quality cannot be overestimated. In order to study a computer game we cannot have recourse solely to its textual characteristics; we have to pay particular attention to the moment of its enactment as it is *played*. The ‘text’, if we are to use that term at all, becomes the complex interaction between player and game – or what is described as **gameplay**.

More recently, several notable commentators have challenged the usefulness of interactivity as a differentiating category of either text or experience. Lev Manovich (2001: 49–61) and Espen Aarseth (2003) both argue in different contexts that we already have highly interactive relationships with the media texts that form such a big part of our environment. This position is entirely congruous with the work of Media Studies theorists who have rightly argued that any act of media consumption is an active process (Fiske 1987; Jenkins 1992; Hills 2002). Audience studies demonstrate that watching television, for example, is not a passive activity; the viewer or viewers actively interpret programmes in relation to their knowledge of particular codes and genres (see Tulloch 2000). However, conflating ‘interactive’ with ‘actively interpreting’, as Manovich and Aarseth both do, does not help us to differentiate between texts. If we accept that we are all already engaged in active, interpretive relationships with all media texts, then how do we distinguish between a film, TV programme, computer game or website? The problems which face us in understanding the processes of mediation are multiplied by new media: the acts of multiple active interpretation of traditional media are not made irrelevant by digital and technological forms of interactivity but are actually made more numerous and complex by them. The more text choices available to the reader/viewer/user/player, the greater the possible interpretative responses.

In our view, the interpretative activity of traditional media (film, literature, TV) is of a different order to what we do when we materially intervene in the text to make it look and sound different – an understanding of interactivity derived from the history of human computer interface design. Here interactivity was originally conceived of as a way of controlling computing processes whilst they were continuing (see Jensen 1999). This ability to intervene and control the computer through increasingly sophisticated visual interface designs culminates in the kind of interaction that most interests us in

this book – that is to say, immersive interaction in the exploration of what are ostensibly 3D worlds. (Though there is a 20-year history of pre-3D gaming, which we will certainly touch on, the main focus of this study is on the past ten years, during which 3D game worlds have become established across arcade, PC and console-based gaming.) Critically, whilst interactivity is seen as a key quality of both subject relations and textual qualities of new media in general, and games in particular, it has been subject to a continual process of refinement.

Recent attempts have been made to create new conceptual frameworks to analyse the specificity of computer games as a *particular* kind of interactive text. Theorizing player/game interaction has produced the term ‘gameplay’ to emphasize the inseparability of subject and object in the processes of playing a computer game. As Liestol observes:

When ‘game’ and ‘play’ are conjoined and turned into a noun, ‘gameplay’ seems to mean the process that takes place when a game is played, the activity that is produced over time as result of the subject’s engagement with the rules, objects, and activities of the game.

(Liestol 2004: 400)

In fact ‘decoding’ or learning is foregrounded in the playing of computer games. Playing requires this decoding of its structure or system (of levels, of architectural organization, of scoring systems, timing of events, of non-player characters’ actions and interactions, etc.). This process must take place with each new genre of game, as each has its own mode of interaction, its own conventions and controls – and each game within the genre invents its own variations, different combinations of buttons to press or peripherals to add. Mastering the controls of each game is essential, and a fundamental pleasure in its own right. Video games are, as Provenzo has argued, ‘literally teaching machines that instruct the player . . . in the rules . . . as it is being played’ (1991: 34).

To attend further to the specificity of this gameplay experience the term **configuration** has emerged as a description which makes a distinction between ‘push button’ interactivity and the productive processes of gameplay. Configuration is a term which derives from within the study of Human Computer Interaction – most notably the work of Steve Woolgar. It has emerged in the work of Aarseth (2001) and Eskelinen (2001), and more recently Moulthrop (2004), to describe the complexity of the active processes of both interpretation and interaction as the player literally constructs the game ‘on the fly’ through the practices of gameplay. Here the idea of ‘point and click’ interactivity, in which the user makes simple reading choices, is transformed into the idea of the user making significant interventions into a game world that have dynamic effects throughout its system. We will return to this notion of how the user or, in the case of computer games, the player, is configured in the processes of gameplay in greater detail in Chapters 5 and 6.

## Spectatorship and the ‘problem’ of immersion

Attempts to be specific about the precise kinds of interactivity at work in gameplay produce tensions between *interpretation* and *experience*, and between *spectatorship* and *immersion*. Clearly there is no definitive split between these pre-existing categories – when you sit by the fire ‘interpreting’ a novel you are also having an ‘experience’, which may be deeply ‘immersive’. However, the game is experiential in different ways. First, we are called upon to participate, to undertake all kinds of activities to load up the game, to learn its interface and control systems and to learn its rule set through playing. We have to be doing. This activity has a number of physical levels, from mastering the twitch controls on your console or PC to leaping about on screen with an Eye Toy or chatting online to other players. These participatory activities will often be focused on the pleasures and fears associated with the exploration of virtual spaces. As we shall see in Chapter 5, the aesthetics of narrative give way to those of architecture. Moreover, these processes are likely to involve a very strong emotional effect in the player; often adrenalin-based, fight or flight reactions are physically provoked. In all, the activity of playing a game offers the sensorium a greater range of inputs than novel reading or film viewing. Interactive media designers refer to all these activities and processes as the ‘experience’.

The quality of attention which these kinds of interactive processes produce is often described as ‘immersive’. Intense computer gameplay is often described in terms of a loss of a sense of time, place or self – of immersion. Whilst a loss of sense of self is evident in a range of media consumption (being immersed in a film at a cinema, for example), immersion in a game world is of a different order. The challenges, thrills and threats are experienced and produced through intimate mental, emotional and physical engagement by the player with the game and with the game technology. However, the immersion of the computer game player is less the submersion in **virtual reality** as the quality of intense concentration produced by having to attend to the combination of activities described above – mastering control systems, figuring out the gameplay, puzzle solving, enemy slaying and strategic planning. This quality of immersion or engagement within the game world may account for the ways in which a sense of time or physical discomfort may recede as the player’s skill develops. This is a critical aspect of the unique time economy that characterizes computer gameplay. It is entirely commonplace that gameplay experience seems to lie outside of day to day clock time – we sit down to play and discover that hours have passed in what seemed like minutes.

This particular quality of immersion is also produced through our acute consciousness of the degree of temporal investment we have already made in our virtual worlds. If a player has spent several hours trying to work through a game level, the concentration produced is directed precisely at not losing that enormous time investment and having to start all over again. Within current theorization of the immersive nature of computer games, however, we see the emergence of particular kinds of paradoxical anxiety. The dramatic portrayal of Bobby Newmark’s mother in William Gibson’s

*Count Zero* offers us an account which renders immersion as passive, and potentially addictive; she is portrayed as lost in a virtual soap opera, inert and slobbering, unable to respond to the ‘real’ world. Elsewhere (such as in his novel *Neuromancer*), Gibson offers us the figure of the ‘console cowboy’, immersed in cyberspace, but an active, controlling and productive force in the narrative. The contradiction between immersion as passive/active reveals a complex set of desires and anxieties around technology in general, and computer games in particular. Immersion is clearly offered as a fundamental aspect of gameplay experience and pleasure, yet it also figures as potentially the most problematic element within that experience. The same tensions have existed in relation to earlier cultural and media forms, including but not limited to literature, cinema and television. Each offers the promise of immersion, yet each is provocative of particular kinds of anxiety around readers/viewers/users/players who are *too* immersed.

For Moulthrop (2004), the idea of configuration is a means through which to argue that such practices render visible those systems which are attempting to make themselves transparent or invisible (i.e. the medium itself). That through configuring our play, we are actively engaging with the very structure of the software. Moulthrop is troubled, however, fearing that this is the precise moment when the technology will be exploited by ‘a few major interests’. As he argues:

An invisible computer is most likely a monopolist’s best friend – a dictum that seems as true of Sun Microsystems, home of the NetPC, as in any precinct of the Redmond campus [home of Microsoft]. Molecular society emerges in a paradoxical moment, as great transformations always do. The irruption of popular empowerment coincides with the climax phase in the evolution of oligopolies, a final division of very great spoils.

(Moulthrop 2004: 66)

The immersive nature of computer games, and the invisibility or transparency of the medium that Moulthrop suggests this produces, works both to empower the user *and* to simultaneously serve the interests of the oligopolies that produce them. The nature of immersion is seen not only as a desired quality for the production of active, engaging and meaningful experiences, but also simultaneously as the means through which the gameplayer is most likely to be exploited in the interests of monster conglomerates. The ‘problem’ of immersion also surfaces in the more explicitly negative and politically charged critique of contemporary games offered by influential ludologist Gonzalo Frasca (2004). He argues that dominant versions of immersion are Aristotelian and that video games are dominated by this perspective. In his view:

One of the biggest problems of Aristotelian poetics, as explained by such theorists as Bertolt Brecht, is that spectators get immersed in the stories and lose their critical distance from what is happening on the stage or screen . . . this effect is seen as narcotic only by authors whose intentions go further than simple entertainment

and want to trigger critical thinking in their audience – for educational, social and/or political reasons.

(Frasca 2004: 87)

There are productive tensions at work in the process of developing concepts appropriate to the specificity of the computer game as a cultural form. To move beyond the limiting binarisms of active/passive we will focus on the material specificity of the computer game (both in terms of its formal qualities and experiential qualities). As the player becomes increasingly proficient at working the interface, and understanding the limitations of the code, the sense of the game itself, the controls or the game world as separate to the player is suspended. This quality of attention is so intense as to suggest a disappearance of the boundary between the player and the machine – a state best represented as a cybernetic circuit. A turn to cybernetics enables us to identify the circuits of agency between objects and subjects in the process of gameplay and to attend to the questions of the distinctive forms of attention and the new user relationships that games produce.

## Representation and simulation

A further significant shift between the analogue and digital versions of Media Studies lies in the alleged tension between representation and **simulation**. Through the action of the game engine that produces ‘on the fly’ the rendered world our avatars inhabit, we are in some sense immersing ourselves in a *simulated* world. Yet this simulated world deploys representation as its fundamental interface; representation is our means of accessing the simulation of the rule-governed world. Moreover, the development and design of these representations are driven, as we shall see in Chapter 3, by the desire for greater and greater mimetic and photo-realism. Given that Media Studies has paid enormous attention to representation – teaching generations of students about the ideological significance of images – then we clearly need to treat seriously the claim that the ‘old’ system of representation is collapsing in the face of the ‘new’ system of simulation.

Aarseth (2004) argues that simulation is the critical means through which to articulate the distinctiveness of computer games from other media forms and to assert the specificity of player agency as distinct from viewer/reader agency. In the following he argues forcefully for the centrality of these differences:

Simulation is the hermeneutic Other of narratives; the alternative mode of discourse, bottom up and emergent where stories are top-down and preplanned. In simulations, knowledge and experience is created by the players’ actions and strategies, rather than recreated by a writer or moviemaker.

(Aarseth 2004: 52)

If we accept Aarseth's claim, then it is clear that we will need to find new tools for understanding the relationship between player and simulation, as well as new tools for analysing the complex composition of the simulation itself.

One way to understand this shift is to argue that **mimetic** representation, with its roots in the Renaissance and the nineteenth-century novel, is part of the age of mechanical reproduction. The mechanical age has a philosophical basis, not only in empiricism but also in understanding phenomenon and behaviours as having a cause and effect logic – what is known as mechanical causality (Lister *et al.* 2003: 301–7). Extended to representation, we might observe that mimesis has a similar mechanical causality in so far as it asks us to understand that *this* signifier equals *this* signified in *this* real world – a chain of signification. (Of course, the inadequacies of such a model for explaining meaning or consciousness have been pointed out ever since the semiotic system of analysis itself was formulated.) Although mimetic representation has by no means disappeared, we are moving into an era which recognizes that simulation is a more useful way of modelling complex environments with multiple interconnected causalities at work within them.

The simulation is based on a dynamic rule-based system that has much in common with the game as a rule set. In his seminal work on computer games and simulation, Friedman has made the connection between simulation as a way of producing knowledge and post-modernism:

Representing flux and change is exactly what a simulation can do, by replacing the stasis of two or three dimensional spatial models with a map that shifts over time to reflect change. And this change is not simply a one way communication of a series of still images but a continually interactive process. Computer simulations bring the tools of narrative to mapmaking, allowing the individual not simply to observe structures, but to become experientially immersed in their logic.

(Friedman 1999, online)

Simulation is used by Friedman to represent complex processes with multiple agents and causalities at work – in this way it seems to answer a theoretical need for ways of producing knowledge that take account of the levels of interaction between micro-level agents and macro-level forces. It also addresses a need articulated by post-modern theorists for a method of representation that takes account of rapid change.

The simulation as a mathematically coded dynamic model has become an important way of understanding the world in financial and military planning, as well as in the natural and social sciences. One way to represent a world in which the random and the chaotic are prime movers is to set up a simulation of it in which certain rules are mathematically set, which then produces, or allows to emerge, observable behaviours. In the hard sciences, computer simulations are run to observe all kinds of behaviours, from what 'really happened' in the primordial soup to the spread of particular viruses. In the social sciences, Gilbert and Doran argue that simulation is a process of modelling:

We wish to acquire knowledge about a target entity T. But T is not easy to study directly. So we proceed indirectly. Instead of T we study another entity M, the 'model', which is sufficiently similar to T that we are confident that some of what we learn about M will also be true of T.

(Gilbert and Doran 1994: 4)

Typically the phenonema under consideration are dynamic, so a model consists of 'structure plus behaviour'. Simulation happens when we observe the behaviour of the model, when it is 'set running'. According to Gilbert and Conte, this approach may be summarized thus:

. . . computer simulation is an appropriate methodology whenever a social phenomenon is not directly accessible, either because it no longer exists . . . or *because its structure or the effects of its structure ie its behaviour, are so complex that the observer cannot directly attain a clear picture of what is going on.*

(Gilbert and Conte 1995: 2, our italics)

Simulation is also widely used by the military. In 1996, the US Department of Defence Modelling and Simulation Office asked the National Research Council to convene a conference in which military trainers and members of the entertainment industries could share information. It was attended by game developers, film studio and theme park executives, military trainers and universities (Prensky 2001: 315). Prensky discusses this conference in his book *Digital Game Based Learning*, going on to claim that the US military are the biggest spenders in the world on simulation games for training:

The military uses games to train soldiers, sailors, pilots, and tank drivers to master their expensive and sensitive equipment. It uses games to train command teams to communicate effectively in battle. It uses games to teach mid level officers how to employ joint force military doctrine in battle. It uses games to teach senior officers the art of strategy. It uses games for team work and team training of squads, fire teams, crews, and other units; games for simulating responses to weapons of mass destruction, terrorist incidents, and threats; games for mastering the complex process of military logistics and even games for teaching how *not* to fight when helping maintain peace.

(Prensky 2001: 296)

It is clear that warfare is now conducted on the basis of knowledge produced through simulation. In the light of this shift towards simulation as a way of knowing the world, we argue that the computer game occupies a crucial site of symbolic and imaginative power. Game engines (see Chapter 3) are the supreme example of the technologies of simulation entering the sphere of popular culture. They are dynamic rule-based systems made up from millions of lines of computer code which create worlds that audiences clearly find compelling and immersive. Computer games can be seen as a

form that compels the user's participation in the realm of spectacle, acting out, having agency within the pervasive mediasphere that is such an important part of our natural environment. The computer game answers the need for us to be able to play in the mediasphere – just as, **play theory** argues, we have a human need to play in other areas of our environment. The computer game is here seen as a toybox of simulations in the corner of the media zone.

## Consumption/production

The computer game is also a useful site through which to examine another key quality ascribed to new media in general – the destabilizing shifts in relations between consumption and production of media texts. Jenkins (2002) identifies three key trends that are significant in these shifts: 1) new tools and technologies that enable consumers to archive, annotate, appropriate and recirculate media content; 2) a range of subcultures that promote do-it-yourself media production; and 3) economic trends encouraging the flow of images, ideas and narratives across multiple media channels and demanding more active modes of spectatorship. Jenkins suggests that these trends are altering 'the way media consumers relate to each other, to media texts, and to media producers' (Jenkins 2002, online).

Cultural Studies already has an established tradition of attending to the complexity of consumption as a productive process – productive of meaning, identities and tastes. Storey summarizes this tradition:

. . . although Cultural Studies recognizes that the capitalist culture industries are a major site of ideological production, constructing powerful images, descriptions, definitions, frames of reference for understanding the world, it must continue to insist on the active complexity, and situated agency, of consumption. Culture is not something ready-made which we 'consume'; culture is what *we make* in the practices of consumption.

(Storey 2000: 59)

In relation to a consideration of *media* consumption, academic studies of screen media fans have long since demonstrated the creativity and complexity of reading strategies and reading positions adopted by viewers. Other studies have also highlighted the productive practices adopted by particular fans that extend their participation in the media text to become producers of fan art or fan fiction. Penley and Ross (1991), for instance, provide a detailed psychoanalytic reading of slash art – the production of images and stories based on popular media characters, often featuring male/male romances or sexual images – for example, Captain Kirk and Mr Spock of *Star Trek*. Jenkins (1992, 2003a, and 2003b) has written extensively on fan cultures, whilst Hills (2002) has made a more recent contribution to the study of fandom which analyses the relationship between fan knowledge and academic knowledge.



These fan practices have always troubled any secure division between producer and consumer. Recently this relationship has become even more blurred as writers and producers of popular television series frequent fan websites and discussion lists to surf for ideas, eavesdrop on their commentary on the show and occasionally contribute to these discussions. (See Lancaster 2001, which discusses the producer of *Babylon 5* contributing to fan discussions online.)

Recourse to fan practices as our model for gameplay, whilst useful for reminding us of the range and potential of media consumption practices, is still not quite adequate for understanding the specificity of computer games. The computer-based nature of computer games continues to encourage intervention with both software and hardware. New media consumption generally, and digital games playing specifically, allows for the emergence of highly *visible* participatory cultures, where there is a collapse of distinction between the dominant culture (the games industry) and the subculture (games players, modders and skinners) not typically associated with cinema-going or television viewing. As Jenkins (2003b) notes, we very rarely get to hear about subcultural fan-based activities until they receive coverage in the traditional media. The highly successful game *Doom* (1993) is a good example of the ways in which the participatory nature of computer games and the manipulability of the software facilitates new forms of creative consumption. The publishers id Software produced a **game editor** and made game file formats for the game's design freely available, encouraging players to modify levels, add new enemies or construct new levels (or 'maps') themselves. Influential new media theorist Lev Manovich argues that:

... hacking and adding to the game became its essential part, with new levels widely available on the Internet for anybody to download. Here was a new cultural economy which transcended the usual relationship between producers and consumers [...] the producers define the basic structure of an object, and release few examples and the tools to allow the consumers to build their own versions, shared with other consumers.

(Manovich 1998)

Cultural Studies has in many ways been formed as a discipline in the debate between the celebration of audiences' active meaning making through consumption and certain anxieties about the ideological significance of such activities. It is within the field of fan studies that this debate comes into sharp focus. Hills has rightly questioned the privileging of fan practices as a site of critical cultural production: 'the intense attachments of fans cannot be assumed to resist or transcend commodification; online fan practices ... are complicit with the commodity-text, functioning within the dialectic of value as an intensification rather than transcendence of commodification' (2002: 179). Whilst it is important to view these practices as sites of potential power struggle, this must always be couched in a full understanding that what in one context is 'resistance' in another can become 'incorporation' (Storey 2000: 58). Jenkins, however, argues that the new

‘interactive audience’ challenges the binary between ‘resistance’ and ‘incorporation’ by requiring participation and production:

The old rhetoric of opposition and cooptation assumed a world where consumers had little direct power to shape media content and where there were enormous barriers to entry into the marketplace, where-as the new digital environment expands their power to archive, annotate, appropriate, and recirculate media products.

(Jenkins 2002, online)

Despite the opportunities afforded by ‘the new digital environment’, we will argue that they depend upon a facility for digital means of accessing, altering and disseminating symbolic texts for further consumption. This facility affords the **prosumer** (the consumer as producer) symbolic wealth in the form of status and recognition, and also in a number of critical cases leads on to economic status and power within the capitalist economy. However, it is important not to overlook the highly gendered nature of the communities that form around these prosumer practices. Female players have often been actively or symbolically excluded; this is as true of the original hacker communities (as we shall see in Chapter 4) as it is of contemporary hard-core **modding communities** that have formed around online computer game playing. Nor is gender the only axis of power which conditions the accessibility of the necessary skills and techniques needed to be granted status within these communities. Ethnicity and class have their role to play in who gets to play with all the great new digital ‘toys’. These power relations are not monolithic, however, and are as subject to processes of critique, resistance and subversion as those that exist in any aspect of culture (as we shall see in Chapter 4 and Chapter 7).

## Technicity

The relationship between technology and modernity has been a continuing thread within critical theory ever since Marx. Arturo Escobar here suggests a relationship between the changing technologies of modernity and significant changes in forms of embodiment and cultural practices:

With modernity, mechanical models of physical and social life gave way to models centred on the production and maximization of life itself, including the coupling of the body and machines in new ways, in factories, schools, hospitals and family homes.

(Escobar 2000: 58)

This assumed connection between human subjectivity and our use of technology has come into even sharper focus as the machinery of computing has been woven ever more

closely into the fabric of our daily lives. For cyberculture critics, the processes of digitalization and developments in biotechnology have intensified our relationships with technology. In the process, we have once again been forced to attend to the cultural framing of technology as part of our subjectivities, as well as to questions of national, local and individual identities. The consequence of this intensification is that new media technology potentially ‘unsettles pre-existing identity formations: national, gendered, ethnic, racialist’ (Poster 2002: 30).

A range of contemporary theoizations of the consequences of technology for our lived subjectivities have made effective use of Haraway’s (first published 1985, 1991a) conceptualization of the ‘cyborg’ as an appropriate figure for late twentieth-century identities. This cyborg was posited by Haraway as a means of acknowledging our ‘kinship’ with machines. In her view, the cyborg has the radical potential to undermine binary hierarchies of ‘race’, class and gender through new forms of representation and new metaphors for being. By accepting our connections with machines, she argued we would be forced into ‘decentring’ the idealized white male subject from his ontological supremacy. This new kinship with machines will be critical in our discussions of both the pleasures of gameplay and the network of relations with machines brought about through single, multiplayer and networked gameplay (see Chapter 6). In what follows, we will lay out a definition of what we will call technicity in order to account for particular formations of identity and power which lie at the heart of computer game cultures. This concept will be useful in considering the computer game as a central site for the familiarization of subjects with technology.

Computer games and their appeal to us to be playful with them are for many people the first ‘hands on’ experience they have of developing a ‘facility’ with digital technology. This notion of the computer game as a critical point of access to such technology has underpinned the politically motivated ‘games for girls movement’ (see Cassell and Jenkins 1999) and also informs the initiatives to create educational games. The concept of technicity will therefore be deployed in two different but interrelated ways. We will consider the way in which particular kinds of skill with particular kinds of technology are highly privileged in the developed world. We also want to consider the ways in which specific technologies bring us into new relationships with machines that destabilize the distinctions between human and machine.

First, what do *we* mean by technicity? This term has a particular history within cyberculture studies which will be relevant to our discussions. David Tomas (2000) uses the term in order to account for the new kinds of social and cultural relationships being formed through the use of technology. His analysis is based on a reading of William Gibson’s *Sprawl* trilogy, in which he identifies in the ‘bad new future’ that is portrayed, ‘the social regeneration of ethnic identity under the influence of cyborg-governed processes of *technological* differentiation in marginal late-capitalist creolized technocultures’ (Tomas 2000: 175–6, italics in original). Thus technicity comes to stand for identities that are formed around and through this *technological differentiation*. For Tomas, these new allegiances based on attitudes towards or adoption of

technology seem to offer more critical purchase in representations of technoculture than the old more fixed sureties of class, ethnic or gender identities. Technicity thus enables us to look at social structures and cultural affinities in a new way – to identify the ways in which technology lies at the heart of these new connections. Again the new intimacy with technology signalled by the idea of the cyborg triggers a reformulation of identity defined through technicity. Tomas here argues that:

Cyborg transformations in traditional categories of kinship and ethnicity result in different systems of identity composition . . . This term seems to be a more appropriate tool to describe ethnic-type relations among cyborgs, especially since traditional blood ties are increasingly replaced, in threshold cyborg cultures, by technologically defined social bonds.

(Tomas 2000: 184)

The significant aspect of the new term of ‘technicity’ is to encapsulate, in conceptual terms, the connections between an identity based on certain types of attitude, practices, preferences and so on and the importance of technology as a critical aspect of the construction of that identity. To be subjects within the privileged twenty-first-century first world is to be increasingly caught up in a network of technically and mechanically mediated relationships with others who share, to varying degrees, the same attitudes/tastes, pleasures and preferences.

For instance, the world wide web itself enables the formation of particular kinds of social bonds based on a position towards and facility with technology alongside particular cultural tastes and interests. This technicity does not bring about the disappearance of other types of ethnic identities or communities but extends them, as Tomas argues:

Historico-epistemological categories that operate from the points of view of the inborn or naturalized attributes – racial, linguistic, or geopolitical similarities and differences – are displaced by systems of technicity. In creolised post-industrial cultures, these systems reflect the social needs (identity compositions) of nomadic individuals and groups in highly urbanized technoscapes or metropolitan centers.

(Tomas 2000: 185)

Although Tomas is discussing fictional representations of our ‘near future’, we would argue that this notion of technical virtuosity, of a particular easy adoption of and facility with technology, is a fundamental aspect of the contemporary ideal subject within the technosphere. We want to insist that this historical moment produces technological competence as a key marker for success as a participant in the modern culture. A focus on technicity will also enable us to emphasize the ways in which particular kinds of technicity are privileged. It will also allow us to pay attention to the ways in which identity and subjectivity are increasingly mediated through machinic relations and through the assumption of technology as an integral or foundational aspect of one’s connection with the world.

In Chapter 4, we will draw on the work of Pierre Bourdieu to extend this notion of technicity to include issues of taste and a cultural capital, dependent on technological expertise in the development of dominant games culture. We will examine the ways in which this technicity conditions the entrance into the games business for many key producers. This is evident in the available biographies which portray them as ‘early adopters’, who are insatiably curious, and predisposed to ‘tinker under the hood’. Whilst such biographical profiles appear to lack the ‘creolised’ diversity signalled by Tomas (2000), at the margins the picture is somewhat different. In Chapter 4 and Chapter 7, we will be focusing on how those who are structurally marginal to the dominant technosphere offer alternative biographies, where technicity becomes the means through which different subjectivities are articulated and oppositional meanings are produced.

What is readily apparent at this point is that just as ethnic, class and gender relations are markers of differential social and cultural power, the same is also true of technicity. Certain kinds of technicity are clearly privileged over others. Access to the kind of experiences which enable technological competences to develop remain mitigated by other social and cultural barriers. Any celebration of the role technology might play in the reconfiguration of axes of difference has to be attentive to how the ‘digital divide’ operates globally, how socialization and education play a part in directing particular groups away from an interest in science, technology or mathematics. There is a long history of interest in the ways in which these factors determine the construction of gender and racial difference in access to technological prowess. Judy Wacjman (1991, 2004), Nina Wakeford (1997) and Lisa Nakamura (2002) have all contributed to an understanding of the complex network of factors that produce or fail to produce affinities with technology. These studies also highlight the ways in which the dominant representations of technological expertise – in books, advertising and other screen media – as a ‘white’ and ‘masculine’ identity play a significant part in these processes. They rightly identify a dominant tendency to produce the stereotype of women as technologically ignorant or incapable and to simultaneously produce the relationship between men and technology as ‘natural’. This does not mean that technicity does not play an important role in social bonding, even amongst those apparently excluded from dominant technologies. However, this bonding is clearly differently privileged by technocapitalism. Even those who appear to achieve the most social and cultural power, as well as personal wealth, are subject to the vagaries of unstable conditions where employment is never guaranteed and ‘upgrade culture’ ensures that technological ‘edge’ can only be surfed for so long. Wherever a particular kind of identity achieves dominance in the cultural sphere, it also produces alterity, opposition and resistance.

## Work and play

If we examine how the word play is used . . . we find talk of the play of light, the play of waves, the play of a component in a bearing-case, the inter-play of limbs, the play of forces, the play of gnats, even a play on words. . . . The movement which is play has no goal which brings it to an end; rather it renews itself in constant repetition. The movement back and forwards is obviously so central for the definition of a game that it is not important who or what performs this movement.

(Gadamer 1981: 93)

This observation by the philosopher Gadamer signals the nature of play itself as a central theme of this book. Computer *games* have emerged as a multibillion dollar industry at the same time as some of the traditional oppositions between work and play are being challenged. Looking at computer entertainment specifically as a form of play has led us into an investigation of play as a theoretical framework for understanding contemporary culture. Nevertheless, by suggesting there is a historical development from work-based structures of social organization to play-based forms of commodity and meaning production we do not mean to participate in a celebration of ‘play’ that erases work and labour. As we have seen in the examples which were cited at the very beginning of this chapter, any culture of play is likely to be based on someone else’s culture of exploitation. It is more true to assert that play, through its function under the sign of consumerism, has itself become a form of work. ‘Post modern consumer culture,’ as Oriard writes, ‘converts play into the engine of insatiable consumption, which drives the economy without leading to personal fulfillment’ (1991: 484).

Debates within the mass media public sphere (from Jürgen Habermas onwards) have been characterized by anxiety about the disappearance of seriousness. Susan Sontag (1992) claimed that part of her mission as a novelist was: ‘To keep alive the idea of seriousness. You have to be a member of a capitalist society in the late 20th century to understand that seriousness itself could be in question’ (cited in Garis 1992: 43). Within the media, these debates have been particularly acute at the interface between news – the hard core of the idealized public sphere – and entertainment (Dovey 2000: 16–17).

Writing of the development of computer games and their relationship to the business of digital culture, Sandy Stone has referred to ‘the insertion of the play mutation into the corporate genome’ (1995: 15). Play has become both a part of the technological system in our relationships with the computer interface as well as part of the system of management favoured by the networked society. Stone argues: ‘Instead of carrying on an established work ethic, the beliefs and practices of the cultures I observe incorporate a *play* ethic – not to displace the corporate agendas that produce their paychecks, but to complexify them’ (Stone 1995: 14). As we have seen above, the new industries of

Silicon Valley and Seattle encourage their digital artisans to combine work and play – with good food, permanent Frisbee and lots of social bonding, it really is no problem to persuade employees to put in 12- or 18-hour days. If, as Rifkin (2000) argues, play has become work through consumption, then work has also – for a select few – become more playful.

## Conclusion

The emergence of the computer *game* as a form of mass entertainment has prompted a return to theories of play which, we argue, have significant utility in understanding our relationships with mediated culture as a whole, as well as contemporary technoculture more specifically. In Chapter 2, play theory is offered as an overarching paradigm through which the study of computer games can be approached. Chapters 3 and 4 focus on the cultures of game production. Beginning with an examination of the political economy of the computer games' industry, they also consider the role that technology plays in the determination of the kinds of games we find in our local game stores. However, the main argument of these chapters is that, to date, games have been produced by very particular kinds of people who have developed very particular cultures; we define these cultures in terms of dominant and resistant technicities. These cultures are identified both through a study of the biographies of key game designers and through a case study of the personnel in a particular UK game development studio. This work also draws from other biographies gathered through online interviews with less well-known and more marginal producers.

Chapters 5 and 6 turn from the cultures of production to those of reception. Specifically, Chapter 5 offers a summary of the main ways that games have been analysed, pointing up the deficiencies and advantages of traditional forms of media scholarship. Chapter 6 takes up some of the problems of existing methodologies and develops a new approach towards defining the experience of gameplay that is rooted in an understanding of it as an embodied phenomenon. It draws on theories of cybernetics in order to begin to explain what is going on for the player 'immersed' in the game world. Chapter 7 addresses the implicit critique that underpins our analysis of computer games by foregrounding the ways in which our consumption of computer games may also involve us in the production of our own meanings and cultures. It places gaming as a central feature of the participatory culture of new media and offers an analysis of some of the new practices that are emerging from game fan cultures and from artists' critical appropriation of the computer game.

## Further reading

- Aarseth, E. (2001) Computer Game Studies, Year One, *Game Studies*, 1(1), July. Available online at <http://www.gamestudies.org>
- Haraway, D. (1991) A Cyborg Manifesto: Science Technology and Socialist-Feminism in the Late Twentieth Century, in Haraway, D., *Simians, Cyborgs and Women: The Reinvention of Nature*. London: Free Association Books.
- Lister, M., Dovey, J., Giddings, S., Grant, I. and Kelly, K. (2003) *New Media: A Critical Introduction*. London: Routledge.
- Manovich, L. (2001) *The Language of New Media*. Cambridge, MA: MIT Press.
- Moulthrop, S. (2004) From Work to Play, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA: MIT Press.
- Tomas, D. (2000) The Technophilic Body: On Technicity in William Gibson's Cyborg Culture, in Bell, D. and Kennedy, B. (eds) *The Cybercultures Reader*. London: Routledge, pp. 175–89.



... play is a rotten character tainted by unreality, inauthenticity, duplicity, make-believe, looseness, fooling around, and inconsequentiality.

(Schechner 1988: 3)

### The ludological turn

As we have seen, computer games studies as a cognate field is emerging through competing attempts to understand the distinctiveness of the object of study. So far our introduction to the field has attended more to the idea of the ‘computer’ as media form rather than the ‘game’. But what does it mean to have a massively popular media form that exists as a game? This is not entirely new – obviously games as sport exist as an important part of the spectacle of mass media consumption. However, games also exist beyond the mediasphere, in a wide variety of public and private sites, from the playground to the sitting room, the pub to the casino. This chapter now turns to some important ideas about play and games that have been mobilized to understand the ludic qualities of computer media and of digital games.

The shift in emphasis in the forms of analysis considered useful for the study of computer games has been motivated by two distinct forces, which have been described as **narratology** and **ludology**. The difference between these approaches has had sufficient force for James Newman to describe it as a major ‘schism’ (2004: 91; see also Eskelinen 2004, Moulthrop 2004 and Jenkins 2004 for summaries of the major positions). Broadly speaking, the former has argued that games can be studied through recourse to existing literary and humanities methods of understanding texts, whilst the latter has argued that this cannot be the case since a computer game is not a conventional text at all but an activity more akin to play or sport. As we signalled in

Chapter 1, in order to understand and describe gameplay, theorists have begun to redefine the idea of ‘interactivity’ as *configuration*, ‘the capacity to transform certain aspects of the virtual environment with potentially significant consequences for the system as a whole’ (Moulthrop 2004: 60).

In this chapter, we want to give an account of the rediscovery of play theory occasioned by ludology in its attempt to understand the newly emergent forms of culture which we encounter in Moulthrop’s idea of configuration. This will require an exploration of how the history and theory of play offer a means of understanding the cultural history and context of computer games. In attempting to describe and understand the computer game, theorists have turned to pre-existing frameworks for understanding the role of play in our culture at large, and have updated these in such a way as to make them account for the specificity of computer games. We will also be signalling some of the ways in which this new attention to the force of play and games in culture at large enables us to rethink some of our existing theoretical problems and traditions.

This introduction of play theory into Media and Cultural Studies more generally offers a potentially fruitful methodological shift for the whole field. The computer game becomes a significant site of investigation since it is produced by the interplay between an increasingly ludic culture and a world that is increasingly technologically mediated. This chapter will argue for the central importance of the history and study of play to an understanding of digital cultures. Here the computer game becomes the site at which play is at its most apparent. The ludologists’ mobilization of cultural history, psychology, anthropology and systems theory has served to remind us that games are not static media texts – they are *activities*.

## Play theory history

The humanist theorists of play as culture, notably Huizinga (1955) and Caillois (1961), are often cited as offering a way into understanding the relationships between play and culture – but, in our view, their ideas need a radical overhaul to be relevant to the contemporary sphere. Caillois and Huizinga were both writing from within the formations of a modernist historical approach which emphasized the classical roots of play. In their work, the triumphant notes of ‘progress’ and ‘civilization’ ring out undistorted by the white noise of the post-modern, the distortion of relativism or the creaking collapse of grand narrative. However, both of these foundational books do the important work of detriivializing the idea of play, of making it a central part of the history of human behaviour and culture. Huizinga, for instance, argues that:

Social life is endowed with suprabiological forms, in the shape of play, which enhance its value. It is through this playing that society expresses its interpretation of life and of the world. By this we do not mean that play turns into culture, rather

that in its earliest phases culture has the play character, that it proceeds in the shape and the mood of play.

(Huizinga 1955: 46)

This position hardens later in the book, where we encounter statements such as: ‘We have to conclude, therefore, that civilization is in its earliest phases, played. It does not come from play like a baby detaching itself from the womb; it arises in and as play, and never leaves it’ (1955: 173). Huizinga also furnishes us with one of the most frequently cited definitions of play:

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

(Huizinga 1955: 28)

Although we may now feel the need to update and recontextualize Huizinga’s book, it is almost impossible to overestimate the contribution made by *Homo Ludens* to the understanding of the place of play in culture. Writing some years later, Roger Caillois (1961) critiqued and extended Huizinga’s work, in particular introducing specific terms as a means of categorizing how play operates in culture, but also in order to define different types of play formations:

- Agon – described as competitive play, which requires skill and training. First person shooter games fall into this category, as would any multiplayer games in which we compete against other individuals or teams. Agonistic games are those where there is a clear winning or losing outcome.
- Alea – games of chance or fortune (e.g. gambling games such as roulette or lotteries). Many sports simulation computer games might be said to have an aleatory quality; chance plays a part in the game outcome.
- Mimicry – games in which we are called upon to ‘pretend’, to simulate or to play a role. Role playing games such as *Everquest* (Sony 1998), *The Sims* (Maxis 2002) or *Fable* (Lionhead 2004) would fit in this category
- Ilinx (vertigo) – games that are an inducement to dizziness and disorder, such as a child spinning or an adult submitting to disorder (fairground rides might fall into this category, as might recreational drug use, drunkenness, etc.). Some of the visual spectacle of thrilling movement and spatial exploration offer us ilinx type pleasures. Games such as the *Doom* series, *Unreal Tournament* or the *Quake* series might be described as offering some degree of ilinx. Other games which involve greater physical action, coordination and speed, such as dancing games (described as Beatmania games or Bemani games) and the more recent Eye Toy games (Sony 2003–2005), could also be argued to offer ilinx-like experiences.

These categories for thinking about the kinds of play experienced in computer games have been widely applied, but we must stress that they are not exclusive terms. On the contrary, we often find these categories of play overlapping: agonistic play might well have aleatory elements, which could also be combined with mimicry and the vertiginous pleasures ofilinx at different points in the game. Online game worlds or very open console/PC games like *Fable* or *Grand Theft Auto* (Rockstar 2002) gain much of their popularity precisely because they combine different kinds of play. Caillois also categorized two distinct kinds of play – rule based and improvised:

- Ludus – rule-based games. Chess is often cited as the clearest example. Often applied to games which have a clear win or lose conclusion, or zero sum games.
- Paidia – open-ended play, spontaneous improvised play, often thought of as ‘true creative’ play – active, tumultuous, exuberant. Here we might apply the term to simulation games like *Civilization*, *Age of Empires* or *The Sims*, where there is no clear winning or losing state, just a dynamic ‘sandbox’ to play in endlessly.

In practice, of course, applying ludus or paidia is more than likely to produce a spectrum with varying degrees of both categories present. For instance, even in the most closed, predetermined, racing game it is possible for a player to enjoy paidia-type activities by experimenting with different cars, different designs, different circuits and so on. Seth Giddings’ film *Circuits* (2003) offers a perfect illustration of the extension of ludic pleasure to more open paidia-like forms of play. The film follows his two young sons as they re-form the world of *Lego Racers* in the house, using actual Lego, drawing and water play to inhabit the whole imaginative world of the game in physical play. On the other hand, winning or losing conditions can easily be produced in simulation games – when all your Sims get depressed, sick and the kitchen burns down for the third time, it is hard not to feel that you have ‘lost’. (It should be noted in passing that many commentators use the adjective ‘ludic’ to describe all kinds of playful, game-like practices without necessarily referring to Caillois’ particular definition.)

## The rules

Caillois’ structuralist approach to naming the formal elements of play and of games has become dominant in a number of attempts to define what a computer game is. In the search for the ‘heart of gameness’ (Juul 2003), theorists have offered patient and nuanced accounts of the form of their object – after all, before deciding how to study a computer game, we need to know what it is that we are studying. A number of theorists have made significant contributions to this fundamental (and at times formalistic) understanding of computer games as a cultural form (see Eskelinen 2001; Aarseth, Smedstad and Sunnana 2003; Jarvinen 2003). It would be impossible to summarize the variety of materials that exists which deal with this issue. In what follows, then, we will look at a few specific accounts that are not only exemplary in their own

right, but are also based on a gathering together of other existing accounts. As we have already indicated in Chapter 1, games are rule-based systems, and this critical aspect is raised above all others as a key to understanding computer games.

Jesper Juul, an important figure in the emerging field of Game Studies, offers a detailed analysis of what makes a game. He offers a model of the game which, as he states, ‘does not tie it to any specific medium’ (2003: 40). All games, he argues, contain to a greater or lesser degree the following six key qualities:

- Rules
- Variable, quantifiable outcomes
- Value assigned to possible outcomes
- Player effort
- Player attachment to outcome
- Negotiable consequences.

These qualities are the basic form of games, as he argues they are:

[T]he basis on which games are constructed. It corresponds to the celluloid of movies; it is like the canvas of painting or the words of the novel. The game model doesn’t mean that all games are the same, but that these six features are what games use to be different from each other.

(Juul 2003: 44)

The rules form the basis for gameplay and are thus constructed by formalist critics as the most significant aspect of the game. Salen and Zimmerman assert a similar fundamental principle in relation to computer games: ‘rules are the inner structures that constitute the games’ (2004: 104). The rules shape and structure our experience of playing a game; they are what we must seek to understand the moment we begin to play. For many of us, the pleasures of gameplay lie here in this negotiation of and submission to the rules of the game – a pleasure that lies in an oscillation between activity and passivity. We actively participate in the creation of the game as we play it, while at the same time we passively submit to rules which limit our possible behaviours. Salen and Zimmerman rightly describe these rules as ‘inefficient’ – they impose artificial limits to actions and capacities. In other words, the rules place artificial and inefficient obstacles in the way of achieving the winning game states; in soccer, for example, players are prohibited by the rules from touching the ball with their hands, though this might well deliver the ball over the goal line far more efficiently than using only the feet and head. Thus the rules not only form these ‘inner structures’ of the game itself, but they also significantly structure our experience of the game.

The rules of the game often clearly indicate a ‘preferred performance’ from the player – something as apparently banal as the ‘save’ function within a game can materially alter the quality of the experience of gameplay. In *Tomb Raider: Angel Of Darkness* (Core/Eidos, 2003), for example, the player can save the game at any point, thus when about to attempt a particularly tricky jump or series of jumps the player can

save at a point of safety and repeatedly return there after each failed attempt. The game therefore does not require a ‘perfect’ or ‘flawless’ performance of the entire level in order for the player to advance. In *XIII* (2003), however, saves are only available on the completion of an entire task or set of tasks, so failure in the very end stage of a level or task will require the repetition of an entire sequence of events over and over again until the player achieves that single ‘perfect’ performance. The objectives of the game constitute another different kind of rule set – to score more goals than the other team, to get round the circuit faster than anyone else, to destroy all enemies and reach a particular destination with a particular set of attributes. Prescribed winning states are also a kind of ‘rule’. Other rules, such as the ways in which the character or avatar can or cannot interact with or negotiate the game world, are also significant in determining the quality of the game experience. They are also often subject to real ‘inefficiencies’ and much arbitrariness; for instance, the acrobatic flying vehicle ‘Banshees’ in *Halo 2* (Bungee 2005) will always only go so high in the game world – there is an arbitrary cut-off point. The physics of the game world and the routing offered to players constitute another different kind of rule set.

The fact that games are structured by rules is also what makes them ripe for transfer from one medium to another. Juul identifies this aspect as the key flexibility of games as a cultural form:

. . . there is no set of equipment or *material support* common to all games. What is common, however, is a specific sort of *immaterial support*, namely the upholding of the rules, the determination of what moves and actions are permissible and what they will lead to. This can conveniently be described as *computation*, which is in actuality provided by human beings (in board games or card games), computers, or physical laws (in sports).

(Juul 2003: 41, our italics)

This immaterial aspect, identified as *computation*, is what makes the game a natural form for the computer, because the computer can perform the following:

- The operations defined in the rules of the games, operations that are normally performed by humans.
- The keeping track of the game state which is normally done using cards and board pieces.

But there are further distinctions between computer games and other games, one of which is the greater *flexibility* of the computer-controlled game:

. . . they modify the classic game model in that it is now the *computer* that upholds the rules. This adds a lot of flexibility to computer games, allowing for much more complex rules; it frees the player(s) from having to enforce the rules, and it allows for games where the player does not know the rules from the outset.

(Juul 2003: 43)

Drawing from and developing existing game theory has therefore allowed Juul and others to arrive at critical definitions of what *makes* a game – definitions that then allow for distinctions and variations to be classified and understood. In what follows, Juul makes use of his six rules to show how particular games deviate from this model and to what degree. In his words:

- The concept of variable outcome is modified in online role-playing games such as *Everquest*, where the player never reaches a final outcome but only a temporary one when logging out of the game
- Open-ended simulation games such as *The Sims* change the classic game model by removing the goals, or more specifically, by *not* describing some possible outcomes as better than others
- Perhaps implicit in the traditional game model is the fact that a game is bounded in time and space; the game has a specific duration and a specific location. Location-based games, ‘real-world’ and so called ‘alternate reality games’, such as *Majestic*, challenge this boundary.

(Juul 2003: 43–44)

It is surely significant that some of the most interesting game developments of recent years, such as those cited by Juul above, are described as variants of a basic form.

As already indicated, these ‘rules’ shape and structure our experience of a game to a greater or lesser degree, but they do not inevitably *determine* our *whole* experience. The practices of cheating and/or creating modifications of games, to take two examples, afford different kinds of experience of both the rules themselves and the game. For Juul (2003: 44), this turns the game into a ‘playground’ or ‘sandbox’. These kinds of activity and experience cannot adequately be accounted for by a reliance solely on structural or formalistic accounts of games. This is a familiar methodological problem; structuralist media scholars of the 1970s and 1980s attempted to explain the meaning of film and television through the analysis of formal textual features. This approach was increasingly challenged, however, as it failed to explain the experiences of viewers, or their diversity of interpretation.

### The time and space of play

The potential limitations of the approach outlined above can be resolved by relating our experience of the rules, the gameplay, to the cultural context in which it occurs. Although games and play take place in their own time and space, this ‘location’ is intimately related to the wider cultural landscape. As we shall see, it can be argued that we can only understand the game space through its relation to the non-game space.

Salen and Zimmerman (2004: 92) draw from Huizinga the notion of the ‘magic circle’. Although the magic circle is merely one of the examples in Huizinga’s list of ‘play-grounds’, the term is used here as shorthand for the idea of a special place in time

and space created by a game: ‘... As a closed circle, the space it circumscribes is enclosed and separate from the real world’ (Salen and Zimmerman 2004: 92). Play and games not only require this ‘magic circle’ – however permeable – they also require a particular frame of mind or ‘lusory attitude’ (Salen and Zimmerman 2004), or ‘subjunctive mood’, a sense of ‘what if?’ (Sutton-Smith 2001: 64).

In our attempt to update the humanist play tradition, it is crucial to draw attention to the ways in which the space occupied by computer games is often experienced differently on the basis of age, geography, gender, ethnicity or class. Although the ‘magic circle’ defines a separate space for play, it is not a utopian space, a nowhere – it still exists in the context of social time and material space. For example, arcade games are experienced differently, not just because as Newman (2004) rightly points out they are structured differently to offer a ‘shorter’ game and to maximize ‘through put’, but also because of the ways in which arcade spaces are structured as ‘gendered’ spaces. As Jenkins remarks: ‘the sight of a female gamer remains a remarkable spectacle within a commercial and cultural space still dominated by male designers and male consumers’ (2001). The same is true of other ‘magic circle’-type spaces for play, such as the cybercafes and netcafes, as spaces for online gaming. These spaces are structured and occupied in such a way as to allow for or inhibit different subjects to occupy them. The space and time of games is not ideologically neutral – even the location of the console (or PC) in the home might prohibit or enable access from particular members of the household. The common conception of computer games as a trivial masculine pursuit will also mean that girls are less likely to be afforded the *time* to play. This understanding of the ‘magic circle’ of play as located in the world of social reality points away from purely structural accounts of computer gameplay and towards a more nuanced understanding of the relationships between play and cultural context.

To understand fully the specificity of games, Salen and Zimmerman (2004) argue that we have to understand both ‘play’ as an ‘experiential’ dimension of games and ‘culture’ as a ‘contextual’ dimension of games. In other words, they assert that ‘play’ and ‘culture’ are in a formative relationship. This position is echoed by Sutton-Smith, who describes play’s ‘intrinsic’ and ‘extrinsic’ force. Here, ‘intrinsic’ refers to the ‘game related motives for playing’ – that is, how the rules structure our experience of the gameplay. ‘Extrinsic’ refers to the cultural value of play – how the game itself relates to the cultural world which produces it, for instance, in terms of representation, ideology and pleasure (Sutton-Smith 2001: 17).

### **The magic circle and its contexts – seven rhetorics**

Sutton-Smith (2001) has offered a highly detailed description of the ways in which different accounts and/or understandings of play are refracted through specific frameworks which will determine the kinds of meaning and force that are attributed to games and play. The ways of understanding play range from more popular and



widespread cultural beliefs about play through to scientific, religious or academic accounts of the function of play. He describes these as ‘rhetorics’ to capture the ways in which particular symbolic frameworks of metaphor and meaning are adopted within each account (2001: 5–9). His encyclopaedic achievement demonstrates that these rhetorics are determined by a specific individual, social and cultural context through which play must be understood. No contemporary theorist writing about games or play can fail to take notice of this crucial caveat – that there is always something at stake in our attempts to identify their individual, social or cultural significance.

Sutton-Smith describes seven rhetorics through which play and games are viewed and analysed. Some of these are what he describes as ‘modern’ (progress, self and imaginary are more recent rhetorics – less than 200 years old), whilst some are more ‘ancient’ (fate, identity, power and frivolity). In what follows, we summarize these rhetorics and give an indication of how they continue to shape existing accounts (including our own) of the cultural significance of play in general, and computer games in particular:

- Play as progress. Within this account, play is identified primarily as a means of development rather than of enjoyment. Sutton-Smith argues that this rhetoric is most frequently applied to the play of children as a way of describing how they socialize and achieve moral, social and cognitive development. This idea is active in the work of Huizinga (1955) and to a lesser extent Callois (1961), both of whom posit some forms of play as more healthy than others. It is also present in the work of Winnicott (below), who cites play as a critical factor in human development. To a degree, we ourselves also participate in this construction of play when we argue that computer games play a central role in ‘training’ players for life in contemporary technoculture (see also Kline *et al.* 2003).
- Rhetoric of play as fate. ‘[A]ppplied most to gambling and games of chance,’ this rhetoric is ‘in opposition to most notions of play in modern theories of leisure that argue that the distinguishing feature of play is that it is an exercise of free choice’ (Sutton-Smith 2001: 10). Clearly any game with a high degree of random possibility is also constructed through this idea of ‘fate’, as well as online gambling pursuits which rarely figure in computer game studies.
- Rhetoric of play as identity. ‘[U]sually applied to traditional and community celebrations and festivals, occurs when the play tradition is seen as a means of confirming, maintaining or advancing the power and identity of the community of players’ (Sutton-Smith 2001: 10). This idea of play as identity is present in performance theory accounts of ritual and ritualized play, but it is also present in contemporary accounts of games communities. Fan communities, for instance, clearly make and enjoy identity-confirming cultural spaces that play a significant part in their day to day lives.
- Rhetoric of play as power. This is about the use of play as the representation of conflict and as a way to fortify the status of those who control the play or are its heroes (Sutton-Smith 2001: 11). Again in the rivalry between online game clans, or

in the growing professional gamer leagues, we can see rhetorics of power being played out. The gang rivalry between online player clans in South Korea which has necessitated the cybercrime force described at the beginning of Chapter 1 is a clear example of play as power.

- Rhetoric of play as the imaginary. '[U]sually applied to playful improvisation of all kinds in literature and elsewhere, idealises the imagination, flexibility and creativity of the animal and human play worlds. This rhetoric is sustained by modern positive attitudes towards creativity and innovation' (Sutton-Smith 2001: 11). We can find this rhetoric at work in discussions of computer games that construct them as central to the 'information economy', where creative power becomes a key marker of competitive advantage.
- Rhetoric of the self. Here, 'play is idealised by attention to the desirable experiences of the players – their fun, their relaxation, their escape – and the intrinsic or aesthetic satisfaction of the play performances' (Sutton-Smith 2001: 11). In the case of computer games, we might see this rhetoric in operation where they are understood as offering experimental subject positions (e.g. warrior, mage, supervixen, etc.). See, for example, the study of female *Everquest* players by T. L. Taylor (2003) and our own analysis of female *Quake* players based on Helen Kennedy's doctoral research which informs both Chapter 6 and Chapter 7.
- Rhetoric of play as frivolous. '[F]rivolity, as used here, is not just the puritanic negative, it is also a term to be applied more to historical trickster figures and fools, who were once the central and carnivalesque figures who enacted playful protest against the orders of the ordained world' (Sutton-Smith 2001: 11). This way of understanding computer games might be seen at work where they are understood as offering a carnivalesque space in which the violence and fear of the contemporary social order is made excessive and played out as a game.

Sutton-Smith does not suggest that there is a particular problem with any or all of these rhetorics – each plays its part in determining the enduring 'ambiguity' of play. He does argue, however, that we have to be attentive to the ways in which we are adopting them in the support of our own positions or understanding of play. In this volume, Sutton-Smith himself has recourse to a very specific view of play. He concludes with an emphasis on the *biological* and adaptive function of play. Here play is described as 'potential behaviour' which allows the 'actualisation' of what are only 'potential brain and behaviour connections' (2001: 229). He begins by identifying a certain adaptive potential as essential in our contemporary context:

In our world of radically and unpredictably changing environments, an evolutionary potential for creative responses requires that organisms possess an opposite set of characteristics usually devalued in our culture: sloppiness, broad potential, quirkiness, unpredictability, and, above all, massive redundancy. The key is flexibility, not admirable precision.

(Stephen J. Gould, quoted in Sutton-Smith 2001: 221)

Citing advances in technologies of brain imaging in neuroscience and a particular neo-Darwinian account of adaptation, he makes the following set of connections between the qualities required and play as the means through which these qualities are maintained and developed:

[I]nformation about the evolution of the brain implies a way in which that potential variability is advanced through play. The very fact that play contains so much nonsense, so much replication, and is so flexible certainly suggests that it is the prime domain for the actualization of whatever the brain contains.

(Sutton-Smith 2001: 226)

Sutton-Smith here participates in the continuation of the rhetoric of play as progress (and acknowledges this – 2001: 231). But it is not just culture or civilization that is advanced – play becomes the means through which human survival is guaranteed. This is a bold claim by one of the leading and most influential play theorists.

### The subject in play

This analysis of the operation of particular rhetorics in the definitions of and valuations attached to play clearly challenges the idea of play as an activity separate from the social order. Here we now return to Sutton-Smith's account of its intrinsic and extrinsic force. Several of his rhetorics (such as progress, the imaginary, the self) point us in the direction of thinking about the playing subject. They invite us to ask, 'What is going on for us as individuals when we play?' In order to begin to think through this question, we turn to the psychology of D. W. Winnicott as it developed out of his accounts of childhood development published in *Playing and Reality* (1971).

Winnicott offers a great deal to aid our understanding of the ways in which play is *both* identity producing and culture making:

. . . on the basis of playing is built the whole of man's experiential existence. [. . .] We experience life in the area of *transitional phenomena*, in the exciting interweave of subjectivity and objective observation, and in an area that is intermediate between the inner reality of the individual and the shared reality of the world that is external to individuals.

(Winnicott 1971: 64, our italics)

Computer games can be seen as 'transitional phenomena' which facilitate exchange between the subject and the mediated environment. This allows us to contemplate the relationship between watching and doing, and to grasp the psychic significance of play as a crucial part of our experience of culture. This notion of transitional phenomena also allows us to see how the fact that computer games require a manipulation of technology underpins our adoption of technology as an 'extension' of ourselves. When the control of objects becomes an act of imaginative creation or recreation of self, it

would appear to enhance further the appropriation of the technology, serving to collapse the boundary between fantasy and reality. According to Winnicott (1971: 47): ‘The thing about playing is always the precariousness of the interplay of personal psychic reality and the experience of control of actual objects.’

In Cultural and Media Studies the turn towards Winnicott, by researchers such as Hills (2002) and Silverstone (1999b), signals an awareness of play theory within the existing study of text interpretation and fan practices. They both use Winnicott as a means of exploring the ‘tissue boundary’ (mentioned below). To construct the ‘viewer’ as a creative participant in the production of meaning, or the performance of a text, is to signal a new kind of attention to the authority of the reader. Silverstone describes media consumption as a form of play and makes some broad claims for the importance of play as a site of cultural production as well as identity formation:

Play enables the exploration of that tissue boundary between fantasy and reality, between the real and imagined, between the self and the other. In play we have license to explore, both our selves and our society. In play we investigate culture, but we also create it.

(Silverstone 1999a: 64)

Hills insists on viewing fans particularly as ‘players’ and ‘creators’, and to do so he turns explicitly to Winnicott’s notion of the ‘third space’ of play and the continuities between child play and adult play:

Winnicott suggests that our emotional attachments within culture, or ‘little mad-nesses’, continue throughout our lives as a way of maintaining mental/psychical health. In this reading fandom is neither pathologised nor viewed as deficient, instead it can be theorised as a form of good health.

(Hills 2002: 112)

Hills’ focus is on fans as players, but the same framework is entirely appropriate for games players. It indicates that Winnicott’s writing on play is richly productive in understanding computer game experiences as just such sites of cultural production and identity construction. Although Winnicott’s work was generated through a focus on child psychology, he rarely confines his claims about the necessity of play for psychic health just to children. He argues that a capacity to play is central both to psycho-therapeutic practice and to all satisfactory interactions between the psychic world and material reality. At its baldest, he summarizes: ‘There is a direct development from transitional phenomena to playing, and from playing to shared playing, and from this to cultural experiences’ (1971: 51). He speculates that ‘playing and cultural experience can be given a location if one uses the concept of the potential space between the mother and the baby’ (1971: 53). We play in this potential space and through playing become the creative beings that do not ever need recourse to expensive psychotherapy: ‘It is in playing and only in playing that the individual or adult is able to be creative and to use the whole personality, and it is only in being creative that the individual discovers

the self' (1971: 54). In this reading, it is possible to argue that the computer game player is in some way rehearsing another version of those interactions between (internal) subject and (external) representations which are at the root of the personality, as well as at the root of culture. These are compelling arguments for the significance of game cultures.

However, we might perhaps also be tempted to ask what it means for so many of us to be investing our creative energy into a potential space already branded by Sony Playstation as 'The Third Space'. An acceptance of Winnicott's arguments would naturally lead us to argue for the importance of the production of *quality* play experiences which produce the kind of creative expression that he prescribes as a necessity for psychic health.

### The social subject in play

The use of Winnicott to think about the playing subject only gets us so far. What of the subject as social being? How do the collective actions of playing subjects constitute a culture of gaming? What relation does this 'game culture' have to the cultures of work and production? To address some of these questions, we turn to anthropology and performance theories, in particular to the work of Victor Turner (1982).

A turn towards performance theory enables us to better understand the relationship between play and culture. Boria *et al.* (2002, online), for instance, use the notion of ritual to interpret the forms of talk that occur in the online multiplayer game *Counter-strike*. They draw from the work of Turner, who offers an account of the importance of ritualized play and performance in both the formation of individual identity and the formation of communities. Turner describes various types of play, both traditional and modern, and seeks to understand their personal and social meaning or value. He offers an account of rituals and play as the site of the affirmation of cultural norms (through, for example, certain ritualized rites of passage through which children become adults in particular communities).

The special time and space of play is described by Turner as either liminal or liminoid; they have a different character and are positioned differently in relation to the dominant meanings of the culture within which they are located. The liminal is characterized as a type of play or ritual that is often compulsory in some sense, either a community gathering or an essential 'rite of passage'. Whilst these activities may contain within them either the 'abrogation or negation' (1982: 58) of existing power structures and subjectivities, they are seen as a means of more securely anchoring their participants to the status quo. The player returns from the liminal ritual space with a renewed sense of his or her place in the established social order. Liminal phenomena, on the other hand, are much more individualized and commodified. They 'develop apart from the central economic and political processes, along the margins, in the interfaces and interstices of central and servicing institutions – they

are plural, fragmentary and experimental in their character' (Turner 1982: 58). Liminal and liminoid are both for Turner the 'seedbeds of cultural creativity', but it is the liminoid which has the power to transform through radical 'manifestoes' and critique.

Turner's notion of the liminoid thus gives us the idea of play as not just a source of creativity but also a site for the generation of alternative social orders, for political interventions, for utopian imaginings. Thus in Turner's understanding, ritualized play space may have both a hegemonic function, reinforcing power structures, *and* a critical one, generating new possibilities. These ideas help us to understand the relationships between player subjectivity, player group identities and the wider social world. For instance, the concept of the liminal as a social space which enables the individual to adapt to the social world is clearly present in the virtual worlds of massively multiplayer online role-playing games such as *Everquest*. The variety of practices which are undertaken by people in this game demonstrate the enormous symbolic meanings attached to their play by the players. Gamers have held in-game political demonstrations, started newspapers, collected charity donations, and held vigils and created memorials in-game to real life events (*Citizen Lab* 2003). The online game world is a liminoid space in which participants play within prescribed roles, which have a generative, creative and playful relationship to the ordered worlds of daily life.

An understanding of these liminoid 'situations as settings in which new models, symbols, paradigms arise' (Turner 1982: 28) provides us with a means of acknowledging the role that play can have in allowing individuals and groups to subvert dominant meanings. Turner offers us a further useful analytical tool, the notion of *communitas*. This concept is developed in his work to explain the firm feelings of belonging that we may have in group-based cultural activities. *Communitas* can be identified through the symbolic structures generated within the group, such as particular nicknames and 'private' language systems. For Turner, *communitas*:

. . . does not represent the erasure of structural norms from the consciousness of those participating in it; rather its own style, in a given community, might be said to depend upon the ways in which it symbolises the abrogation, negation or inversion of the normative structures in which its participants are quotidianly involved.

(Turner 1982: 58)

This idea is useful in understanding how specific game communities both communicate their identity in relation to one another; how, for instance, the female games community enunciate their identity in relation to the dominant masculine games community, but also how 'communities of players' in general position themselves as 'other' to ideas of work-based communities.

This review of approaches to thinking about play and games at a general level has so far introduced structuralist paradigms, rhetorical analysis and psychoanalytic,

anthropological and performance theory frameworks. We now turn to the application of these ways of thinking to contemporary technoplay.

### Gendering play space

Although Turner argues above that to play in a strongly defined group setting is to ‘abrogate, negate or invert’ social norms, they do not disappear in his ‘liminoid’ zone. Gender in particular has continued to exert a powerful structuring force upon the distinctiveness of computer game culture. As we shall see in Chapters 3 and 4, games have emerged from a particular historical convergence between mathematical savvy, playful pranksterish attitudes towards technology and technological investment in information and communications media. Within this network of happy coincidences the computer game emerges as the dominant *playful* medium through which to experience the possibilities and pleasures provided by innovations in computer processing. Simultaneously, it is also one of the most profitable commodifications of these innovations.

As Haraway (1991a) argued in relation to computer technologies in general, the computer game can be understood as both the prodigal son of the military/industrial/capitalist complex and its illegitimate and unruly child. The gendering of this metaphor is entirely intentional. Computer games have emerged from within a set of contexts which figure as highly masculine (science, mathematics, technology, the military) and have therefore inherited this particular cultural coding. This remains as true today as it was in the early 1980s, and this is despite the numerous initiatives, both commercially and politically motivated, which have sought to alter the cultural identity of computer games. As we shall see in our accounts of technicity in Chapter 4, computer games are still predominantly made by men (and usually white men at that) for like-minded boys and men. Computer gameplay as a specific activity takes place within and forms part of a culture that is not gender neutral. Gendered structures of inclusion and exclusion are at work in the mediation of access to both games and play in a number of different ways.

First of all we should consider how differently gendered kinds of play become visible and are evaluated in our culture. Educationalists have long understood that playground space is gendered, insofar as a dominant proportion of boys’ play tends to ‘take over’ a disproportionate amount of space, whilst ‘quiet’ boys’ games (like Pokemon trading!) or girls’ play activities are often relegated to the sidelines. The dominant construction of ‘femininity’ requires that girls and women demonstrate ‘appropriate’ feminine bodily comportment and pleasures that are often at odds with active, competitive or even destructive forms of play (Young 1990; Wearing 1998). The assumption of a normalized version of femininity takes place through processes of sanction and reward from parents, teachers and peers, and through familiarity with dominant models of the ‘feminine’ in the media.

The narrative worlds of computer games are heavily coded as masculine, not only in terms of content but also in how they are marketed, located, exchanged and reviewed. The use of ‘booth babes’ at games expositions, the use of highly sexualized imagery in the packaging and advertising of games, the Nintendo ‘For Men’ tag line that accompanied the Game Boy Advance SP campaign and the dominant construction of female games characters as ‘hypersexual’ all serve to underscore this coding (see Gailey 1993; Cassell and Jenkins 1999; Graner Ray 2003). What remains troubling is that within the industry itself, and also within the academic community, games which have attracted a more gender balanced playing audience, such as *Everquest* and *The Sims*, are frequently cited as deviations from the ‘classic game model’ (Juul 2003), which implicitly works to reinforce the notion that these are not *really* games and their players are not *really* gamers. The common sense understanding of what constitutes a computer game also discounts or excludes things like remediated card games, such as those pre-installed on most PCs (e.g. Solitaire or Hearts), despite the large number of female players who engage in these practices. The heavily gendered culture of the computer game therefore produces a privileged (but naturalized or normalized) set of play preferences and practices.

In the past, attempts to attract a female audience have tended to focus on invoking those more ‘traditionally feminine’ activities and pleasures. This is true of the economically motivated attempts to reach this untapped female market and more politically motivated initiatives to improve girls’ access to technology (see Cassell and Jenkins 1999; Graner Ray 2003; Laurel 2003). Jenkins (2001) has suggested that this recourse to dominant notions of ‘feminine’ taste makes some sense as a means of attracting those girls who are most apt to be left behind by the industry and by technology. However, this tendency has been critiqued by many female players and practitioners for the way in which it reinforces notions of appropriate feminine tastes and pleasures (Cassell and Jenkins 1999: 328–41). Graner Ray (2003) argues that the success of *Barbie Fashion Designer* (Mattel) prompted a whole slew of ‘pink’ games based on interests such as fashion and shopping which attempted to replicate this success. According to the analysis offered by Graner Ray, when these games subsequently failed to meet with the same degree of success as that gained by Mattel, the industry took this as a sign that there was no genuine market for games for girls or women. Graner Ray suggests that in so doing, the industry made the error of defining an entire market (potential female players) around a single genre (fashion and shopping).

There have been some changes within the industry as the issue of how to attract a female audience (both young and old) in a relatively static marketplace continues to gain a great deal of attention. Jenkins (2001) suggests that the popularity of *The Sims* potentially signals a real shift in game culture brought about by the fact that Maxis has a more equal gender balance in their design and production staff. Jenkins speculates that: ‘In such a context, even if there is no conscious goal of expanding the female market, the unconscious decisions made by men and women working together is likely to produce a product that is very different from one where the intuitive decisions were



made by an all or predominantly male team of designers' (2001). Sheri Graner Ray's *Gender Inclusive Design: Expanding the Market* (2003), written from her perspective as a designer who has had to struggle to attain a position within this masculine culture, together with her critical contributions at industry and academic conferences, represents an important intervention into this complicated debate.

## Technoplay

Conventional accounts of the emergence of contemporary digital cultures have emphasized the relationship between play and the development of computing technologies. At the heart of this account lies the synergistic relationship between computer code, probability and rules that, in turn, manifests itself in particular kinds of experimental and playful attitudes towards computer technologies within their own specifically gendered development community. However, the gendered nature of these histories is frequently ignored in a celebration of the subcultures that have contributed to the development of digital media cultures.

Hacking culture is a crucial element of this story. However, in order to locate hacking as part of our increasingly 'ludic culture', we should understand that the hacking sensibility which has informed so much of the development of computer culture predates the digital age. To 'hack' in its original meaning was to create a clever practical joke based in the manipulation of complex systems. The technical operations of hacking derive from an originally playful cast of mind that was a direct reaction to the systems of scientific and corporate instrumentality: '... the word hack has long been used to describe elaborate college pranks that MIT students would regularly devise, such as covering the dome that overlooked the campus with reflecting foil ... to qualify as a hack, the feat must be imbued with innovation, style, and technical virtuosity' (Levy 1984: 23). Similarly, Kent records the activities of the MIT Tech Model Railroad club (TMRC) of the late 1950s and early 1960s as a kind of proto hacker environment:

The Tech Model Railroad club appealed to students who liked to build systems and see how things worked ... These strange college students, with their funny jargon and nerdy ways did more to start the computer revolution than any Silicon Valley engineering team.

(Kent 2001: 16)

Kent explains how the TMRC went on to invent 'Spacewars', one of the very first computer games, as a hack. A prank to see what alternative uses could be found for Digital Equipment's state of the art PDP-1 ('about the size of a large automobile') recently delivered to MIT. Their work was unauthorized, unofficial and motivated by their particular idea of fun. There is an ethos, an attitude and a culture at work here that is produced by the conjunction of particular kinds of young men, technology and the mathematical systems of coding that are the language of computing.

As Kent indicates, this ‘technoplay’ attitude has remained a key signature of digital culture. From the many possible versions of interactivity that were being discussed through the 1970s, we finished up with what Sandy Stone terms ‘poke and see’ interactivity (1995: 10), essentially an interface that requires us to play with it, to experiment to see what happens. Nobody gets anywhere with computers by sitting and waiting for it to happen – we have to take the first experimental and experiential steps towards our desired instrumental outcomes. Computers are machine systems that require play. Indeed, it is a common experience for many users that reading the manual to explain a software is usually a lot less useful than simply sitting down and playing with it, finding out what it will do. Furthermore, the development of computer software is driven by this subjunctive, experimental mode: How can I make this software do things that it wasn’t designed to do? How can it be adapted, reshaped, stretched? It is as if the commodities of Fordist mass culture had all been released with a customizing toolkit that required consumers to rebuild it to their own specification before use.

This short account argues that the ludic impulse has been a significant driver in the shaping of computer technologies. First, hacker culture has been constructed as inherently playful; second, computer systems require experiential learning which has a playful experimental quality; and, finally, the rule-based system of coding has much common cognitive ground with the rule systems of games. As we saw above, Juul has made the point that there is a distinctive ‘fit’ between computer coding and game rule systems because code facilitates rapid game operations and updating of game states (Juul 2003: 43).

### Ludic cultures and critiques

By placing the computer game within this nexus of the ludic and of technological mediation, we are consciously constructing it both as media form and as material for cultural diagnosis. The computer game, then, is produced as an ‘ideal’ media form by the conjunction of a culture in which the playful and the ludic are once again of serious concern and a history of technoplay in which a playful relation to digital media technology has informed its entire development. Kline *et al.* (2003: 74–5) argue that the computer game is the ‘ideal commodity’ of post-Fordism. They borrow Lee’s concept of the ideal commodity, which suggests that particular social and economic moments produce their own ‘ideal commodities’. Thus the mass-produced car and the suburban house are in some ways the ideal commodities of Fordist regimes of capitalism, ‘goods around which a whole set of practices and values that were vital to the regime were arrayed’ (Kline *et al.* 2003: 74). These ideal goods were ‘all imprinted with the stamp of a mechanical production process that emphasized structure, solidity, and reliability’ (2003: 74). For Kline *et al.*, the computer game represents, in both production and consumption, the ideal product of the contemporary moment. In its technological bases, its ‘youthful workforce of digital artisans and netslaves’, its ability to colonize

every aspect of leisure time and space, in its reliance upon simulation and through the intensity of its marketing and consumer surveillance techniques, the computer game has diagnostic relevance. However, we argue that the ludic culture of the early twenty-first century necessitates new critiques and refinements of existing bodies of play theory for them to be useful in understanding the significance of computer games.

## Conclusion

The roots of humanist play theory in classicism leads both Caillois and Huizinga to argue for the primacy of a particular kind of play. Caillois describes (his 1950s) contemporary culture as formed through the interplay of *agon* (competitive play) and *alea* (games of chance):

Agon and alea imply opposite and somewhat complementary attitudes, but they both obey the same law – the creation for players of conditions of pure equality denied them in real life. For nothing in life is clear, since everything is confused from the very beginning, luck and merit too. Play whether agon or alea, is thus an attempt to substitute perfect situations for the normal confusion of contemporary life.

(Caillois 1961: 19)

However, it becomes clear in his account that the agonistic subject is the preferred subject of 1950s capitalism:

In societies based upon the combination of merit and chance, there is also an incessant effort not always successful or rapid, to augment the role of justice to the detriment of that of chance. This effort is called progress.

(Caillois 1961: 78)

The agonistic subject relies solely upon him/herself, practising, training, playing by the rules to succeed in sport, business or life. The agonistic subject competes by the rules of the game to become a success; the rules of the game are the social rules of meritocracy, in which the best will be rewarded. The practice of *agon* presupposes sustained attention, appropriate training, assiduous application and the desire to win. It implies discipline and perseverance. The agonistic subject is the preferred subject of Protestant capitalism, competing steadily by the rules in order to participate in long-term accumulation, to acquire that house in suburbia and provide that car in the garage. The aleatory subject, on the other hand, ‘negates work, patience, experience, and qualifications’ (Caillois 1961: 17).

We argue, then, that the steady, respectable rhetoric of play as progress has been replaced by a far more aleatory experience of society and culture. Networked systems may often *appear* to be more subject to chance than the mechanical systems of modernist industrial cultures. Networked culture demands that we understand life in terms

of systems – chains of intercausality which are so complex that the ‘chance’ fluttering of a butterfly in Asia may be part of a pattern that produces hurricanes in the Caribbean. As we have seen in the section ‘Work and play’ in Chapter 1, some scientists also argue that chance is at the root of the evolution of life itself. Sutton-Smith’s rhetoric of fate, originally one of his ‘ancient’ discursive frameworks, here makes its return as a way of understanding scientific and social processes determined through complexity.

However, in what follows we also argue that computer games are being constructed through Sutton-Smith’s discourses of ‘the imaginary’ and ‘the self’. Computer games can be seen as a form that compels the user’s participation in the realm of spectacle, acting out, having agency within the pervasive mediasphere that is such an important part of our natural environment. The computer game answers the need for us to be able to play in the mediasphere – just as, play theory argues, we have a human need to play in other areas of our environment. Here we are participating in Sutton-Smith’s rhetoric of play as the imaginary, where ‘imagination, flexibility and creativity’ can be pursued. The computer game is seen as the toybox in the corner of the media zone – the very texture and quality of the game image is like a primary colour pastiche of TV or cinematic optical realism. Here we can act out all kinds of mediated fantasies; we can run championship winning sports teams, indulge in militarized gore fests, become a kick-ass riot grrl or spell-casting witch.

In this interpretation, our computer gameplay could be seen in the context of Winnicott’s theorization of the importance of play taken up by Cultural Studies fan theorists. Here the rhetoric of play as imaginary converges with Sutton-Smith’s rhetoric of the self, where individual pleasure and escape are foregrounded. However, where such activities occur in an online multiplayer context, we might see them as nearer the rhetoric of identity where the player has strong group or clan affiliations. This acting out occurs within the circumscription of the liminoid ‘magic circle’, the zone of play in which we agree to suspend the rules of the every day in favour of creating a space that allows us to experience the taboo, the challenging and the passionately desired.

Finally, we also want to argue that important ‘work’ gets done in this playground, as it does in the schoolyard. In arguing that computer games cultivate technoliteracy we are constructing them as part of the ‘play as progress’ rhetoric – play which generates educational development. The computer game, it has been argued, recruits us to a hermeneutic process (see, for example, Friedman 1999) that is particularly relevant to the age of digital media and culture. One of the activities that we are involved with when we play a game is trying to work out its rule set; of course, we learn the basic rules and objectives as we begin the game, but in a wider sense we are also figuring out what the game engine does, what it wants us to do, how far we can ‘get away’ with testing the limits of the game code. Our gameplay can be seen as a process of trying to understand, through our developing skill levels, the way that the game works. In this way, it is argued that computer gameplay provides a crucial site for the development and education of our individual ‘technicity’, where this quality will be a significant part of our subjectivity in the twenty-first century.

Janet Murray provides an excellent example of the ‘games as progress’ rhetoric, which also highlights the importance of systems theory and simulation: ‘[t]he more we see life in terms of systems, the more we need a system modeling medium to represent it – and the less we can dismiss such organized rule systems as mere games’ (1997: 93). Our argument in this chapter has been precisely with that ‘mere’. In tracing the new ‘fork in the path’ of text-based studies identified by Moulthrop above, we have argued that its insistence on configurative practices at the expense of interpretative experiences requires us to revisit theorizations of play. Computer gameplay does not spring fully formed from the utopian hyperbole of cyberculture; it represents a significant new stage in the development of the cultures of new media. However, we have argued that our understandings of this new stage will be considerably enhanced by the deployment and refinement of existing theorizations of play.

### Further reading

- Juul, J. (2003) *The Game, The Player, The World: Looking for a Heart of Gameness*, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht.
- Salen, K. and Zimmerman, E. (2004) *Rules of Play: Game Design Fundamentals*. Cambridge, MA and London: MIT Press.
- Sutton-Smith, Brian (2001) *The Ambiguity of Play*. Cambridge, MA: Harvard University Press.
- Turner, Victor (1982) *From Ritual to Theatre: The Human Seriousness of Play*. New York: Performing Arts Journal Publications.
- Walther, B. K. (2003) Playing and Gaming: Reflections and Classifications, *Game Studies*, 3(1), May; <http://www.gamestudies.org/0301/walther/>
- Winnicott, D. W. (1971) *Playing and Reality*. London: Tavistock Publications.

Playstation will be positioned as the future mainstay digital product and a step toward introducing computers into the house . . . we will create infrastructure for a home use computer. This will effectively link game machines with Sony's audio visual technology.

(Ken Kutaragi – Playstation designer in 1989, in Asakura 2000: 31)

### The Trojan Horse in the digital parlour

This chapter will examine the cultural forces that are active in game production and which therefore have a determining effect upon the choices that confront us as consumers in our local game store. It will situate the computer game within the material, physical processes of production. The system of game production is now very similar to the situation of any other major media industry insofar as the individual producer has a very narrow margin of choice over what they can make at any given time. When market conditions, technological limitations and existing cultures of production are taken into account, the space left for producers to innovate is often very small indeed. The game in your local game store is produced through the interplay of these three systems – *economic*, *technological* and *cultural* – which will be considered in turn as a way of understanding the forces which determine the production of mainstream console games.

This account of the industry will be informed and underpinned by a case study of Pivotal Games made in December 2003. Pivotal Games are a mid-size development studio based between Bristol and Bath in the west of England. They employ 70 people, producing the *Conflict Desert Storm* tactical squad-based military shooter games. The case study was conducted through observation of working practices as the

company worked towards the alpha test stage of the third game in the *Conflict* series, set this time in Vietnam. We also interviewed a cross section of ten development staff, from quality assurance game testers, through artists and programmers, to the managing director, in order to build a picture of the culture and process of game production.

Our observations on the political and technological economy of computer game production are here primarily focused on the console market. Our main interest has been on the most mainstream mass distribution forms of computer gameplay as it has moved from the hobbyist PC or arcade gamer through to mainstream interactive entertainment – the post-Playstation era of computer gaming. Although our observations may not hold true in every detail for PC or online gaming, the general analytic categories of market conditions, technologies and cultures of production may be applied to all forms of new media.

The computer games business is now a significantly powerful revenue generator within the global media and entertainment industries. One of the dominant narratives of the industry at this period in its development is the story of a hobbyist, enthusiast-led fan culture of game production and consumption becoming a central component of globalized technoculture industries. The technologists, the platform manufacturers, are themselves central players in world media markets; Sony may have become synonymous with Playstation for many gamers, but they are also major operators in the music and film business. The Xbox is in fact a late addition to the Microsoft portfolio and was produced not because Bill Gates was suddenly converted to the idea of games as the new art form but because Microsoft were very threatened by Sony's dominance of the domestic digital domain. The game console has been seen by its producers from its earliest days as a 'Trojan Horse' – a device that creates brand identity and a potential interface for a range of peripherals in the wired sitting room so beloved of enthusiastic prophets of the **technological imaginary**. As the quote at the top of this chapter suggests, Sony certainly saw Playstation as a way of creating technology brand loyalty in consumers. Similarly, Microsoft's entry into the console business, despite their protestations to the contrary, can be read as a response to this competitive environment. Rick Thompson is reported to have summed up the feeling within Microsoft by the end of the 1990s as follows: 'If Sony, AOL and AT&T were got together they could put a game box out that would be subsidized by your telephone Internet, or cable bill and give it away free at your local Safeway' (cited in Takahashi 2002: 23).

Recent technology releases have intensified the drive towards game platforms converging with other forms of media use. For example, the Sony PSX enables the user to play PS2 games, watch DVDs, record TV, copy audio, store photographs and connect online. Kutaragi predicted gnomically of the PS3: 'The next-generation PlayStation will probably take the form of a game box, though it will not be a mere game machine' (*Edge Magazine* 2004, 133: 073) – moving further towards positioning gaming at the heart of domestic digital connectivity. In early 2004 Microsoft

also released the Xbox Music mixer designed to expand the Xbox capabilities from DVD, audio and online connectivity to karaoke performance. Game industry speculation throughout 2005 was dominated by the race between Microsoft and Sony to produce their next consoles. Microsoft have reputedly spent millions of dollars to get the Xbox 360 to market before the PS3. As the game industry has 'come of age' we have seen how technological innovation is made within this context of a bare-knuckle fight for supremacy in the digitally convergent multimedia marketplace.

The precise scale of the industry at any one point in time is hard to measure with any convincing accuracy, since most of the readily available figures are produced by the various trade associations that exist within the industry to lobby on its behalf. A major thrust of this PR effort is to persuade journalists and opinion formers that the games industry is a serious business rather than a dubious subculture. Typically, this promotional effort begins by emphasizing the economic value of the industry. Thus the US-based Interactive Software Association of America (now the ESA – Entertainment Software Association) commissioned a survey released at the E3 Trade Show in May 2002 which claimed that in 2000/01 the industry in the US generated jobs for 220,000 people, contributing \$9bn to the economy in salary and tax revenue and a further \$10.5bn in software and hardware sales (ESA 2002: 11). According to the ESA, 239,300,000 games were sold in the US in 2003, to a value of \$7bn, an increase of 7 per cent on 2002 (ESA 2004). The UK-based Entertainment and Leisure Software Publishers' Association (ELSPA) reported UK sales of games in 2002 at £1.26bn, an increase of 7.1 per cent on the previous year (ELSPA 2004). *Screen Digest* forecast that global spending on games and entertainment would be \$18.5bn in 2003 (*Screen Digest* 2003). For the past several years growth of sales of computer games has been 7–8 per cent per annum, making the industry an attractive option in the global media marketplace. An easier way to understand all this is through a comparison. In the UK in 2002, for instance, *Screen Digest* showed that leisure software sales were worth about 25 per cent more than cinema box office, but about half of total music sales (*Screen Digest* 2003). When VHS/DVD rentals, retail and cinema box office are all added together, moving image revenues still out-gross leisure software by a factor of 3:1.

In order to understand this new global media enterprise, let us return to the point of purchase – when you buy a new console game, where does all your hard-earned cash go? An analysis of the cover price for new games offers a way into thinking about the political economy of the games industry. Approximately 35 per cent of the cover price of a console game goes back to the publisher and developer; as much as 30 per cent stays with the retailer; 10 per cent to the wholesaler and a further 10 per cent on marketing. A final unique 15 per cent on each disc is paid as a royalty to the platform manufacturer, e.g. Sony, Microsoft or Nintendo.

These figures are not hard and fast but are negotiable by contract in each case. Within the figure that returns to game publishers and producers there is both a cost



and profit component, split roughly 50/50. This price breakdown has one striking feature – the royalty payment to console manufacturers. This is rather as if every music CD price was tied to a particular manufacturer, that buying the software (music) we were also directly supporting the hardware manufacturer, not just through our use of a Sony or Phillips sound system but through a direct tax in the purchase price of CDs. It represents a vertical integration between hardware manufacturer and software producer which is symptomatic of the high levels of control over console game production exercised by the hardware producers.

This review of the statistics of the game industry suggests that the games we get are generated by a highly sophisticated, highly capitalized media industry. Indeed, one of the reasons for Media Studies scholars to attend to the games industry is precisely that it is longer established and more economically successful than any other digital media sector.

## The economic system

Within the economic system of game production there are three main interlocking groups – the developers, the publishers and the technologists.

### *The developers*

Although by no means completely homogenous, development studios do tend to conform to a certain style and atmosphere. An open plan office, filled with young men hooked up to computers, many of them wearing headphones, though whether or not for personal stereo or in-game sounds is hard to say. An air of quiet concentration is broken by the occasional whoop of success. The phone almost never rings, communication is by text or email. Conversation is limited to a few very focused exchanges between the different departments of artists, designers and programmers. Lunch extends over most of the day as programmers ruminate on wholefood sandwiches or cheese toasties in front of their machines. The only dress code is down; baggies and sweats are the order of the day, and at first glance everyone seems unshaven or bearded. It is relaxed – more relaxed than any other creative media environment (think of the barely controlled levels of anxiety that permeate a TV studio or film set). Lunchtimes are spent playing football or frisbee on the lawn in the summer or in all out death or glory LAN parties in winter – in fact these play sessions seem more serious than anything else that happens during the day. This might look like the description of a culture, but it is important to recognize that this culture is a function of economics. Such a working environment is in fact a highly systematized form of a new kind of global media enterprise. Kline *et al.* emphasize the role that the games industry plays in the development of particular kinds of work cultures and new models of management:

The mobilization of this new elite workforce of digital artists and technicians has made the games industry a central arena for experimentation in teamwork, charismatic leadership, ultraflexible schedules, open space work areas, flattened hierarchies, stock options and participative management.

(Kline *et al.* 2003: 199)

Game development studios employ staff as designers, who conceptualize and implement gameplay processes; artists, who give the game its look by designing environments and characters; and programmers, either ‘level programmers’ who write code for each event in a given game level or ‘section programmers’ who write code for the underlying game engine.

As we shall see, most developers are drawn from game fan communities; though this culture is maintained within and through the workplace, it can also be seen as the cutting edge of new forms of the organization of work where the distinction between work and play is eroded (see, for example, Barbrook 1999; Terranova 2000). As a hobbyist fan-led subculture becomes absorbed within a global media industry, new limitations and adaptations arise. The limitations imposed by this integration include very high production costs, very vigorously policed production processes and more or less static point of sale prices (for console games at least). The net effect of the economic system upon games production in the last ten years of apparent success has been paradoxically to narrow the range of games that are available as more and more developers are forced to play safe with potential blockbuster titles that are either licensed franchises or new iterations of a game which was originally conceptualized ten years ago. Fundamentally, the costs of production have risen by factors of ten over the last decade, whilst rates of return to developers have remained static. Costs of production have risen steeply as the medium has become more sophisticated – development teams have risen from six or seven people to 30:

A typical development project now lasts around 18–24 months and requires a team of around 20 with a budget of £1–2m compared with a budget of a few hundred thousand pounds for a team of a dozen for 6–12 months in 1992.

(DTI/Spectrum 2002: 14)

Competition within the market has increased faster than its overall expansion; in 2001 there were 270 games available for the three main consoles, whilst this figure jumped to 750 in 2002 (*Edge Magazine* 2003, 120: 08). As production costs have increased, studios have found themselves having to ship more and more units just to stay viable in the face of a more or less static price point; most developers would now aim to ship between 500,000 and 1 million units to break even. It has been estimated that whilst development costs have doubled, sales have only increased by 50 per cent (*Edge Magazine* 2003, 129: 08). Therefore, developers now look to publishers to bear the risk of production investment, and publishers find themselves minimizing risk by opting for titles with a proven track record, thus reducing the space for innovation.

Development companies, or game studios, vary in size and scale, from 300 staff working on four or five titles at a time down to ten people working on one title over a period of two years (or more in some cases). Pivotal Games, for instance, is a medium-sized developer, employing 70–80 staff who work on two titles at once, aiming for a new release each year. In this way, one development team will be finishing off a title as another starts the next. Investment in production comes from the game's publishers – in this case SCI. Producing at such a high economic level considerably increases the risk involved, and this level of risk combined with a problematic history of mismanaged 'runaway' productions has produced the system of 'milestone payments'. Producers and publishers agree on a game concept and budget; this budget is then parcelled out into what are known as milestone payments made at regular intervals from the publisher to the developer. Each tranche of budget payment is tied to a particular set of production targets being achieved within the given timescale, often monthly.

For many development companies this has proved to be an unforgiving system. Production difficulties in the notoriously hard to manage multimedia production process can easily lead to a missed milestone; if a company does not have resources in the bank to make sure that staff are paid, bankruptcy can follow. This system of funding is unique and paradoxical. Unique insofar as it imposes a very high level of investor control over the actual production process compared to other media businesses such as film, television or publishing. Paradoxical because it represents the imposition of an extremely efficient set of production line management procedures onto what is a very fluid, technologically complex process which by necessity utilizes many different feedback loops. Coordinating the different production roles of artists, designers and programmers with the massive digital assets necessary for game production creates a networked model of production which has nevertheless been structured into a 'Fordist' production line process.

Each part of the production process for games exists in specific relations of ownership and control with the other parts. These relations of control may have a major impact upon the choices open to producers about what kind of games they can make. If your development company has been acquired by a publisher with a particular market in sports games, this is going to make it difficult for you to branch out into a first person shooter (FPS). Game developers are either independent, owned partly or wholly by publishers, or owned partly or wholly by platform manufacturers. 'Independence', however, is a contested term – a developer may be independent only as far as they are stock market listed and therefore beholden only to shareholders (e.g. UK developers Kuju Entertainment Ltd, Rebellion, Lionhead and Climax). 'Independent' may also mean small-scale start-up or in some way oppositional or 'alternative'. The independent games sector in the UK is estimated by their own trade association to account for roughly half of UK game production (TIGA 2004).

However, the recent trend has been for development companies to be wholly or partly owned by game publishers (for example, Maxis – producers of *Sim City* and *The Sims* – were bought for \$125m by Electronic Arts in 1997). Other development

companies are owned by the console manufacturers who act as publisher, developer *and* hardware producer. For example, Bungie Studios were bought by Microsoft in 2000 in order to provide them with the Xbox breakthrough title *Halo*. In addition, Nintendo and Microsoft both have in-house game production operations that are wholly a part of the bigger operation, publishing solely under their name. Nintendo in particular are noted for their high degree of control over the brand identity, by producing relatively few titles for their platforms and by ensuring that a high proportion of these titles are produced in-house.

Patterns of ownership in the industry follow a networked devolved model. That is to say, there are no huge studios pumping out mass consumption product from centralized, highly capitalized locations – this is the old pattern from the age of ‘big media’. Instead the games industry looks more like a web of smaller-scale enterprises in which control is devolved through a series of youthful fast-moving medium-sized enterprises. However, on closer examination market consolidation and subsequent bottom line publisher control have instituted highly efficient, tightly controlled production line management techniques that would have made Henry Ford or Louis B. Meyer proud.

### *The publishers*

This pattern of consolidation has been repeated in the publishing sector, where it is estimated that the top ten publishers internationally control 65 per cent of the marketplace (ELSPA 2003a: 7). In this respect the top games publishers follow the pattern of ownership and vertical integration already familiar to us in the globalized media and music industries. As we have already seen, publishers commission, market and distribute games; they also acquire or part-acquire development studios. Games publishing houses are often multinational operations with development studios and marketing operations in every major global market. However, many of these names only appear within the credits for games, where the lead roles are taken by other third party developers or publishers. As in the music business, the creative infrastructure of the business is maintained through the ‘independent’ label, whilst real financial control lies with the parent company.

The publisher is at the heart of the computer games economic system, interfacing between developers, consumers and technology manufacturers. The market pressures described above, together with the milestone system of payments, have put the publishers firmly in the driving seat of the industry. Big, cash-rich publishers have been in a strong position to acquire developers and shape the industry. The publisher-led consolidation of market sales has occurred through ‘blockbuster’ titles, which often derive from film licensing deals such as Electronic Arts’ hugely popular *Harry Potter* and *Lord of the Rings* titles.

Sequels and repeat sports franchises also now play a major role in the marketplace, providing publishers with guaranteed sales on the basis of previous marketing effort

that will defray ever increasing production costs. As the computer games industry has matured, the web of developer/publisher ownership within the industry itself connects ‘out’ to the wider network of the global media industry; Sony and Microsoft are already arguably the two biggest powers in the emerging new-media landscape. Vivendi Universal and Warner Brothers, parts of the biggest traditional media conglomerates, already have their own game publishing and production operations. Through these networks of ownership the games industry is positioned as an important revenue stream within the global media networks which are controlled by a very small number of very large companies.

### *The technologists in the economic system*

Although we deal later with technology as a determinant of production, the technology producers also play an important economic role. We have already seen how the royalties paid through the licensing system for use of a production on a particular platform is a major cost to developers and publishers, and this is unique to the games business. In addition, producers must purchase ‘development kits’ from hardware platform manufacturers which allow a developer to interface their games software with platform hardware; development kits cost more than \$20,000, presenting a major barrier to entry for the ‘bedroom programmer’. This is one good reason why **modding** has taken off within the more open architecture of the PC games environment. Licence fees for PC game development do not currently exist.

To understand this licensing system we need to refer back to the inelegantly termed ‘razors and blades’ model of manufacturing. This refers to the pricing strategy adopted by console manufacturers after Nintendo, the logic being that no one tries to make money selling razors – the revenue stream comes from constant replenishment of blades. In fact we can see this as an intensification of a principle already established within ‘old’ media industries – that the real money gets made through selling software, content and intellectual property, not the hardware, such as radios or televisions. In this case the console is sold at cost or cheaper, with the expectation that income streams provided by sales of games will provide a sustaining profit.

Ken Kutaragi – the visionary engineer behind Playstation – observed early on in the process of development that ‘[a] game business should be structured so that hardware is distributed free of charge and profits are derived from the software sales’ (Asakura 2000: 193). This strategy has proved extremely successful; Sony Computer Entertainment (SCEI), founded in 1993 just a year before the launch of the Playstation, returned 44 per cent of Sony’s corporate operating profits in 1998 (Takahashi 2002: 22), largely from sales of Playstation software. This remarkable success was achieved despite the steady reduction in the price of the Playstation, from \$399 at launch in 1994 to \$180 in 1997. This ruthless price cutting was central to the competitive strategy that drew Sega into a price war from which they never recovered, withdrawing from the hardware business in 1998. The same model has been adopted by Microsoft; having invested

\$2.2bn into the development of the Xbox they have estimated that it could cost them billions more in the short term (Takahashi 2002: 180). As we shall see in the next section, the constant improvement in the capacity of the machines themselves also has had the effect of increasing production costs as more becomes possible at the level of design, AI and programming.

The net effect of the recent interaction between studios, publishers and hardware producers has been the steady increase of production costs; the rate of increase of sales, at around 7–8 per cent per year, is impressive by many industry standards, but still not sufficient to keep pace with increasing production costs. Hence we can observe a greater and greater tendency towards a narrowing of the ‘perimeters of the possible’ for game producers. Pivotal’s technical director and one of the company’s co-founders eloquently summarizes the situation from the developers’ perspective:

Even if you have got a million pounds in the bank and that is very rare, most developers won’t, you quite simply just can’t function. So team sizes have got huge . . . and they are continuing to rise at a frightening rate. We used to create games with just sort of seven or ten people and now it genuinely is thirty to forty people plus and I don’t think we are particularly big. But the cost of the games hasn’t gone up by anything like the same amount and arguably it has gone down. Playstation 1 games used to cost thirty, forty pounds and that is what they cost today, ten years on. So the retailers are pretty much making the same margins as they used to, they get those games in at twenty three pounds and they sell them at forty. The publishers have got greater overheads, everyone’s salaries have gone up, the world has got bigger, the market place has got bigger, it is more international . . . So I really see it as being the developer that is being squeezed, they are the ones whose margins have gone down . . . So costs have gone up, number of people have gone up, cost to the consumer hasn’t gone up, something has got to give and it has been giving and that is why there has been an awful lot of consolidation in industries, a lot of companies and industries going under.

(Interview, Pivotal Games 2003)

## The system of technology

As we have seen in Chapter 1, the relationships between technology and cultural form are complex and mutually determining. Although this chapter argues strongly that a technologically determined account of games should be recontextualized by their economic and cultural drivers, it nevertheless remains the case that technologies also do have a determining effect upon the games that are made available to us. Understanding the overarching economic context of production does not change the fact that certain technologies have specific capabilities and that these capabilities are deeply embedded within the discursive formation of the computer game. Many conventional histories of

computer games begin and end with technological capability: ‘In the beginning was 8 bit . . .’ (see, for example, Kent 2001; Poole 2001). In this section we want to look at three aspects of technological determinism in relation to computer games: the effects of working with what we describe as ‘upgrade culture’; the effects of technology on different orders of realism at play within game representation; and the determining structures of game engines on production.

### *Upgrade culture*

The technological system – controlled by the hardware manufacturers (both console and PC) – is based on the dynamic of permanent upgrade culture. New media are produced within a system where technology is never stable – what Kline *et al.* (2003: 73) call a state of ‘perpetual innovation’. This is not a teleological dynamic, there is no end point in sight. New media technologies will never stabilize in the way that, say, TV and cinema technologies did in the post-Second World War period. (Clearly TV and cinema continued to innovate technically throughout this period in numerous ways, but at nothing like the rate of new media.) New media production is dominated by what we might call an aesthetic of memory and speed. The key questions for this aesthetic are: How much data can I store? How small a space can I store it in? How fast can I move it around?

Before developers, artists or programmers can conceptualize any production at all, they *must* have a fundamental grasp of the processes through which these key questions get answered. These processes are technologically determined to the extent that they depend on the ever-increasing speed and capacity of computer chips. This constant increase is built into what the games industry calls its ‘hardware cycle’, because it determines what Sony, Nintendo, Microsoft and PC manufacturers think will be technically possible.

‘Moore’s Law’ is at the technological heart of permanent upgrade culture. Gordon Moore was the co-founder of Intel and in 1965 articulated the observation that ‘the number of transistors that can be built on the same piece of silicon will double every 18 months’ – whilst the price remained the same (cited in Cringely 1996: 41). Therefore, speed and storage capacity of the computer can increase whilst the price remains fixed, or the speed and capacity can stay the same whilst the price of the machine falls. This is made technically possible by the steady reduction in the width of lines etched onto the chip to connect the micro transistors; as lines become narrower more space is left for the transistor on/off gates that control data flow. Moore’s Law was originally formulated for standardized integrated circuits – however, the rate of increase in capacity in graphics processors has in fact been faster because they have been fundamentally redesigned several times to cope with new graphic demands.

This relentless miniaturization is not a matter of independent or somehow ‘inevitable’ scientific processes but is driven by the demands and business plans of chip manufacturers serving the worldwide demand for digital information-processing products.

Ken Kutaragi designed the hardware for the Playstation in the mid-1980s, ten years before the chip capacity existed to deliver his vision, and then persuaded Sony to invest in its production on the basis that the chips would be ready to do what he needed by the time of the platform's launch in 1994 (Asakura 2000: 161). The Moore's Law imperative at the heart of upgrade culture has the effect of both increasing memory available to designers and increasing the speed at which data can be moved. Paradoxically, this has the effect of producing a discourse within the computer design and games industries in which the *limitations* of available memory and speed are determining and dominant. It is impossible to discuss the creative work of games designers or programmers without the sense that they are constantly constrained by hardware specifications, which will be ameliorated by the ever promising 'next generation'. The platform is never stable; designers find themselves permanently looking for and exploring new capacities, falling enthusiastically upon each new generation and its development kits trying to work out what it will be capable of.

### *Making it real*

Amongst many designers and users the effect of permanent upgrade culture has been to shape a complex discourse of realism. This discourse assumes that the greater visual detail available at each stage of chip development makes the game more 'realistic'. This drive towards naturalistic realism has become a central feature of game design culture. It is a remarkable paradox that a technology based on the production of images with no 'real world' referent should have become obsessed with optical realism.

This paradox is typical of the processes of 'remediation' described by Bolter and Grusin (1999) in their book of the same name; they argue that every new medium proposes itself as having a unique relationship of 'transparent immediacy' to the natural world, of being more 'realistic' than its predecessors. However, these modes of representation also then 'remediate' previous cultural forms, becoming 'hypermedia' in the process – forms which only make meaning within a self-consciously intertextual framework. In relation to new media, they argue that this notion of 'immediacy' is evident in the popular claims that 'digital images are more exciting, lively, and realistic than mere text on a video screen' (Bolter and Grusin 1999: 23). This is a popular discourse that also reflects an underlying belief in technological progress, leading us inexorably towards this 'desired' 'transparent immediacy'.

For games designers, the **polygon** is the object around which this aesthetic of memory and speed is generated. The polygon is the 2D triangle in graphic design which is the optimum building block of 3D articulated and animated shapes: '... they give us the impression that the way to the photoreal is simply to add more detail. Digital photorealists want to move more and more pixels or polygons on to the screen in order to bring the image up to the limit of resolution of the human eye' (Bolter and Grusin 1999: 119). Polygons are linked together to create an object's framework and structure; this framework or 'mesh' is then given a textured covering, a 'skin'. Each polygon takes



up a certain amount of ‘data space’; the number of polygons used to design an object’s ‘mesh’ will largely determine how much detail there is in the figure – more smaller polygons produces greater detail. In turn this level of detail becomes automatically translated into a discourse of realism.

Compare the character meshes in Figures 3.1 and 3.2. Figure 3.2 has a far more detailed look than Figure 3.1 – it is made up of more polygons. This is because it has been designed for use in the video ‘cut scenes’ – the non-interactive movie sequences that often introduce and top and tail levels in a game. The cut scenes can handle far more polygons in their design because they are not interactive, they are pre-recorded; the console or PC does not have to build the graphic ‘on the fly’ instantly, in response to the player’s instructions. In this example, from Pivotal Games’ *Conflict Vietnam* for the PS2, each in game playable character has a polygon limit of 2,200 polygons, non-playable characters (NPCs) are limited to 1,900 polygons, but the characters from the video sequences are rated at 60,000 polygons. The number of polygons available for each aspect of the level design (character, setting, etc.) is set at the outset of production in the initial game design document. This polygon count is set according to the limits of the console for which the game is being developed, each console having varying

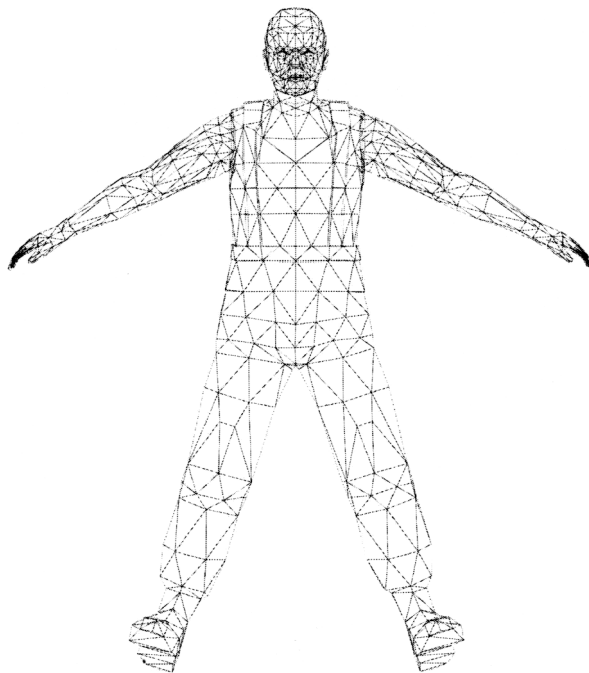
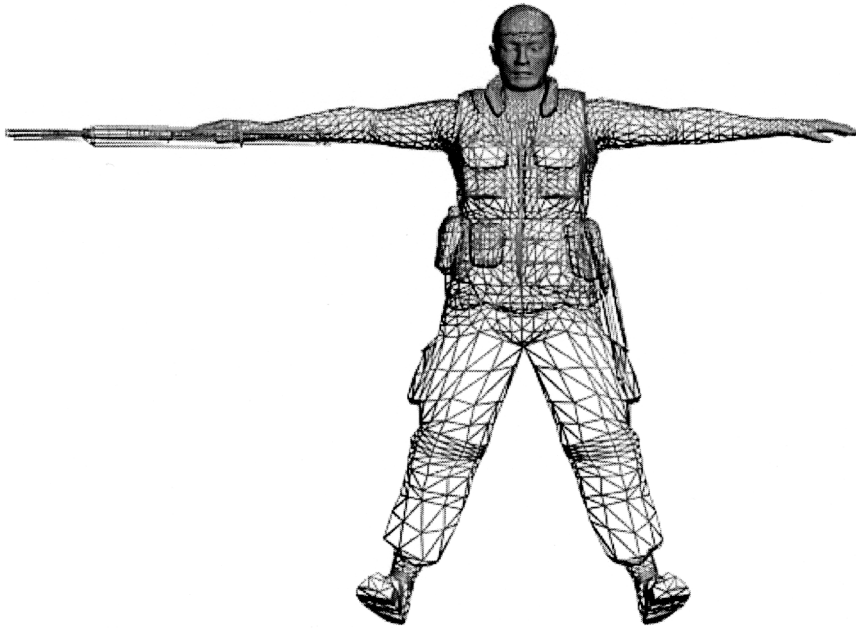


Figure 3.1 Wireframe for in-game ‘Ragman’ from *Conflict Vietnam*, courtesy of Pivotal Games.



**Figure 3.2** Wireframe for full motion video ‘Ragman’ from *Conflict Vietnam*, courtesy of Pivotal Games.

capacity; at the time of writing, the PS2 is the commonest platform, but compared to the Xbox and the PC has the lowest capacity and speed. Designers producing games for multi-platform use complain that in effect they are working to the lowest technical denominator.

The polygon count determines the number of characters and NPCs available to the designer. For instance, we may have enough capacity for one main playable character plus six NPCs, often enemies of one kind or another – soldiers, aliens, mutants and so on. However, the level may require the player to dispatch 30 or 40 enemies to complete; this is accomplished by having all the enemies share the same bodies or meshes. Once killed the mesh is simply set to respawn with a slightly different skin at a different part of the level map, triggered by the approach of the playable character. (There is an increasing tendency not to bother with different skins for enemy NPCs; in both *Halo* and *Fable* the player is forever called upon to kill small irritating and identical enemies that spawn everywhere as soon as one’s back is turned.)

This precise quantification of detail becomes conflated with ideas about realism, where ‘realism’ means a standard of optical or photographic resolution. An acute awareness of constraint and scarce capacity is a major driver of game development for producers and consumers alike. Graphic quality, assessed according to a level of photo-realistic detail, is likely to be a major component of reviewers’ and consumers’

responses to a game. It also drives visions of the future for many game designers and industry professionals. Character artist Liz Cailes of Pivotal Games makes a very typical observation in response to a question about the future of games:

I think obviously when the PS3 comes out . . . which has a lot more memory then computer games are going to start looking a lot more realistic. A lot more like real people where you'll be able to see people breathing and pores in their skin, that sort of thing. So things are going to become more real.

(Pivotal Games 2003)

As part of our case study at Pivotal we observed a character review meeting at which a producer, a company director, two character designers and two animators met to discuss and review character design progress. On a big screen at the end of the conference table we can see all the game's characters hanging like puppets made from light and maths, waiting to be animated in a kind of virtual holding pen. The entire conversation about what can or cannot be done to improve the look of the character is predicated upon a mutual awareness of limited polygon availability. Here we could observe a set of ideas about how 'realist' visual representation is supposed to look meeting the constraints of hardware. However, the whole team were in agreement on the importance of getting the playable character designs right in every detail, character designers in particular exhibiting a sense of 'ownership' over 'my' characters. The group displayed a shared understanding that identification and engagement with playable characters is an important way for us to enter into the game world. (This is probably particularly true of the squad-based military shooter *Conflict Vietnam*, where the four men in the playable squad are designed as different characters with different military capabilities and propensities.)

This discussion, aimed at getting the characters 'right', had at least three orders of 'realism' running through it. The first is a technologically mediated aspiration towards a photographic realism, measured by the level of detail in the image reproduced through its resolution and the number of polygons that a console allows a designer to have on screen and 'in play' at any one time. The second is the traditional common sense understanding of the realistic that is based on a representation's reproduction of a real world referent. For instance, a conversation about why the hat on a peasant NPC didn't look 'right' was countered by the observation, based on historical research, that 'That's the way they wore them'. Finally, there was an appeal to the internal consistency of the 'world' of the game itself; this third order of realism in fact has more in common with the history of animation. Games featuring characters such as Mario, Sonic or Crash Bandicoot, for instance, could hardly be termed 'realistic' in the second sense above – their realism depends upon the physics and the 'look' of their worlds being internally consistent. All three orders of realism are at play in the designers' attempts to make the look of the game right within the constraints of technical possibility.

The dominance of digital naturalism as the hegemonic discourse is not total – as

designers begin to see the possibility of achievable photo-realism we can also identify the beginnings of a trend towards thinking beyond this aesthetic. Pivotal's technical director expresses this position:

Computers are getting so powerful now that it is starting to look like a movie and I wonder when it comes to the point when people get bored of realism, I wonder what, I think that will be something big in video games when we start, it might be a key to start re-exploring game play and originality as opposed to striving to make it look more like the real world.

(Pivotal Games 2003)

The drive for realism is indissolubly linked to the upgrade culture that results from increasing chip capacity. Though there is nothing inherent in a graphics processor that demands that it be deployed for greater photo-realism, the technology itself does have constraints. These constraints can be seen to produce a discourse amongst designers that is dominated by a desire to make games 'more realistic' as the capacity becomes available.

### *Game engines*

The game engine is the final aspect of technology that we wish to highlight as having a determining effect upon the character of games. The game engine refers simply to the millions of lines of code that underpin and control the game world. Jon Booth, of Pivotal's core technology team, refers to it as 'the set of rules within which the player can play'. Here the rules are the algorithms that create the world when set in dynamic motion rather than the rules of the gameplay – though, as we have seen in the section on hacking in Chapter 2, the overlapping sense is of course significant in terms of the culture of rule sets and maths that spawns the game industry.

This level of technical detail is important to our argument because it bears directly upon the question of why we get the games we get. Up to this point in time the engine has been a technologically determining agent in the character of computer games; game engines are not infinitely adaptable or 'content neutral'. Writing a game engine is a costly investment requiring a team of programmers working initially for months and subsequently for years as new iterations of a game brand are released. In this respect a game engine is a different tool to those used in other media production processes. With a high definition video camera, a reasonably high-end computer and editing software, it would be possible to create any kind of moving image genre – a western, a noir piece or a romantic comedy. To invert the analogy, if game production processes were applied to movie production, one would be working with a distinctively different set of equipment for different genres. Pivotal's managing director describes the game engine development process in similar terms:

[M]y usual analogy is the movie business, we spent years struggling how to make cameras stay on tripods and look the right way, save the information and edit it, we have now got that in our engine. We can do any kind of first person based game now, you know, it doesn't have to be four characters, all that physics, processing, all the stuff that lets you do that, is there. So I sort of look at it as my movie set now, and we need to now be moving that forward in interesting ways.

(Interview, Pivotal Games 2003)

The functions of a game engine can be divided into a number of discrete but interlinking spheres. The 'render' engine controls the game's visual representation, generating polygons, skins, landscapes and objects as the game is played. Another section of code controls the physics of the game world: How do people and vehicles move? What happens when objects (such as bullets) collide in the world? How do characters react when they die? Another major part of the game engine's code is devoted to Artificial Intelligence. The game AI controls how the characters respond to one another, especially therefore how the NPCs respond to the playable characters. The AI is like the director in an improvised theatrical environment, controlling the kinds of relationships and reactions that characters might make in any given circumstance. The core of the engine also interfaces with the console or PC hardware, managing memory and allowing the software to speak to the hardware. Finally, the game engine also houses the game's global music functions. In the Pivotal Games engine the music is triggered via an 'excitement meter' that is part of the engine – this meter assesses the level of activity from calm to intense.

The game engine is the coded core of any computer game; it is better at doing some things than others. Pivotal's *The Great Escape* (2002), based on the Steve McQueen movie of the same name, was built using the engine that the company developed for the *Conflict* squad-based shooters, but the game's lead designer observed of the engine:

But then there were disadvantages, simple things you just wouldn't think of, like the routing for example, how people move around, the routing was designed along the idea of these big desert plains and things. When we started to put it into more complicated buildings, up and down stairs, and around and underneath multi-floored buildings, it just didn't work with it. We were also trying to do a different thing, rather than the artificial intelligence being focussed around fighting, we wanted it to be focussed more around sort of hunting you down, searching, you know, dogs chasing you. So the emphasis of the AI actually being on trying to find you and catch you and chase you, rather than just fight you, which we needed as well. So yes, there was a surprising amount of things we did have to do to change it.

(Pivotal Games 2003)

It may be that this sense of the engine having a technologically determining effect upon the game is a historically specific moment in game production which is giving way to a standardization, just as film, for instance, took nearly 40 years to settle on 35mm and 16mm as industry standards. More and more developers are licensing already existing

engines on which to produce their games. The *Unreal* engine is the best known – it was first developed by Epic Games between 1994 and 1998 when the first of the *Unreal* game series was released. However, Epic now license their engine to professional developers. (They also make available the ‘Runtime’ version of the engine free to non-commercial and educational users.) Epic make available a complete and coherent suite of software to handle rendering, physics and AI, with many original features for lighting, textures and camera moves. The engine also comes with its own editor and support from its own development team. It is rapidly becoming the most widely used ‘off the shelf’ engine, with a wide development community of both amateurs and professionals. It has been used to produce many different successful games, including *Splinter Cell – Pandora Tomorrow* (Ubisoft 2004), *Rainbow Six – Raven Shield* (Ubisoft 2003), *Harry Potter – Quidditch World Cup* (EA 2003) and *Star Wars – Republic Commando* (Lucas Arts 2004). Like the Pivotal engine, however, it is still fundamentally designed to deliver particular styles of gameplay: first person shooters, strategy games and third person action adventures. Fundamentally, anything that involves exploring an environment and dispatching enemies, though the development of the *Quidditch* game suggests that these perimeters are getting stretched all the time. However, a sports simulation game or an Eye Toy game would still use a game engine that was compiled very differently.

The point is that here, unlike other media production processes, the technology has, to date, tended to lead towards the production of particular genres. Because of the investment necessary to write a game engine, it will have a determining effect upon the choices available to a software studio. We asked all our respondents in the Pivotal study why they thought the studio made the choice to develop the *Conflict Vietnam* game. This response from a programmer in the ‘core tech’ team is typical:

The obvious thing is looking at what our engine does. And what our engine does well. Which is, that it is a great team-based, third person/first person shooter. So one of the things that the designers would have been looking for is, is how do we take the engine that we have got and use it really well. So it would have been silly to have gone and written a football game for instance because our technology would really have to be re-written from the ground up to do a football simulations game. Whereas doing another war simulation game means that we can take basically build on our experience and build on the things that we have learnt to improve them. So it was kind of inevitable that it was going to be some kind of squad based shooter.

(Interview, Pivotal Games 2003)

## The system of culture

We have seen how the economic and technological systems of game production determine the perimeters of the possible – that the increasing costs and success of the games

industry and the technological limitations of its hardware together create a narrow space in which producers are able to choose what kind of games they want to make. Finally, the cultural system of determination refers to the ways in which the tastes, class, 'race' and, most crucially in this case, gender all generate particular kinds of technicity. The games industry to date has tended to attract designers with rather particular identities and tastes. At this point in its history, the senior figures in games design – those that have been around long enough to be in positions where they can make decisions about what kind of games get made – can be seen to emerge from a surprisingly common set of backgrounds and biographies.

The choices which producers make in their margin of choice are informed and produced by their cultural history and tastes. The effect of these common histories and tastes creates the system of culture that supports and informs game production. What kind of people are developers, and what kinds of creative possibilities stimulate their imaginations enough for them to spend long hours at computer terminals designing and programming games?

Actual production decisions are likely to be made in practice by senior designers and producers; however, they must also carry a team with them. An eccentric game scenario is unlikely to have much chance of success unless it carries a committed production team with it. Therefore, the tastes and choices of individual designers have to be understood in the context of the common cultures which they represent.

Despite the enormous range of games available in the marketplace, certain dominant identities continue to structure the nature of this common culture. Although we explore this point more fully in Chapter 4, for now we can assert that the research we undertook in our case study at Pivotal Games supports the evidence available in more popular biographies of key industry players – that there is in fact a remarkable homogeneity of tastes and cultural biographies that characterize the development community.

The 'margin of producer choice' available to the developer Pivotal Games is effectively occupied by the managing director, with his senior team of designers and programmers offering input to his concept. As the creative driver in the company his tastes are paramount. In interview, he describes his history:

I always played toy soldiers, still do, and role playing games, make believe. I actually read a lot of history. I think for me it was a classic time growing up, you had Robin Hood on TV, Richard the Lion Heart, Lancelot, you know. I remember them as being great . . . I was an avid history reader, I went on to do an Economics and Social History degree as well. After that I was a Role Playing Games Designer and Board Game Designer for major products, *Dungeons and Dragons*, Games Workshop's *Warhammer* games and various other companies.

(Interview, Pivotal Games 2003)

Hardly surprising then that Pivotal produce military games based on 'real world' events, to date the Gulf and Vietnam wars. These events circulate widely in both

historical and fictionalized versions, ensuring that users can already be expected to be familiar with a range of fictionalized scenarios and roles available to them. The first Gulf War created an entire, highly successful popular fiction genre after the success of Andy McNab's behind the lines thriller *Bravo Two Zero* (1993), followed by other ex-SAS soldiers, such as Chris Ryan with *Stand By, Stand By* in 1996. In thinking about increasing sales in the US and looking for a war zone that was familiar but had not yet been thoroughly exploited in the games market – like the Second World War – Vietnam became an obvious choice, this time for its wealth of cinematic not literary reference.

However, the key signature to Pivotal's work is the squad-based controls and interface that allows up to four players to share the game space on the same screen. Again this feature has its origins in the MD's history and taste:

For me with the role playing table top background, I always wanted to do things on computer that you couldn't do. I mean a lot of people just took board games and put them on computer and that to me, that is just loneliness. That is I haven't got anybody to play with and it misses the social interactivity that really table tops and role playing is all about, it is what people come up with playing together.

(Pivotal Games 2003)

Thus we can see that the MD's preference for 'social play' has a direct consequence on the design choices he makes. This kind of auterist perspective is revealed in other accounts of gaming success. Satoshi Tajiri, lead designer of *Pokemon*, recalls, for instance, how one of his childhood obsessions was the collection and contemplation of bugs in a jar, prefiguring the pocket monster collecting and training narrative. Later he recalls a typical hackers' route for entering into gaming culture: 'I just started by taking apart the Nintendo system to see how it worked' (cited in Kline *et al.* 2003: 240).

If the production choice is a function of the tastes of the primary driver – the lead designer – then it must also be sustained by a like-minded team. In the case of Pivotal this team exemplified several key aspects of the wider culture of the developer community, for whom the ludic and narrative pleasures of a military squad-based shooter were readily available.

## Conclusion

We asked all our ten respondents a series of common questions concerning their first contact with computers, and computer games, including questions about their cultural appetites when these first contacts occurred. The results were startlingly homogenous. Nine out of ten claimed computer game playing histories that stretched back into childhood, beginning between the ages of 7 and 13, depending on the age of the respondent. Older employees were less likely to have started playing at a very early age, simply because the technology was less available. This is a hobbyist, fan-led group who have found their way into an industry for which they have shown an early passion.



This circuit is completed in the team's understanding of their audiences. Although the games industry relies on widespread consumer feedback, the testing apparatus that does exist is by and large limited to debugging games during production, followed by the collection of magazine reviews and focus group testing by publishers that is only ever seen by senior staff. This testing is in the main limited to thinking about how game features, playability or interaction can be improved, rather than looking into what kind of games might be made in the first place. We asked our respondents how they understood their consumers. The following is a typical exchange:

Q: So do you have any detailed information about your consumers?

A: Only as much from being in the industry and being a long term gamer . . . And going into shops, seeing who is buying.

(Interview, Pivotal Games 2003)

The point we wish to draw out of our evidence concerns the extraordinarily self-contained and self-replicating nature of games' cultures of production. The cultures of production associated with computer games exhibit an extraordinarily high degree of homogeneity compared to other media industries. Producers are recruited on the basis of their acculturation within a common set of biographies; once recruited they find themselves working alongside 'people like us', producing games for more 'people like us'. Particular kinds of dominant tastes emerge that command a *disproportionate* amount of 'cultural space'.

When this tendency is allied to the trend towards conservative production choices within a system capitalized to compete in a global marketplace, the prospects for widespread innovation become very limited. The tastes, desires and aspirations that characterize the cultures of computer game production have so far exercised a very powerful hegemonic influence upon the kinds of games that get made, and upon their reception and circulation. By this we mean that a minority of gamers with a particular set of tastes command a large cultural space which is disproportionate to their actual numbers. We explore this idea in much greater detail in Chapter 4.

### Further reading

Kline, Stephen, Dyer-Witherford, Nick and de Peuter, Greg (2003) *Digital Play: The Interaction of Technology Culture and Marketing*. Montreal: McGill Quarry University Press.

Poole, Steven (2001) *Trigger Happy: The Inner Life of Videogames*. London: Fourth Estate.

Takahashi, Dean (2002) *Opening the Box*. Roseville, CA: Prima Publishing.

## 4

## NETWORKS OF TECHNICITY

In our reviews over the years we've always talked about how gamers are the early adopters of technology in the home and we've discussed ways to better serve them.

(Bill Gates, in Asakura 2000: 20)

### Identity, culture *and* technology

In this chapter we will develop the observations made about the cultures of production in Chapter 3, in 'The system of culture' section. We will focus on the ways in which particular interconnected meanings have become associated with 'technological competence', 'computers' and 'computer games'. We argue that these meanings also produce an 'ideal' subject that is naturalized as 'white', 'male' and 'heterosexual'. This 'ideal' subject exercises considerable hegemonic force within computer game cultures. However, as game cultures grow and develop within the often unpredictable economies of popular culture, these meanings are not untroubled. Popular culture is a crucial site for the contestation of dominant meanings. It offers *simultaneously* a reflection of the meanings created by those in power and also a heterogeneity of alternative meanings, experiences and pleasures. So, for instance, whilst it might be possible to interpret *The Sims* (Electronic Arts 2000) as a reinforcement of the hegemonic values of consumerism (see, for example, Kline *et al.* 2003: 275–6), this would be to overlook the extremely widespread use of money cheats by players; in this alternative reading we might just as viably see the game as training in the art of the rip off rather than consumption. 'Culture is not something ready-made which we "consume"; culture is what *we make* in the practices of consumption' (Storey 2000: 59).

However, the 'production of culture' here occurs within the particular economic

framework of globalized media markets. Profits in global economies depend increasingly on consumers' willingness to participate in permanent upgrade culture by buying the next generation of PC, DVD, iPod or digital camera. Equally, the desirability of these products is generated through a regime of symbolic production for which digital representation is a key signifier. The computer game both creates symbolic worlds and generates consumer technology demand. In this chapter we will develop the idea of *technicity* which we introduced in Chapter 1 in order to show how the marginal identities of game producers, often constructed through the discourse of the hacker or the cyborg, have become mainstream. This move from subculture to centre is driven by the production of cultural capital that does important work for systems of consumption. The identities and sensibilities that have driven the development of game cultures can therefore be seen as being actively produced through the interaction of counter-cultures, consumer markets and symbolic production.

### Technicity and hegemony

In Chapter 1 we indicated that the idea of *technicity* would be a key concept for understanding game culture. By *technicity* we referred to the interconnectedness of identity and technological competence. People's tastes, aptitudes and propensities towards technology become part of a particular 'identity'. This identity then becomes a basis for affiliations and connections with like-minded others. Our particular habits with, for instance, mobile phones, iPods, computer games or DVD collections can become expressions of our 'technicity'. Here we are drawing on theories of cyberculture. These theories seek to understand the ways in which technologies (particularly, but not exclusively, computer technologies and biotechnology) contribute to social relationships, cultural practices and subjectivity (Haraway 1991a; Featherstone and Burrows 1995; Plant 1995; Poster 1995; Stone 1995; Escobar 2000).

To argue that certain kinds of identity, behaviour or tastes are somehow 'dominant' is also to acknowledge that there must be a range of other marginal, subaltern or oppositional identities which define themselves in reference to the dominant group. *Technicity* can thus be understood as a site of cultural *hegemony* in the twenty-first century; here we take our lead from interpreters of Gramsci, who use his work to understand the processes of struggle over meaning. 'Cultures are both shared and conflicting networks of meanings. Cultures are arenas in which different ways of articulating the world come into conflict and alliance' (Storey 2000: x). Cultural Studies has insisted on foregrounding and interrogating the ways in which some meanings come to be circulated, accepted and eventually taken for granted or naturalized. Those who have the power in our societies to produce and circulate their meanings and interpretations ultimately generate a set of "hegemonic truths" which [. . .] assume an authority over the ways in which we think and act; that is they invite us to take up "subject positions" from which meaning can be made and actions carried out' (Storey 2000: xi).

For our purposes we proceed from the assumption that the meaning of computer technology, and by extension computer games, is not embedded in the technology or artefact itself but is always brought about by a set of cultural processes through which meanings are generated and contested. This allows us to understand the ways in which this meaning or meanings can never be ‘fixed, final, or true; its meanings will only ever be contextual and contingent and moreover, always open to the changing relations of power’ (Storey 2002: x). It is important to stress, therefore, that when we assert the power of dominant technicalities we equally assert that this power is a dynamic process through which other, alternate and subversive identities are being constantly generated. The field commanded by the dominant is never ‘fixed, or final’, but exists in constant contestation and redevelopment through the dynamics of popular culture. So for every group of hard-core first person shooter (FPS) online gamers taking their play very seriously, there is another group playing ironically, creating new characters that challenge hard-core orthodoxies and generally building cultures that define themselves in opposition to the orthodoxy. (Female *Quake* clans like PMS, ‘Psycho Men Slayers’, are a good example – women who contested the orthodox dominant identities associated with online FPS play.)

Whilst we wish to point up the dominance of very particular kinds of technicality, we also want to argue for a redefinition of the culture of games by drawing attention to the many other forms of subjectivity which its hegemonic forces render invisible. This is crucial since it makes the object of our study open to critique, and therefore to change, rather than simply to analysis or celebration. Here we will reframe understandings of hegemony by the application of play theory. If we accept Victor Turner’s position, outlined in Chapter 2, that liminoid situations are ‘settings in which new models, symbols, paradigms arise’ (Turner 1982: 28), then we have a means of understanding the role that play can have in allowing individuals and groups to subvert dominant meanings. Because computer games are explicitly about play we have to be even more wary than usual about the assumptions we make regarding power, ideology and dominance. Using Turner’s interpretation of liminoid culture we can begin to see that play in the context of ideology is *also* always play *with* ideology. Therefore, new forms of subjectivity, identity and group affiliation are being produced through the uniquely ‘co-creative’ mechanisms of new-media consumption.

### Framing technicality – hackers and cyborgs

Each new technological epoch brings about a period of instability which is greeted by both enthusiasm and suspicion; this was true of the advent of the printing press, the telegraph, the telephone and electricity (Marvin 1988). Each period requires an adjustment in our lived relations with machines and technological processes, which then produces cultures which work through the meanings of these lived relations. The instability that surrounds a new set of inventions produces questions: ‘What does this

mean?’ ‘How will it change the way we live our lives, communicate with one another, are defined as subjects, are governed as citizens?’ However, these questions are never finally answered, just as the instability which prompts them is never *finally* resolved but remains potentially open to contestation through localized situated practices.

These processes have clearly been in play since the advent of digital technologies – the two decades preceding the new millennium were marked by both powerful technophobic and technophilic responses to digital technologies. The way in which we all respond to these questions is informed by what Lister *et al.*, after de Lauretis *et al.* (1980), call the ‘**technological imaginary**’ (2003: 60), the desires and fears which we project onto technologies.

The ‘idealized modern subject’ has always been marked by an enthusiastic acceptance of their connection with machines – for instance, as an efficient factory worker or gadget consumer. The contemporary version of this ideal subject is the digitally competent producer/consumer whose ‘technicity’ plays a key role in formations of taste and lifestyle. This is the subjectivity so enthusiastically embraced by the authors of publications like *Wired* and *Mondo 2000*. Sobchack describes the latter characterized by a ‘utopian plunge into the user friendly future of better living, not only through a chemistry left over from the 1960’s, but also through personal computing, bio- and nano-technologies, virtual realities and an unabashed commitment to consumerism’ (2001: 140). The formation of these tastes and lifestyles does important work in the creation and maintainance of consumer markets for hi-tech consumption. *Mondo 2000*, in their editorial for their second edition in 1990, offer this subjectivity as both a source of pleasure and also a *requirement* for full participation and citizenship in the new digital age:

Call it a hyper-hip wet dream, but the information and communications technology industry require a new *active* consumer or it’s going to stall . . . This is one reason why we are amplifying the mythos of the sophisticated, high complexity, fast lane/real time, intelligent, active and creative reality hackers . . . A nation of TV couch potatoes (not to mention embittered self-righteous radicals) is not going to demand access to the next generation of the extensions of man.

(Quoted in Sobchack 2001: 140–1)

In *critical* writing on technology and culture from the last 20 years, two dominant figures of technicity emerge – the hacker and the cyborg. The hacker and the cyborg were produced simultaneously in the mid-1980s as key figures representing positive models of technicity – models which potentially offered subversive, critical and progressive ways in which the new technologies of digital communications could be repurposed for progressive or even utopian ends. The representation and consolidation of these identities took place across a number of key sites. *Mondo 2000* contributed significantly to the fleshing out of this identity, as did the magazine *Wired*. The cyberpunk literature which was emerging during the mid-1980s also offered compelling representations of our near future and the subjects that would inhabit it. The hacker

and the cyborg may be 20-year-old paradigms of technicality, but they continue to reverberate through our study of contemporary gaming cultures.

### The hacker ethos and mythos

A key feature of the hacker identity inherited by game designers and manufacturers is an attachment to what cybertheorists, after novelist William Gibson, termed 'edge': 'Technological edge can be defined as the product of a successful conjunction of advanced technological hardware and contextually sophisticated techniques' (Tomas 2000: 179). 'Contextually sophisticated techniques' refers to the innovative uses of technology in unexpected or unprescribed ways, stretching or adapting the technology to perform functions that it wasn't designed for. This might be anything from learning how to make free phone calls by whistling the right combinations of dial tones (phone phreaking) to using level editors to spray anti-war graffiti in online game worlds. The archetypal edge identity is that of the hacker. Gibson's 'console cowboys', who featured as the wily and resourceful heroes of the bad new future, contributed to the ways in which hackers were able to represent themselves 'to the rest of us (particularly those of us intrigued by, but generally ignorant of, electronics) as sexy, hip and heroic, as New Age Mutant Ninja Hackers' (Sobchack 2001: 141). Inheriting some of the libertarian ideologies of late 1960s California, hackers promised to lead us to a non-hierarchical networked environment of democratic data.

As we have seen in Chapter 2, the hacker identity has a key role in the history of computing as a ludic medium. However, it has also been subject to a good deal of critique. Sobchack, for instance, is particularly critical of the ways in which this identity is founded on access to computers, which is mitigated by the lived social hierarchies of 'race', class and gender. Scratch the surface and the hacker emerges as an idealized white, male subject. This is nowhere more tellingly portrayed than in the influential book by Steven Levy, significantly entitled *Hackers: Heroes of the Computer Underground* (1984), which contributed to the mythologizing of 'hacker' identity and hacker culture. Karen Coyle notes:

With little review of the facts, Levy, also concludes that women are genetically unable to hack. He never considers relevant that this hacking took place in a campus building between midnight and dawn in a world where women who are mugged at 2am returning from a friend's house are told: 'What did you expect, being out at that hour?' Nor does he consider that this hacking began at a time when MIT had few women students. And though he describes his male hackers as socially inept, he doesn't inquire into their attitudes toward women and how those attitudes would shape the composition of the hacking 'club'.

(Coyle 1996: 44)

Nor does Levy make explicit the fact that, similarly, these hacking clubs and cultures emerged in spaces which were almost exclusively white as well as exclusively male. ‘Other’ hackers have existed (and continue to exist) but their stories are not included in the mythologizing of the hacker identity.

### The cyborg – manifesto and manifestations

The figure of the cyborg (as developed by Haraway in an article which was first published in 1985 in *Socialist Review*) offered us the idea that our new intimate connection with machines could create a fluid zone of identity. Haraway argued that conventional relationships between body, machine and nature could be destabilized by the necessity to accept an increasingly intimate kinship with machines. Whereas the human subject had constructed itself since the Enlightenment as the dominant partner in its interactions with nature and machines, the cyborg is a subject forced to accept its interdependence with both biological and technological systems. Haraway’s original argument offered a move away from other political critiques of technology which had been motivated by either a ‘revisionist’ or ‘revolutionary’ impulse. (See Wacjman 1991, and more recently 2004, for a review of the various feminist positions taken in relation to technology since the 1970s.)

The dawning of the ‘cyber age’ was met with a sense of new opportunities. The figure of the cyborg was offered by Haraway as a way to move beyond the traditional association of women with nature. She offered the cyborg as a new metaphor for subjectivity which could potentially avoid the problematic binaries of nature/culture, male/female (1991a, 1997). In doing so she promoted the cyborg as a ‘site of possible resignifications . . . to expand the possibilities [of subjectivity] . . . to enable an enhanced sense of agency’ (Butler 1992: 16). Haraway’s cyborg was offered as a rallying call for those marginalized by technoculture to ‘embrace’ their affinity with technology and to offer new symbols, new uses and practices through which to ‘code’ a new subjectivity. The newly emergent post-digital technicities would, it was argued, produce hybridized identities in which the traditional markers of gender, class and ethnicity would be eroded.

In truth both hacker and cyborg were always also caught up in their own cycles of opposition and dominance. For every hacker hero in Gibson or even in Disney (e.g. *Tron*: Lisberger 1982), there was also a Kevin Mitnick – the public enemy number one alleged to have cost billions of corporate dollars in the late 1980s (see Levy 1984). For every cyborg experimenting with online identity masquerade, there was another fantasy of militarized masculinity in ‘Terminator’ form, confirming Claudia Springer’s reading of the cyborg as fascist fantasy rather than radical potential (Springer 1991).

Since the formulation of these progressive models of technicity their context has shifted radically. The early technophilic aspirations for digital technology envisaged between 1985 and 1995 have been succeeded by a firming up of the parameters of the possible, a ‘closing of the borders’. In the decade following 1995, digital media have

come to occupy key sites of symbolic and economic power within what Manuel Castells calls ‘Networked Society’ (Castells 2000). The outsider identities of the hackers now find themselves in command of substantial corporate budgets, and the progressive aspirations of Haraway’s cyborg often seem to have been overcome by the very worst forms of the militarized ‘command, control and conquer’ war machine that she sought to resist.

### From margin to centre – discourses of dominant technicity

We were all in it from a sense of wonder. All of us either had no lives before or had thrown them over because of these stupid machines. We hung out together because we were all the same sort of jerks.

(Doug Carlston – co-founder of Broderbund Software, in King and Borland 2003: 47)

As we have seen in Chapter 3, the recent tendency within the game industry has not been towards diversity or the production of ‘creolized hybridized’ subjects. On the contrary, we observed a narrowing of possibility and potential driven by highly controlled, though decentralized, forms of production economy. Producers themselves articulate a post-fall narrative from innocent days of hacker pleasure to digital sweatshop. We were prompted by the initial findings of our Pivotal Games case study to correlate them with existing biographies of leading figures in the history of computer games. We reviewed accounts dealing with Ken Kutaragi, the Playstation visionary; Sean Blackley, one of the leading figures in the development of the Xbox; Carmack and Romero, the duo responsible for *Doom* (id Software 1994) and *Quake* (id Software 1996); plus Richard Garriot, lead designer of the *Ultima* (Origin 1986) series; Richard Bartle, the designer of the first multi-user online environment; and Will Wright, responsible for *The Sims* (Electronic Arts 2000).

In the biographies of what we call dominant technicities there is, again, a remarkable homogeneity rather than ‘creolization’. These stories form the dominant narrative which constructs the history of computer games, the histories of its founding ‘fathers’ and key players. Other histories and other subjects are either marginalized or absent altogether. However, rather than view these accounts as primary historical evidence, we have to understand that they are themselves part of the discourse of the hacker mythos, the lone individual genius, breaking into hi-tech equipment and repurposing it for pleasure and fun. Similarly, cyborg discourse informs these accounts in the notions of early designers with machine-like minds and inhuman propensities.

It is, for instance, a commonplace of these ‘star’ biographies to point to a childhood passion for games of all kinds and an early engagement with computer games specifically. Sean Blackley, of the Xbox development team, is described as designing and programming games from the age of 10 (Takahashi 2002: 40); Richard Bartle, the



author (with Roy Trubshaw) of the first MUD environment in 1980, is described as having a father who was ‘an avid board game player’, who, ‘quickly instilled the love of dice and competition in his two sons’ (King and Borland 2003: 52). Carmack and Romero, co-founders of id Software, who created the successful *Doom* and *Quake* series of games, are described as having grown up ‘with a love of programming in general and games in particular’ (King and Borland 2003: 90), and in a pure cyborgian hyperbole, ‘Romero was so good at Pac-Man that he could maneuver the round yellow character through a maze of fruit and dots with his eyes shut’ (Kushner 2003: 5).

An associated feature of game designers’ backgrounds often brought to our attention is an interest in engineering – the construction of complex systems. As a teenager Blackley amused himself by building go-carts and bombs (Takahashi 2002: 39). Will Wright, lead designer of *Sim City* and *The Sims*, was encouraged by a chemical engineer father with projects that included building radio-controlled models: ‘Mostly I built a lot of models, . . . then I blew them up and built more’ (King and Borland 2003: 82). This interest then extended in his teenage years to robotics: ‘Writing the software that would control robot brains was like model making taken to an extreme . . .’ (King and Borland 2003: 82). Richard Garriot, developer of the highly successful and influential *Ultima* world, was brought up by a NASA astronaut who ‘routinely brought home expensive government toys from NASA headquarters, tinkering with them for days on end and taking them apart to see what made them work’ (King and Borland 2003: 15). Ken Kutaragi, the inspirational leader of Sony’s Playstation project, is an electronic engineer by training: ‘I’m confident in matters of technology. That’s my hobby, and I consider myself second to none in these matters’ (Asakura 2000: 221). Kutaragi had built himself a computer at home as soon as the components became available (Asakura 2000: 15). Romero’s stepfather was an engineer (King and Borland 2003: 90) and Carmack was also described by those working with him as ‘the engineer’.

Many senior industry figures found their predispositions towards games and complex controllable systems were satisfied by paper and table-top role-play gaming, usually in the form of the *Dungeons and Dragons* format. ‘It is almost impossible to overstate the role of *Dungeons and Dragons* in the rise of computer gaming, even if the game itself was originally all pen, paper, dice and notebooks’ (King and Borland 2003: 4). *Dungeons and Dragons* is a semi-improvised game in which players take on characters with particular attributes or skills. The players are then given goals in the form of quests and challenges which have to be played out according to the rules of the dungeon world. The game was first published as a 150-page rule book by Tactical Studies Rules in 1974, and by the early 1980s is estimated to have established a player base of 4 to 5 million in America.

*Dungeons and Dragons* (*D&D*) was foundational for Richard Garriot – the first iterations of his *Ultima* game were based on his teenage *D&D* sessions – whilst the 15-year-old Richard Bartle was hooked on *D&D*, and this fed directly into the terminology and design of his ‘multi-user dungeons’. John Carmack is reported as hosting weekend *D&D* sessions with Romero, his *Doom* co-author, at his Shreveport base

around 1990 (King and Borland 2003: 96). The role of the games master in these sessions is crucial; narrator, director and judge in the unfolding story, it is a role that clearly appeals to a sensibility in which creative leadership, a grasp of mathematical rule systems and a sense of dramaturgy all combine. This influential subculture is also, it is argued, characterized by a preference for fantasy (usually defined as post-Tolkien) and science fiction literary and cinematic tastes. Daniel Pargman has noted that the *Dungeons and Dragons* connection has been made by wide numbers of commentators, and he argues that at the core of this subculture is an interest in 'imaginary worlds and that these appeal to persons who bear a fascination and a will to understand and master complex systems that are logical and controllable' (Pargman 2003).

These accounts of the role of fantasy in what we are identifying as dominant technicality also hint at a certain level of obsessive, asocial or even anti-social behaviour, which again we might see as both cyborgian, in their 'post-human' aspect, and typical of the hacker in his [sic] loner identity. Asakura, for instance, reports that Ken Kutaragi was an 'A' student in elementary school in every subject but two, physical education . . . and social studies' (2000: 6). Much is made by Kushner of Carmack and Romero's misfit status. A psychologist examining Carmack following his attempt to steal an Apple computer makes the following observation of chillingly cyborgian tendencies: 'Boy behaves like a walking brain with legs . . . no empathy for other human beings' (Kushner 2003: 24). Carmack is described as having some 'strange' mannerisms: 'He developed a unique speech impediment, adding a short robotic humming sound to the end of his sentences, like a computer processing data: "12 times 12 equals 144 . . . mmm"' (Kushner 2003: 19). Carmack is seen to be responding to this ability to create worlds in his own passion for computer programming, alleged to have been heavily influenced by both Neal Stephenson's metaverse in *Snow Crash* (1995) and the Holodeck in *Star Trek*. It is this passion which drove him to continually push the boundaries of possibility in his programming of alternative worlds. Arguably these worlds also gave him a sense of power and control which consoled his aversion to external authority, and allowed his subjectivity to dissolve into the machinic: 'He had never worked on a computer before but took to the device as if it were an extension of his own body. It spoke the language of mathematics; it responded to his commands and, he realized after seeing some games on the monitor, it contained worlds' (Kushner 2003: 20).

King and Borland allege that the *Doom* duo Carmack and Romero 'found programming to be a refuge from unhappiness elsewhere in their lives' (2003: 90). They further argue that Richard Bartle found a social space in the Computer Society at Essex University in 1978 because programmers were regarded as 'social misfits' by the predominantly radical left student body. Alongside this hinting at social dis-ease we find frequent references to the obsessive and driven qualities possessed by the 'star' programmers. Commenting on John Carmack, one of his co-workers described a classic cyberpunk console cowboy figure: 'When he was programming there was nothing but programming, I'm sure there were days when he didn't eat' (King and Borland

2003: 95). There is finally a marked sense of subcultural rebelliousness typical of the hacker in the constructions of these biographies. Carmack and Romero are both described as having an intolerance of ‘authority’; Carmack in particular is alleged to hate the authority of parents, school and religion (Kushner 2003: 19). Both Asakura and Takahashi portray their subjects, respectively Ken Kutaragi at Sony and Sean Blackley at Microsoft, as spanners in the corporate works, not ‘company men’, but rebels on a mission to establish games within the heart of the corporate body.

Kushner describes Carmack as identifying very strongly with the hackers in Steven Levy’s book. It is this book that reassures Carmack that ‘he is not alone’. According to Kushner’s account, the hacker ethos which Carmack encounters here for the first time becomes very important to him and he continually rejects all attempts to copyright his programs or innovations (Kushner 2003). Computer game playing and programming feature in these stories as the key means through which these figures are able to articulate their defiance of the ‘corporate’ system; yet also the means through which they develop the critical technical skills which are recognized as commercially highly valued and valuable. Kushner claims that Romero was able to sneak onto university campuses to play on the computers there and that the young male students recognized his skills and were ‘charmed by his gumption’ (Kushner 2003: 7):

Since the seventies, the electronic gaming industry had been dominated by arcade machines like Asteroids and home consoles like the Atari 2600. Writing software for these platforms required expensive development systems and corporate backing. But computer games were different. They were accessible. They came with their own tools, their own portals – a way inside. And the people who had the keys were not authoritarian monsters, they were *dudes*. Romero was young, but he was a dude in the making, he figured. The Wizard of this Oz could be him.

(Kushner 2003: 7)

These accounts are formed through the discursive frameworks of the technological imaginary, conjuring the popular and the theoretical tropes and mythos of hacker and cyborg in their articulation of what is now *the* dominant technicity of game cultures.

### Magical things of wonderment

Evidence from our Pivotal Games case study enables us to ‘test’ the analysis above with accounts that are primary, rather than narratives in popular cultural histories. The case study accounts are self-spoken by individual respondents, yet here again many of the same discursive frameworks are in operation, suggesting that the myths of ‘dominant technicity’ are well and truly internalized. The similarities that emerged in our case studies suggested a biographical evolution of a creative programmers’ sensibility in their descriptions of early encounters with computers and games. This sensibility is characterized by a fascination with how things work ‘under the bonnet’, so to speak,

combined with a fascination with the creative possibilities of the computer as a manipulation machine. Both of these characteristics are linked to an interest and facility with mathematics. For several of our respondents the computer as gameplay entertainment quickly became the computer as creative tool as young boys began to explore beyond the boundaries of the software provided. The following account from the company's technical director is typical. Describing himself as 'essentially a mid to late 80s bedroom programmer', the hacker's domain, he goes on to explain:

I am the type of person, have the type of mind that does get excited and interested by new technology or gadgets, so even though I was only a teenager then, when home computers became fairly common place, the first time I saw them, they just held an interest for me like any other gadget or VCR or anything that was new. But I got into it and discovered that there was more depth in computers than there was in any other device by orders of magnitude and I was interested in the complexity of them . . . So it was just the technical challenge, it happened to be something that I was good at and enjoyed hugely and that is true today, I mean programming today remains as much of a hobby as it does a vocation or a commercial interest.

(Interview, Pivotal Games 2003)

A member of the 'core tech' game engine programming team recalls how he became a programmer through his fascination with 'how things work' and thence to cheating, to cracking the machine code:

I was just fascinated by how it all worked you know because when I first played games they were these magical things of wonderment really. I had no idea about computers or what computer programmes were. I kind of had a driving desire to find out how things worked. I have always liked to know how things worked and I have always liked to build things. As a kid I used to play with Lego rather than with action man toys and that sort of thing and I would be quite happy to take apart things in the house. I would get in to quite a lot of trouble because I couldn't put them back together, radios and that kind of thing. Just to have a look at them and poke about and see how they worked . . . So I was spending my time of an evening playing with computers and playing with games and then finding how the games worked and trying to cheat at them I guess initially was what got me really into the technical side of them . . . when you have a bit of a play with assembly you can find out that what is going on with the game. And you can find out say, the routine that decreases your health, and you can make it jump straight out of that routine by putting a jump into the assembly.

(Interview, Pivotal Games 2003)

These common experiences of early games as 'magical things of wonderment' opened up a field of technical and creative expression that has become a key part of the professional identity of these game developers. Part of their shared nostalgia for early

games is based not just on experiences of being a consumer of a new product but in the real possibilities that this consumption opened up for becoming a producer. Thus the computer game is here confirmed as a key driver in the development of new media with its opening up of the border between consumers and producers. These key figures were able to intervene in the processes of technological innovation and development by altering, extending and manipulating the technology in unexpected, playful and often illegitimate ways.

A second dominant narrative in the Pivotal developers' accounts of the evolution of their tastes was a common experience, particularly amongst senior members of the team, of fantasy role-play 'table-top' games such as *Dungeons and Dragons*. Mathematically calculated game mechanics based in sprawling rule books were perfectly adaptable to the algorithms of computer programs. Pivotal's managing director, who already had a long history in table-top gaming design before his involvement in the computer games business, explains the link between role play and programming:

The fundamental mechanic is all down to numbers and probabilities, percentage chances of hitting and missing; all our vehicles are just a bunch of numbers, there is a 3D model there and there are 3D surfaces set, as a number value, hit point value and then something that says what happens when you penetrate and destroy that, is it catastrophic damage? That is stuff I played with for years, just on table tops or role playing and ditto with characters, movement speeds, hit points, actions you can do and it is all number based.

(Interview, Pivotal Games 2003)

A second outcome of a common taste for fantasy role play is the continuing appeal of 'sword and sorcery' imaginary worlds in computer game content. Computer games turned initially, and with continuing appeal, to the archaic fantasies of the *D&D* world – for example, *Fable* (Lionhead 2004). Four of the ten respondents – significantly all senior figures within the company both in age and authority – expressed strong childhood and adolescent attachment to paper gaming, to the mathematically systematized pastime of role-play gaming, fantasy and *Dungeons and Dragons*. A lead designer is typical of this group:

I was about nine when I started playing *Dungeons and Dragons*. I mean I had been into fantasy stuff for quite a while which I think stemmed from the fact that both my parents were quite into *Lord of the Rings* and I used to get read *The Hobbit* as a bedtime story by my mum, . . . so I'd always been really interested in that whole fantasy thing, and had you know, fantasy toys and soldiers and that . . . I was really quite hooked on that sort of thing and absolutely loved it. Then I discovered the *Warhammer* stuff a bit later, probably when I was about twelve or thirteen and again got really into that, some of my earliest ever attempts to write serious rule systems was for *Warhammer 40,000*, which I sent into Games

Workshop and they liked enough to send back release forms to say well we might use this, so sign the copyright over to us . . . I read a lot of the *Dungeons and Dragons* sort of novels, a lot of the fantasy stuff. I used to read enormous amounts of comics, whatever I could get my hands on, *Batman*, *Daredevil*, the marvel comic called *The Punisher* and again any sort of films related to that, the *Star Wars* films, the usual. I was very into *Battlestar Galactica* and all that, all that kind of pop culture sci-fi and things like that I would read. But I was also, and I think it stems from my dad being in the army, I was very into sort of military stuff as well, very interested in military history, so I read an awful lot of that kind of thing as well.

(Interview, Pivotal Games 2003)

The attachment to imaginary worlds signified by the designer above in fact pre-dates the *Dungeons and Dragons* movement of the 1970s, having its roots in the utopian social moment of the 1960s. Both Sandy Stone and King and Borland emphasize the role of the Society for Creative Anachronism (SCA) as a social group which pre-dated and significantly shaped the multi-user dungeon (Stone 1995: 66–8 King and Borland 2003: 48–51). The SCA was a medieval role-play society that required its members to dress up and re-enact a literary version of medieval life, especially tournaments and ‘fayres’. SCA members also concerned themselves with the honour codes and ethics of the imaginary worlds that they inhabited. ‘They express an unalloyed nostalgia for a time when roles were clearly defined, folks lived closer to nature, life was simpler, magic was afoot, and adventure was still possible’ (Stone 1995: 67). This nostalgic retreat from the present can also be read as utopian and transformative, in the sense that it represents an attempt to create, through role play, a reality that is just as meaningful as the everyday lives of the participants. Richard Garriott still maintains that he sees himself as the ‘evangelist for specific philosophical objectives within gaming, which he calls parables . . . Lord British is the promoter of the identifying heroic attributes within individual players – promoting their true heroism vs. mindless slaughter or mundane behaviour’ (Au 2001). As some of the psychoanalytic accounts of play referred to in Chapter 2 imply, the impulse to play, to experiment with reality, has some element of the transformative and perhaps utopian at its root. Gary Gygax, the early creator of paper-based *Dungeons and Dragons*, argues the appeal of these fantasy worlds:

The average person gets a call to glory and becomes a hero and undergoes change. In the real world, children, especially, have no power; they must answer to everyone, they don’t direct their own lives, but in this game, they become super powerful and affect everything.

(Gygax, in Kushner 2003: 6)

The strands in what we have identified as a ‘dominant technicality’ are deeply gendered, offering a particular masculine identity a valuable cultural space in which to create

imaginary, controllable worlds. This desire, located deep within the realm of the technological imaginary, is met by the technical possibilities of the computer to create highly realized, controllable, rule-based, imaginary worlds:

. . . in computer science you create the world. Within the confines of the computer, you're the creator. You get to ultimately control everything that happens. If you're good enough you can be God. On a small scale . . . You can do anything you want to do, in fact, but as you add complexity, you have to be careful not to create something that is inconsistent with the world you've created. For that world to be beautiful it can't contain any flaws. That's how programming works. One of the reasons people have become so enamoured with computers is that they enable you to experience the new worlds you can create, and to learn what's possible.

(Torvalds and Diamond 2001: 73–4, cited by Pargman 2003)

The evidence of the designers at Pivotal Games invokes a creative sensibility characterized by an engineer's fascination with 'how things work', combined with a desire for the control of complex systems that are often represented by the archaic and militarized worlds of fantasy literature. These marked features of technicity are consistent with our analysis of popular game industry histories. However, the issues around dominant/marginal tastes are made more complex by the fact that the particular taste preferences articulated here are generally seen as marginal or subcultural in relation to a hierarchy of 'quality' versus 'trash' tastes. In the past a taste for fantasy literature, comics, *Dungeons and Dragons* role play and technological gadgets all marked the subject as outside dominant 'respectable' taste cultures. However, the movement of games themselves from bedroom subculture to mainstream big business has had the effect of repositioning the game designer from margin to centre.

All the evidence above suggests a consistency of taste, sensibility, aptitudes and propensities which we have defined as a 'dominant technicity'. However, the question remains as to what we mean by 'dominant' in this context. Just that they are common tendencies shared by a lot of men who love computer technology? In what follows we want to stress two aspects of the operation of dominant technicity. The first is that dominance implies power. How is this power structure established and maintained? What work does it do for the system of which it is an integral part? Second, we want to ask, if this particular class fraction has power, then over what or whom? As we have argued above, dominance inevitably produces resistance; those who do not fit the hegemonic mould become differentiated and excluded as 'the other'. If a particular group is dominant then we can be sure that there are other stories, identities and creative processes that get written out of the discourse of dominance. We will explore these in some detail below in order to argue that 'technicities' are never fixed, never completely determined, but are contested and negotiated. 'Outsider' cultures may then become 'visible' when they are susceptible to market commodification by being identified as the next new trend, as a new source of

production and consumption in the entertainment and leisure industry's hunger for innovation.

## Edge as cultural capital

We can address the first of these inquiries by recourse to the theoretical structures developed by Pierre Bourdieu for thinking about taste cultures. Bourdieu's work focuses on the changing functions of class in French society in the post-war period. His achievement was to undertake large-scale sociological empirical research that enabled him to show the function of class in the consumer and information society that had succeeded the industrial age. He was able to show that 'taste' and 'lifestyle' were all part and parcel of the generation of 'symbolic capital' which did important work for what was then (the 1980s) the 'new' economy. Our dominant technicalities above can be identified as part of a class group identifiable by 'taste' that has specific functions in technoculture. Bourdieu defines taste as something other than merely the preferences of an individual subject: 'Taste, the propensity and capacity to appropriate (materially or symbolically) a given class of classified, classifying objects or practices, is the generative formula of life style' (Bourdieu 1986: 173).

Table-top role-play games, pleasures in engineering or maths, a fascination with systems – these are all aspects of a particular taste culture and have a role to play in the formation of a particular *technicality*. Like others in this period Bourdieu emphasizes the importance of symbolic production in the generation of the desires that drive consumer economies, and in the accumulation of capital:

Lifestyles are the products of habitus, which perceived in their mutual relations through the schemes of the habitus, become sign systems that are socially qualified (as 'distinguished' 'vulgar'). The dialectic of conditions and habitus is the basis of the alchemy which transforms the distribution of capital, the balance sheet of power relations, into a system of perceived differences, distinctive properties, that is a distribution of symbolic capital, legitimate capital, whose objective truth is misrecognized.

(Bourdieu 1986: 172)

Lifestyle, arising from his concept of 'habitus', is a 'sign system' that signifies status and produces 'symbolic capital' which he argues is 'legitimate' or actual capital. Taste and lifestyle transform capital, 'the balance sheet of the power relation', into symbolic capital which in turn is generating further 'actual' capital. Bourdieu goes on to argue that consumer culture has generated new functions and new forms of the old industrial classes, the new bourgeoisie and the new petit bourgeoisie. The new bourgeoisie, he observes:



... is the initiator of the ethical retooling required in the new economy from which it draws its power and profits, whose functioning depends as much on the production of needs and consumers as on the production of goods . . . It [the new economy] finds ardent symbolic spokesmen in the new bourgeoisie of the vendors of symbolic goods and services, the directors and executives of firms in tourism and journalism, fashion and advertising, . . .

(Bourdieu 1986: 311 – our bracket)

In relation to technicity and its place in the order of symbolic production and taste generation we would add new media designers and programmers who, since Bourdieu was writing, have come to play a lead role in the creation of symbolic capital. In recent cultural history, to be a web designer or games programmer is to have maximum cool. The groups identified through Bourdieu's extensive empirical research serve as cultural intermediaries, generating and administering desire and symbolic goods:

The new petit bourgeoisie comes into its own in all the occupations involving the presentation and the representation (sales, marketing, advertising, public relations, fashion, decoration, and so forth) and in all the institutions providing symbolic goods and services.

(Bourdieu 1986: 359)

The development of a dominant strain of technicity within game production has not happened by accident – it has happened because this group does important work in the system of production of symbolic goods. The vibrant virtual worlds which they create are in some ways the domain of the technological imaginary, the place where our desires are played out (and played at). The technological imaginary is a driver of consumption in conditions of never-ending upgrade culture. The next gadget or software upgrade always bringing us ever closer to the sense of completion and wholeness which day to day reality so painfully lacks, but which we are certain to find in the friction-free world of the imaginary future.

The fraction of dominant technicity that we have identified also provides a role model for a preferred ideal subject, highly technologically competent and skilled in creative production. Bourdieu helps us to understand how such discourses guarantee a seamless chain from purchasing the product (the game) to aspiring to the lifestyle and values of the producers (the designers). Writing of the purpose of the new bourgeoisie, he argues:

In fact, one of its distinguishing features is precisely its sense of legitimacy in teaching others the legitimate lifestyle by a symbolic action which not only produces the need for its own product, and therefore, in the long run, legitimates itself and those who exercise it, but also legitimates the lifestyle put forward as a model, that is, that of the dominant class, or, more precisely, of the fractions which constitute the ethical avant garde.

(Bourdieu 1986: 365)

Bourdieu also offers us a framework for understanding the discomfort experienced by game designers who have found their fan-based pleasures eclipsed by business realities. The fan-based culture of 1980s bedroom programmers was founded on a hacker ethos – it was an ‘outsider’ identity, a mutant strain of techno-masculinity that took root in the cultural crevices offered by first generation PCs, Amigas and Commodores. The sense of group belonging generated by this subculture offered an outsider status based on the technical virtuosity deployed in turning the new computer tools of the workplace into objects for pure pleasure. However, this same generation, now nearing middle age and finding themselves in the driving seat of the cultures of new media, have to reconcile a subcultural history and dominant present. Bourdieu observes that this new class are often riven by similar contradictions:

. . . the new cultural intermediaries are inclined to sympathise with discourses aimed at challenging the cultural order and the hierarchies which the cultural ‘hierarchy’ aims to maintain . . . But in fact these occupations condemn their occupants to the essential ambiguity resulting from the discrepancy between the (symbolically) subversive dispositions linked to their position in the division of labour and the manipulative or conservative functions attached to the position, between the subjective image of the occupational project and the objective function of the occupation.

(Bourdieu 1986: 366)

This precisely describes the tensions between designers’ sense of themselves as outsider rebels, ‘the subjective image of the occupational project’ and their position within a very tight production machine ‘the objective function of the occupation’.

Bourdieu also helps us to understand how the supreme ‘edge’ adapters and disseminators of game cultures play a key role in creating the entertainment technologies of tomorrow and their multiply desired imaginaries. For Bourdieu, membership of groups which form consumers’ desires is the role of the new bourgeoisie of the mediated leisure economies which he observed in the early 1980s. There is therefore something at stake in embracing this form of technicality. In the culturally central process of mediation and entertainment the future is geek. The Bill Gates quote about ‘early adopters’ at the head of this chapter underlines their economic importance to corporate new-media industries.

## Gendering technology

Whilst Bourdieu may be able to help us to understand the broader framework within which dominant technicality operates, he does not obviously give us much purchase on why this particular ‘taste culture’ is so highly gendered. For some commentators the very masculine nature of game cultures is simply the way things are. Gary Gygax, for example, has argued that ‘males dominate RPG design because 90% or more of the

players are males. Males dominate all games, for that matter, as they are more oriented towards game play. Do I think that male-designed games prevent more females from playing games? No way! If there was a significant female portion of the market, female game designers would have tapped it long ago' (Gygax online, undated). In fact this observation is a classic example of dominance in action insofar as it represents the triumph of an ideological perception over the facts. The ESA claims that nearly 40 per cent of gamers are women, and we know from the cultural history of games that a significant proportion of players on early MUDs as well as existing MMORPGs and other fantasy-based games are female. It is equally clear to anyone who looks at the history of literature that women have played a significant role in both the consumption and production of fantasy fiction (e.g. Ursula Le Guin, Joanna Russ, Marge Piercy, Margaret Atwood, Octavia Butler), many of whom are drawn to fantasy by the possibilities it offers to imagine power and subjectivity differently. If we are to begin to understand gender and dominance in this respect, we need to turn to theorizations of gender and technology.

There is a matrix of determination at play in the gendering of the computer itself which is central to the histories of game cultures. Karen Coyle argues that 'to question the masculinity of computers is tantamount to questioning our image of masculinity itself: computers are power, and power, in our world, must be the realm of men' (1996: 43). Thus, whilst not all men are adept with computers (or other highly valued forms of technology), 'what is experienced as failure by individual men may not affect the general image of hegemonic masculinity. Those who are masters demonstrate not only that they are "real men" themselves, but they demonstrate a phenomenon recognized as masculinity and confirm the meaning of the concept' (Lie 1995: 391). This is a critical point – not all men love computers (much less computer games), not all women are technophobic. In fact any empirical investigation reveals a rich and diverse range of technicities in play at any point in cultural history. However, the power of hegemonic dominance is such that, first, technicities that do not fit the dominant model are made invisible by those that do and, second, that those of us who do not belong to the dominant group also internalize their power and make ourselves invisible. As Bourdieu above shows, this hegemonic process does work for the contemporary system of consumption and production by valorizing certain kinds of tastes above others. This rather than any 'natural' difference between men and women in terms of either their tastes or their competence 'technicity' is most likely the critical issue in the processes of dominance outlined above.

### **The invisible 'others' in cyberculture**

There is in fact an established body of feminist scholarship showing how women have a massive range of engagements with digital technologies (see, for example, Stone 1995; Kendall 1996; Danet 1998; Kramarae 1998; Hayles 1999). McRae (1996), for instance,

examined the ways in which MUDs offered a version of virtual reality through which identity play could also include experimenting with other kinds of sexuality and sexual pleasure. Players can role play sex from a range of identity positions, choosing mates from either gender, 'non-gendered' or even animals, and through these experience different kinds of power and agency. Alongside this heterogeneous and potentially utopian set of practices there exist countless stories of sexist behaviour, TinyRape and a myriad of other more 'dystopian' activities which reinstate fixed notions of 'race', gender and sexuality.

This work of cultural reclamation in the digital realm has also extended to 'race'. Wakeford, for instance, signals the work of River Ginchild, director of Digital Sojourn, who was motivated to produce her site because 'I wanted to see myself – women of African descent – on the web. I think I had seen one or two but in June 1995 it was – overwhelmingly – white male, it still is, but there are a lot more of us online with pages' (2000: 353).

The Afrofuturism movement draws on a long history of understanding the relationships between 'race', technology and culture, and seeks both to undermine the notion that African Americans are somewhat 'naturally' outside of technoculture and to examine the ways in which 'whiteness' is implicitly and explicitly inscribed in technoculture. Part of this process requires excavation of those 'others' who have played a significant role in the development of technoculture by interrogating the ways in which they have contributed to popular cultural meanings around technology as producers and consumers (science fiction authors, for example). Furthermore, this historical analysis highlights the ways in which 'race' is constructed in contemporary cyberculture (for instance, how 'blackness' bestows coolness on characters in cyberpunk fiction – e.g. Hiro Protagonist's hybrid identity in *Snow Crash*). There is also of course a largely unwritten history of African-American and Caribbean engagements with technologies in the music industry, where 1970s artists like George Clinton, Lee Scratch Perry and Sun Ra were experimenting with new technologies and sci-fi imagery – succeeded by the entire reinvention of popular music led by the sampling artistry of hip hop artists like Afrika Bambaata (Guins 2006).

Nakamura's *Cybertypes* (2002) also offers some insightful analysis of the ways in which Asian-American identity is both constructed and deconstructed through identity tourism in MUDs, and MOOs, and in doing so contributes to the ongoing endeavour to make cyberculture studies attend to issues of 'race'. Cyberculture, as a material reality and lived practice, provides the opportunities for the articulation of outsider identities *and* is also the means through which existing normative meanings around gender and 'race' are circulated.

## The 'other' histories of computer gaming cultures

More specifically, we also have to attend critically to the exclusions and blindspots which occur within these popular histories and biographies of computer game and computer game culture. There have, for instance, been a number of key females engaged in the production of computer games: Roberta Williams and her husband were the designers of one of the most successful early adventure games, *Kings Quest* (Sierra Online). Kushner indicates that they 'pioneered the Ziploc distribution method, turning their homemade graphical role-playing games into a \$10 million-a-year company, Sierra Online – a haven of hippie digerati with hot tub parties to boot' (2003: 12). Yet accounts of the rise of computer game culture and its roots in hacker culture have often played down Roberta's significance in this pioneering innovation. Karen Coyle figures things differently; she argues that Roberta was the one more involved in the technical side of the endeavour, whilst Ken 'ran the computer shop'. She counterposes this against 'Levy's account', wherein 'Roberta [sic] is portrayed as a housewife and mother whose authorship of the popular games was the least important part of the process' (Coyle 1996: 44). Roberta Williams is also credited with introducing the first ever female game protagonist in *Kings Quest IV* (see [www.womengamers.com/interviews/roberta.html](http://www.womengamers.com/interviews/roberta.html)).

Similarly, other female designers or developers often have their work on particular games overlooked or ignored. *Centipede* (1981, Atari), one of the most popular early computer games amongst both a male and female audience, is celebrated as being designed by a woman, Dona Bailey; frequently, however, her contribution is belittled and Ed Logg features as the most important contributor to the game. *River Raid* was published in 1982 by Activision, a firm formed in 1979 by disgruntled ex-Atari programmers. It was developed by one of the first female game designers, Carol Shaw. Having designed *Video Checkers* and *3D Tic Tac Toe* for Atari, Shaw later moved to Activision and is frequently cited as one of the pioneers in the mostly male-dominated world of game programming. These women are rarely if ever mentioned in the popular texts which mythologize the computer game culture and participate in its symbolism as masculine – these stories are only available today because of the intervention of female gamers and website producers who are chipping away at the dominant version of computer game history and culture through the creation and circulation of alternative images and alternative histories.

## Conclusion

It is clear that the discursive formation of computer game cultures is dominated by a very specific set of tastes, sensibilities and subjects. The optimistic 'outsider' identities of the earliest years of technoculture have been superseded as their contexts have shifted. In particular, aspects of the hacker and the cyborg identity have become a

dominant feature of the discourses of computer game production culture. However, as we have seen – and as we shall see further in Chapter 7 – dominance produces resistant interventions and ironic counter-subjectivities, all of which reveal the ideological functions of dominant discourse and challenge the hegemony of any single technicality. In Turner’s theorization of play as culture outlined in Chapter 2, the zone of play is understood to be generative of change and challenge to existing orders of power – we must hope and argue, therefore, that dominance in the field of play will, by its nature, be temporary. However, cultural diversity in media production is not inevitable; the history of other media industries suggests that dominant voices are susceptible to political debate as well as market pressure.

### Further reading

- Coyle, Karen (1996) How Hard Can It Be?, in Cherny, L. and Weise, E. R. (eds) *Wired Women: Gender and New Realities in Cyberspace*. Washington DC: Seal Press.
- Kendall, Lori (1996) MUDer? I ‘ardly know ‘er! Adventures of a feminist MUDder, in Cherny, L. and Weise, E. R. (eds) *Wired Women: Gender and New Realities in Cyberspace*. Washington DC: Seal Press, pp. 207–23.
- King, B. and Borland, J. (2003) *Dungeons and Dreamers: From Geek to Chic*. San Francisco: McGraw-Hill.
- Kushner, David (2003) *Masters of Doom: How Two Guys Created an Empire and Transformed Pop Culture*. London: Piatkus.
- Nakamura, Lisa (2002) *Cybertypes: Race, Ethnicity, and Identity on the Internet*. New York: Routledge.

. . . we have reached a fork in the road. Beyond this point the traditional narrative interest leads one way, while a second track diverges. We do not yet have a very good name for this other path, though we can associate some concepts with it: play, simulation, and, more generally, game.

(Moulthrop 2004: 58)

### Can a computer game be treated as a text?

In this chapter we turn from the study of the cultures of production to the study of the reception of computer games. We will demonstrate the ways in which they problematize existing frameworks for the study of media texts and attempt to generate an analytic toolkit which is sensitive to the specificity of the computer game. This chapter will argue for a synthesis of existing approaches, hybridizing methodologies for hybridized media forms. We will develop particular emphases on understanding games as part of an ‘intermedial’ cultural landscape in which mediated experiences are available on several related platforms or means of delivery. We also argue for an understanding of the games experience which takes into account our embodiment as players and its precise relationships with technology generated in gameplay. Finally, our approaches stress the importance of the play paradigm as a way of understanding how interpretation through reading becomes expression through play.

By its nature our approach will be rather general, since it looks for what is common in the enormous diversity of game types – certainly it is true that particular games will need particular inflections of analysis. On the surface it may be hard to identify the common properties of *Parappa the Rapper* (Sony 1997), *The Legend of Zelda* (Nintendo 1998) and *FIFA 2005* (EA 2005). However, the same might have been said of

Griffith's *Birth of a Nation* (1915), *The Cabinet of Dr Caligari* (Robert Wiene 1920) or *Modern Times* (Chaplin 1936), yet we are able to assign them key places in the history of what we call cinema, and accordingly to subject them to a common corpus of analytic methods and to a common set of critical questions. Genre differences should not prevent us from identifying some common approaches or 'forms of attention' appropriate to the study of computer games.

The problems posed by the game for traditional models of media scholarship have preoccupied the first wave of game scholars. Writing about games has been characterized by attempts, first of all, to identify exactly what a computer game is – what kind of media text is this? Is it a text at all or some entirely new object of study requiring entirely novel methodologies? Second, to follow on from these definitions with explanations of how the game makes meaning, in which the cultural 'meanings' of games is displaced by attempts to understand the computer game as an activity. Third, by attempts to explain the pleasures of the computer game as 'immersive' or 'compulsive' behaviours.

As we have seen in Chapter 2, the chief proponents for the specificity and difference of the computer game have been the ludologists, especially in their attempts to articulate the structural qualities that distinguish games from other kinds of mediated experience. So, for instance, we find Juul (2003), Jarvinen (2003) and Aarseth, Smedstad and Sunnana (2003) all working on projects which concentrate on the structural rule base of games in competing attempts to create a typology of games that will account for the similarities within their heterogeneity. Each affords a primacy to the rule set as a point of departure for understanding computer games as a cultural form and as an experience. In this grouping, leading games theorist Aarseth remains particularly hostile to conventional methodologies of media analysis for understanding games. Here we see him arguing against what he identifies as the twin evils of 'narrativism' and 'visualism' that dominate existing media scholarship:

The sheer number of students trained in film and literary studies will ensure that the slanted and crude misapplication of 'narrative' theory to games will continue and probably overwhelm game scholarship for a long time to come. As long as vast numbers of journals and supervisors from traditional narrative studies continue to sanction dissertations and papers that take the narrativity of games for granted and confuse the story-game hybrids with games in general, good, critical scholarship on games will be outnumbered by incompetence, and this is a problem for all involved.

(Aarseth 2004: 54)

This critique of contemporary games analysis is enough to stop any traditional media scholar in their tracks. The focus on rule sets and play theories has been a very useful point of departure for an early understanding of the specificity of the computer game but remains incomplete as an analytical resource. As the field has developed we have observed both traditional and radical scholars adapting existing approaches at the



same time as they fashion new methodologies. We find ourselves gradually hybridizing methodologies in ways that are entirely familiar to those of us who have already spent considerable time trying to understand the operations of new media in general. Our readings of game analyses suggest that the position taken by the London University Institute of Education team at the end of a two-year study into game textualities is typical in their necessity to mix and match methodologies to understand the game. Here they describe their hybrid approach as a combination of their ‘expertise in media education, semiotics and multimodality; social psychology and psychology of learning; film and literary theory, and textual analysis’ (Carr *et al.* 2004).

This recognition of methodological hybridity allows us to expand and develop an understanding of the computer game that includes both the structuralist analysis so dear to ludologists and an understanding of the way that the game is mediated through cultures in the form of representation, narrative and intertextuality.

### Case studies in computer game analysis

In this section we want to offer a number of case studies of game analysis that demonstrate the way in which different methods are in tension with one another. We begin with what in some ways is a ‘limit case’, the well-known Russian computer game *Tetris*, in which the player has to order three-dimensional blocks as they fall down the screen in an impossible to win ‘race’ against the computer clock. The game simply speeds up as the player’s performance improves. It is a game often cited in what has been called ‘the *Tetris* defence’ by game scholars wishing to emphasize computer games’ radical difference from other media forms in general but from narrative-based media forms in particular (such as literature or film). *Tetris*, it is argued (see, for example, Newman 2004: 164), demonstrates perfectly how a game with minimal representational qualities can be compelling and rewarding. On the other hand, Murray (1997: 142) argues that: ‘Every game, electronic or otherwise, can be experienced as a symbolic drama.’ She further argues that:

In *Tetris* everything you bring to a shapely completion is swept away from you. Success means just being able to keep up with the flow. This is a perfect enactment of the overtaken lives of Americans in the 1990s – of the constant bombardment of tasks that demand our attention and that we must somehow fit into our overcrowded schedules and clear off our tasks in order to make room for the next onslaught.

(Murray 1997: 142–7)

This interpretation of *Tetris* is absolutely refuted in Eskelinen’s seminal statement of the ludological position, ‘The Gaming Situation’ (Eskelinen 2001b). Eskelinen’s essay is a prototypical attempt to establish a structural formula through which to understand the gaming experience. He argues that games consist in ‘specific procedural rules of

how to manipulate the equipment (pieces or tokens or whatever)' (Eskelinen 2001b). To play any game is to be caught up in a process of trying to attain goals through actions determined by rule sets, using some kind of equipment (cards, a ball, computer interfaces) which facilitate almost infinite manipulations of the game elements. For Eskelinen, the key difference between game and narrative resides in their temporal qualities. He argues that:

[t]he dominant temporal relation in (computer) games is the one between user time (the actions of the player) and event time (the happenings of the game), whereas in narratives it's between story time (the time of the events told) and discourse time (the time of the telling). Despite possible hybrids the underlying restrictions of temporality remain the same: there's no narrative without story and discourse times and no game without user and event times – everything else is optional.

(Eskelinen 2001b)

'Story time' is always time past, game time is always time present. Games therefore cannot be narrative since they fit none of the existing definitions of narrative. Using this framework he observes of *Tetris*: '[i]n abstract games like *Tetris* there are settings, objects and events but definitely no characters. In addition there are events in games that change situations but do not convey or carry or communicate stories' (Eskelinen 2001b). From this position Eskelinen attacks Murray's interpretation of *Tetris*:

Instead of studying the actual game Murray tries to interpret its supposed content, or better yet, project her favourite content on it; consequently we don't learn anything of the features that make *Tetris* a game. The explanation for this interpretative violence seems to be equally horrid: the determination to find or forge a story at any cost, as games can't be games because if they were, they apparently couldn't be studied at all.

(Eskelinen 2001b)

It should be clear that Eskelinen overstates the case here – like much of the ludological critique of narrative approaches, he suggests that games should only be studied in relation to what makes them a game (the rules, the materials, the events that constitute the gaming situation). Choosing an example like *Tetris* on which to base a theory of gaming generalizes from a very specific instance of an abstract game and may not help us to understand many contemporary games in which the representational elements are more developed or elaborate. Nevertheless, an understanding of the appeal of early computer games like *PacMan*, *Space Invaders* or *Tetris* does serve to underline an important part of the appeal of the computer game. When these games first established themselves in arcades in the US they enjoyed extraordinary commercial success: 'In 1981 Americans spent 20 billion quarters playing 75,000 man-hours on them. The games outgrossed movies and the recording industry' (Wolf 2001: 44). Games with minimal or non-existent narrative or representational qualities clearly had a kind of

‘stickiness’, to use the web designers’ expression, or ‘holding power’ (Turkle 1984: 64–92) that was formally significant insofar as it proved that the pure structural features of gameplay – goals, rules and manipulable elements – could provide compelling entertainment.

However, it is clear that contemporary mainstream console games and popular online games participate in what we might call an intermedial representational strategy. Techniques of film, graphic and text are combined in ways that reference existing forms of representation such as cinema, television, sport or literature. Mainstream games today are rich in representational pleasures that overlay and enhance the gameplay mechanic. It is also evident from the designers’ discussions in Chapter 3 that this level of representational ‘realism’ is highly desired and actively sought by designers and, importantly, players. It seems rather futile and unnecessarily limiting for an emergent discipline to seek to establish its methodological or analytical specificity through a refutation of this dominant contemporary trend or to argue for the exclusion of the analysis of these elements of the computer game.

### Computer games as fictional worlds

By complete contrast, Barry Atkins declares his study *More Than a Game* (2003) as being interested in ‘questions of narrative practice’. His book is concerned to explore questions of ‘narrative point of view’, the possibility of ‘subversive readings’, ‘closure’, the meaning of terms such as ‘realism’, ‘counterfactual historiography’ and the ‘handling of time within narrative’ (2003: 8). So far, so conventional. However, when he gets on to discussing the game *Half Life*, Atkins’ attempt to use literary theory for game analysis forces him into some uncomfortably defensive corners. He concedes that ‘[s]tory, such as it is, more often than not provides a wafer thin narrative excuse for the real meat and drink of such game fictions – shooting things to impressive effect’ (2003: 57). There exists, he argues, ‘an unspoken tacit agreement between player and text to make fewer demands of game fictions than of films or novels – no one expects great dialogue in a game fiction; no one looks for depth of characterisation; no one judges the success of a game fiction on the sophistication of its back story. . .’ (2003: 56). (In these respects this clearly narratological method finds itself on very similar ground to Eskelinen’s radical ludology: ‘stories are just uninteresting ornaments or gift-wrappings to games, and laying any emphasis on studying these kinds of marketing tools is just a waste of time and energy’ – Eskelinen 2001b).

This tension produces the kind of critical aporia that is often filled by the discourse of upgrade culture: ‘You may not think that what this machine is doing now is much good – but, wow, you just wait.’ Atkins subscribes to this position: ‘. . . we are more concerned with the possibilities for the future of narrative telling implied in *Half Life* than what it actually achieves’ (2003: 55). Atkins goes on to make an interesting analysis of *Half Life* that concentrates on relationships between mimesis, simulation and

realism – arguing that the computer game is the pre-eminent form in which these terms are being redefined. He observes that the self-conscious realism and mannered genre status of *Half Life* marks a distinctive stage in the evolution of the computer game which is closer to mimesis than to any attempt to simulate reality. These features, he argues, involve ‘the reader in a consciously recognisable act of reading’ (2003: 80). However, in his construction of the computer game as fiction, Atkins makes little or no reference to the rule set or the gameplay structure which a ludologist would argue was central to any game analysis. As a result we are left without too much idea as to what it might be like to play the game or how we move between the actual interface operation and navigation and the wider meanings which he argues for. This account of the approaches taken by Eskelinen, Murray and Atkins illustrates the extremes of game analysis that are in play when we set out to understand a computer game.

We now turn to a review of some of the ways in which these distinctive approaches – ‘conventional’ and ‘radical’ – are in play in the development of hybridized methods for understanding *Tomb Raider* (Eidos 1996, 1997, 1998, 2003). As one of the most significant titles in the history of console computer games’ entry onto the stage of mass popular culture, *Tomb Raider* has already been the subject of a good deal of analysis. Here we focus on articles by Carr, Rehak, Flanagan and Kennedy that offer us a case study in the successes and limitations of the existing analytic methods of Cultural and Media Studies. These articles focus on issues of representation and use this method to address a range of different questions – none of which, it should be noted, has very much to do with questions of either narrative or story, but nevertheless try to look at the broader cultural significance of the *Tomb Raider* series.

### Lara as object and subject

Diane Carr (2002) examines questions of identification, emotional investment, immersion, objectification and agency by drawing on theories derived from a psychoanalytically informed feminist film analysis. Carr begins her essay with an acknowledgement of her own pleasure in playing *Tomb Raider* and signals her reading of Lara from this position of an ‘academic fan’ (Hills 2002). ‘I enjoy playing with Lara Croft; I appreciate her agility, her solitary determination and lethal accuracy’ (Carr 2002: 171). Carr’s analysis of Lara makes reference to the work around cinematic heroines, particularly the 18 years of feminist debate around the representation of Ripley in the *Alien* (1979, 1986, 1992) series. Carr is careful to signal very clearly her acknowledgement of the distinctiveness of the play experience in relation to cinematic pleasures: ‘she is not just viewed, she is played, occupied and propelled by an off-screen agent’ (2002: 171). But Carr still finds a usefulness in existing ‘cinematic models of objectification’, drawing from Mulvey (1975) (as do Kennedy and Rehak, respectively, below) the dominant mode of analysis of visual pleasure, suggesting that it retains a great deal of analytical

force in the understanding of how the female body is constructed as the ‘object’ of visual pleasure. Even when this body is entirely digital, even while retaining an understanding of how the visual element is always in relation to the experience of playing as Lara, representation is still in play. However, it is ‘in play’, Carr acknowledges the ways in which this objectification is complicated by the fact that Lara (like the cinematic heroine in a film) is also an ‘agent’ within the game:

given the unique, specific role of the avatar, as image and as vehicle, watched and played, it is possible that Lara manages to function as objectified on screen woman, even as she functions as sadistic agent relative to those she so effectively and relentlessly annihilates.

(Carr 2002: 172)

This ‘duality’ is seen as potentially productive of anxiety as well as pleasure on the part of the male player. He finds himself playing as a sexualized woman and he enjoys it. Carr argues that this ‘is purged via the reactionary tone of much of her extra-game manifestations’ (2002: 179). ‘Extra-game manifestations’ simply means the many other representations of Croft that exist outwith the game, especially in online fan sites. Kennedy makes a similar point: ‘We might also speculate that some of the desperate re-encoding of Lara as “sex object” – on the part of male players – may arise from an anxiety over the fact that these experiences are mediated by a female character and thus signify an attempt to deny any empathy/identification with Lara’ (Kennedy 2002).

For Carr at least, the construction of Lara as a sexualized ‘object’ makes a difference to her experience of playing the game: ‘When I play Lara, I play in the company of her creators and in the shadow of the desiring gaze that her breasts and short shorts were formed to address’ (2002: 174). Carr remains aware of the sexual hierarchies that exist outside the ‘magic circle’ of gameplay and these have an effect on how she experiences the game. However, and this is crucial, for Carr, Kennedy and Rehak the distinctions between ‘playing as’ and ‘identifying with’ a character are not resolvable by recourse to film theory alone.

### **Identification, investment and immersion**

Carr recognizes the limitation of her approach by making a sharp distinction between the pleasures of identification in the film and in the game:

The pleasures of cinematic identification involve an emotive immersion or investment in the body, and the environs of the body on screen, in processes engaging the unconscious and fuelled by elements of spectatorial passivity. The games console, by mechanising elements of identification arguably undercuts the pleasure potential of such processes.

(Carr 2002: 177)

Carr argues for a version of cinematic pleasure that involves a passive ‘surrender’ to the events on the screen. Whereas, in relation to the game, she argues:

Lara is a vehicle, and she will only move if, as and when the player compels her to. While gazing at a film screen, our looking is choreographed and the limits of the frame become naturalised, denied or surpassed. Our motion through the screen space is pleasurably fuelled by a dreamlike disembodiment or surrender.

(Carr 2002: 173)

The fact that Lara is able to be resurrected over and over in the game also undermines any investment in her body, and our control over Lara is argued to prevent our full identification with her and our abandonment to the masochistic pleasures of the cinematic experience. Carr’s deployment of a psychoanalytic framework allows for a reading of Lara as the ‘sadistic’ agent within the game – she is ‘subject, not object, within a sadistic formula. She is the agent of repetition, the perpetrator, while her victims are the numerous, the interchangeable and the expendable’ (2002: 176). In this version, playing as Lara is productive of a less ‘immersive’ experience, but a more participative one which affords pleasures of a different order to cinematic ones.

### Avatar as ‘vehicle’

The relationship between the player and avatar is understood here as distinct from viewer/character relationships. As we have seen in the earlier quotation, the analogy of vehicular or mechanized embodiment is repeated frequently in Carr’s analysis of Lara: ‘identification is explicit, we drive, direct and occupy her. The console umbilically links the off-screen participant to the onscreen world and enables their agency within that world’ (2002: 177). This also becomes a critical way to understand player/avatar for Kennedy, Flanagan and Rehak. Here the vehicular embodiment analogy also hints at a significant aspect of the pleasures involved. Flanagan observes: ‘She shoots, climbs, and runs with mechanical precision; controlling her body is like driving a fine machine’ (Flanagan 1999: 81). Flanagan’s description of her as a ‘fine machine’ alludes not only to Lara as a representation but also to Lara as a technology which can be admired, which must be mastered and, once mastered, will be a great source of personal satisfaction.

Lara is simultaneously replete with meaning in terms of the construction of her physique and the availability of a coherent biography through which to make sense of her subjectivity and her actions, but also empty enough to enable the player to inhabit her. Lara is to be ‘occupied’ or controlled by the player, and this is seen as distinctive to the gameplay pleasures and cannot be understood within existing theories of viewer/text relationships. For Rehak this is a critical aspect of avatar representation: ‘She merely extends the essential emptiness of the avatar, a semiotic vessel intended to be worn glove-like by the players’ (Rehak 2003: 480). Furthermore, Rehak suggests that

this is what enables her successful migration from one medium to another and is also a fundamental part of her appeal. He concludes: 'Digital stars, as they have developed in video games necessarily hit a kind of representational ceiling that limits their semiotic resolution and thus leaves them open to audience identification' (2003: 482). For each of these authors the visual representation of Lara as well as her capabilities within the game are assumed to be an essential component of the 'gameplay' experience, or as Eskelinen would describe it the 'gaming situation' (Eskelinen 2001), even whilst either implicitly or explicitly recognizing that the gameplay does not solely depend upon this representation. Also, it is evident that representational issues in gameplay can be analysed without treating the computer game as a story or as a narrative form.

### Representation and experience

However, rich as these discussions are, they suggest very real limitations to how far a fundamentally representational analysis of a game text can take us. These limitations come about when we try to account for the difference between watching and doing, between identification with and being. Aarseth, for example, argues:

The dimensions of Lara Croft's body, already analyzed to death by film theorists, are irrelevant to me as a player, because a different-looking body would not make me play differently . . . When I play, I don't even see her body, but see through it and past it.

(Aarseth 2004: 48)

Whilst it is certainly true that a different-looking body would not affect the underlying game mechanic and therefore how we play the game, it would almost certainly affect the experience of gameplay. This is a crucial point in the debate. If we accept Aarseth's point that gameplay is co-terminous with game mechanic then clearly our analysis should be focused there. However, we are more inclined to support Salen and Zimmerman's observation about what would happen if we substituted another set of tokens (for instance, suits of cards called Death, Sex, War and Love) for the conventional pack of cards in a game of poker:

On a formal level nothing has changed at all: the game remains the same. Of course it goes without saying that the experience of playing Poker with such a deck would be different than the experience a player would have with a standard deck. But the formal system of a game, the game considered as a set of rules, is not the experience of the game.

(Salen and Zimmerman 2004: 120)

Kennedy (2002) and Rehak (2003) discuss the fan sites devoted to the celebration of Lara and her world. These fan sites offer plenty of evidence that the fictional world presented in *Tomb Raider* affords particular kinds of experience which allow particular

kinds of investment in Lara Croft. Whilst Aarseth is right to insist that there is more to any game than its visual or story elements, we would also insist that avatar representation (in particular) does matter. This is especially the case in massively multiplayer online games, as other players respond directly to this representation and may play against us in very different ways dependent on this response. Female players often bemoan the hypersexualization of female avatar choices for such games as it tends to produce either mildly irritating or downright insulting responses from other players. Female games designer Sheri Graner Ray (2003) offers a very detailed analysis of the range of ways in which female avatars are specifically hypersexual in a way that male avatars are not. She also offers details of the kinds of sexist responses that these images provoke, indeed seem designed specifically to provoke. This can lead to in-game harassment which can significantly alter the experience (and the pleasure) of the game.

Racial and gender stereotypes abound in the construction of these avatars and an outright dismissal of avatar representation leaves unchallenged the political dimension of these representations. Whilst many have celebrated the ways in which online role playing can allow for identity experimentation, Taylor (2003), for instance, offers a thoughtful and provocative analysis of the ways in which this online experimentation can have offline consequences. We need to consider the ways in which these stereotypes reflect and reintroduce offline power imbalances within the play environment. In this regard, the visual imagery in many mainstream games seems to be entirely ignorant of the critiques that have been made of these stereotypes in other visual media and appear to import some of the worst examples in an entirely unreflexive and uncritical way.

These early attempts to theorize games through the example of *Tomb Raider* show how existing traditions of analysis continue to have some purchase, but they also throw up all kinds of new problems. What is the exact status of representation here? How are we identifying with avatars? If the avatar changes, does our experience of the game change? In order to suggest what a useful toolkit for game analysis might be, we want to draw upon the common ground that emerges from the various methodological traditions and styles of analysis which we have sketched above. We hope thereby to set up a number of key frameworks and areas of inquiry that can guide game analysis. These areas are all produced through the dynamic tension between traditional and innovative ways of looking at media and mediation. Viewed as a totality they point the way towards the development of a phenomenology of games that takes account of both their textual and experiential properties. They point, in other words, to the well-worn limitations of the text/user separation that is characteristic of attempts to understand new media interactive artefacts.

## Narrative to navigation

A new emphasis on space rather than time has been one of the characteristics of New Media Studies – the importance of space for using and understanding computer media



seems to have become ever more significant. The importance of these developments for game designers and players has been noted for some time. Jenkins observed that early game worlds are ‘gendered play spaces’ (1999: 262), which ‘offer children some way to respond to domestic confinement’ (1999: 266). Game worlds offered navigational challenges, he argued.

The most successful console game series, such as Capcom’s *Mega Man* or Nintendo’s *Super Mario Brothers* games, combine the iconography of multiple boys’ book genres. Their protagonists struggle across an astonishingly eclectic range of landscapes – deserts, frozen wastelands, tropical rainforests, urban undergrounds – and encounter resistance from strange hybrids (who manage to be animal, machine and savage all rolled into one). The scroll games have built into them the constant construction of frontiers – home regions – that the boy player must struggle to master and push beyond, moving deeper and deeper into uncharted space (Jenkins 1999: 279).

The computer game here is argued to remediate the kinds of pleasures offered by boys’ own adventure stories, as well as offering experiences of mastery of virtual spaces at a time when access to real spaces (particularly in urban societies) is increasingly limited. Writing two years later, Flynn observed of adventure games:

The player has to try and map the geographical relationship of the environment in order to understand where they are and how to proceed (or go back) . . . By turning the landscape itself into a pathway of significant signs and symbols, *Myst*, *The Crystal Key* and other games in the sub-genre offer different types of pleasures from combat or sport – the pleasures of the stroll – the player as observer and cultural explorer.

(Flynn 2000) (See also Newman 2004: 107–25.)

Flynn invokes the familiar figure of the flaneur as a model for the subjectivity produced by this kind of game, and suggests a set of contemplative spatialized pleasures which relate to the kind of play characterized by Caillois as *paidia* – non-goal-oriented, improvised play.

Once we begin to understand the video game in this light we can begin to understand why players and theorists alike describe spatial pleasure and awareness as one of the central features of the game world. New media theorist Lev Manovich (2001: 244–85) provides a key account of the development of ‘navigable space imagination’ (2001: 279). In a genealogy traced through Baudelaire’s flaneur (again), Vertov’s *Kino Eye* and the *Link* flight simulator, he argues that *Doom* and *Myst* were two of the most significant creations of ‘the first decade of new media’ because, although both were totally different games, they made moving through space the key task of the user:

Both are spatial journeys. Navigation through 3D space is an essential, if not the key, component of the gameplay. *Doom* and *Myst* present the user with a space to be traversed, to be mapped out by moving through it . . . narrative and time itself

are equated with movement through 3-D space, progression through rooms, levels, or words. In contrast to modern literature, theater, and cinema, which are built around psychological tensions between characters and movement in psychological space, these computer games return us to ancient forms of narrative in which the plot is driven by the spatial movement of the main hero.

(Manovich 2001: 246–7)

*Myst* (Broderbund 1993) and *Doom* (id Software 1994) also offer polar extremes in terms of the experience of the space – one, as we suggested, offering the contemplative pleasures of the stroll, the other the visceral,ilinx-inducing pleasures of the roller-coaster. This reintroduces a temporal aspect to the experience of the text as it is precisely the speed with which these spaces must be traversed that is productive of specific pleasures.

An alternative history of navigation in computer games might also point out that the overwhelming textual influences on early paper role-play games like *Dungeons and Dragons* were *The Lord of the Rings* and *The Hobbit*; the narrative structure of Tolkien's work is deeply embedded in the intensely imagined topography of Middle Earth. The story content is based on journeys in which challenges are met and overcome; the recent cinema adaptations expose this topographic narrative in all its simplicity. Go somewhere, have a battle, go somewhere else, have another battle – and so on. This engagement with highly realized topographic worlds then becomes characteristic of the *Dungeons and Dragons* table-top role-play game worlds and also of their online adaptations in MUDs, and now in the 'persistent worlds' of the MMORPG.

The fantasy genre can be characterized by this sense of authorial and reader attention devoted to the detailed realization of the imaginary world and all its features at the expense of narrative tension, character development, relationships or subjectivity. This culturally determined attachment to the topography of imaginary worlds can be found deep at work in the design and manufacture of computer games to this day. A game level is designed through the twofold documentation of text and map. The text describes the ideal player's progress through the level, the map visualizes the level. This map will be highly realized in terms of topography, features and enemy spawn points. It then becomes the basic building block of the level; it is scanned and becomes the first blueprint from which artists and programmers actually build the level in paint and render programmes.

The centrality of space to game design has many consequences for the gamer, not least the affordances it offers for thrilling pleasures of kinaesthesia (or ilinx in Caillois' terminology); the simple pleasures of exploring and mastering game spaces is its own reward, like playing with a toy or a musical instrument, and has its own specific visceral pleasures of fight or flight concentration. However, this does not mean that narrative disappears – rather, it appears, is generated and discovered in different forms. Jenkins argues in his influential article on the subject that '[i]n each of these cases, choices about the design and organisation of the game spaces have narratological

consequences' (2004: 129). In his useful schema, narrative is incorporated within spatial structures, producing four different kinds of narrative: evocative, enacted, embedded and emergent. Evocative narrative spaces are those which are designed in ways to evoke a known storyworld, such as those of *Star Wars* films or Lewis Carroll's *Through the Looking Glass* in the Alice books. Enacted narratives depend on the movement of the player as they overcome obstacles and discover advantage in the game world. Embedded narratives make these obstacles and opportunities carry narrative significance as clues or puzzles which relate to some aspect of the larger storyworld. Finally, emergent narratives come in the form of simulation games, in which space is experienced as maps within which micro-narratives get constructed in response to and in collaboration with the simulation algorithms.

This analysis has the virtue for us that it suggests ways in which we can begin to account for the variety of platforms through which narrative experiences are delivered to us. Thus, whatever original narrative may have created the original storyworld, its ramification as commodity may take any one of a number of different forms: book, movie, music, video game, toy, comic, board game. Each of these platforms will reference the narrative of the storyworld in different ways – narrative in this process enhances the consumer's experience to varying degrees but it does not disappear, transforming itself into a diffuse web of intertextual references to a storyworld.

All this may suggest, not that conventional narrative theory is just wrong or useless, but as in all theoretical inquiry that the theory may need to be changed in the light of new evidence. In this case the change will surely be that the traditional emphasis in narrative theory on the syntagmatic (linear sequences) will increasingly be re-inflected to emphasize the paradigmatic (spatial) elements of all narrative experiences.

### Character to capability

The discussion above of Lara Croft as avatar already suggests that we may need to reform our ideas about character for a game analysis that takes on board the medium specificity. Textual analysis based on the signs and signifiers within a game have been seen to be inadequate to grasp the distinction between playing as a character/avatar within a game space and viewing a character on a conventional screen. The activities involved in navigating the avatar within space and time make the concepts of identity and desire more complex and, some would argue, entirely inappropriate. If the avatar is simply a game token, like the pieces on a chess board, we are not expected to 'identify' with it.

Character has clearly been a mainstay of traditional novels, cinema and television – all of which have their own rhetorics through which the reader/viewer is drawn into a series of complicit identifications and immersions within a character's world. Significantly, these devices may deliver the reader/viewer to a character identity that is primarily conveyed through representation of an inner life, where courses of action may be

ambiguous and characters may in fact spend a good deal of time inactive, thinking, recalling and processing events. This is obviously not the case in computer games, where ‘characterization’ in these traditional terms is often so bad that ‘it makes The Flintstones look like Strindberg’ (Aarseth 2004: 51). In *The Sims* (Electronic Arts 2000) we are offered the most banal of choices to build our characters, choosing from a menu of ‘neat’, ‘outgoing’, ‘active’, ‘playful’ and ‘nice’, each of which can be successfully engineered into a dynamic relation to the game state through the simulation. A dramatically threadbare schema becomes a powerful generator of different play states through the game’s simulation algorithms.

In the computer game, interior life is insignificant since external action is what drives the game; the player’s avatar has to be doing things not thinking about them. Moreover, both designers’ character choices and players’ character choices are made within the game world not the fictional world. This leads to certain kinds of choices, as Marie-Laure Ryan argues:

Interactors would have to be out of their mind – literally and metaphorically – to want to submit themselves to the fate of a heroine who commits suicide as the result of a love affair turned bad, like Emma Bovary or Anna Karenina. [. . .] This means that only selected types of emotional experiences, and consequently selected types of plot will lend themselves to first-person perspective [arguing also that the natural choice is for a Harry Potter or Sherlock Holmes type character over a Hamlet or a Bovary] i.e. a rather flat character whose involvement in the plot is not emotional, but rather a matter of exploring a world, solving problems, performing actions, competing against enemies, and above all dealing with interesting objects in a concrete environment. This kind of involvement is much closer to playing a computer game than to living a Victorian novel or a Shakespearean drama.

(Ryan 2001b)

Just as the spatialization of narrative suggests a return to primitive epic forms of storytelling structure, so this approach to character as avatar has suggested, to both theorists and designers, a return to the relatively unsophisticated narrative and character theories of Russian formalism based round the work of Propp (1969). (See, for example, Newman 2004: 132–5, for applications of Propp; and Rollings and Adams 2003 for the adaptation of Joseph Campbell’s narrative anthropologies to entertainment scriptwriting through Christopher Vogler’s (1992) *The Writer’s Journey*.) Here character is reduced to function, i.e. villain, helper, hero, and narrative to spatialized action epic.

However, this return to a kind of formalism only gets us so far in understanding our experiences of character as avatar. We will need to push further along this line to understand the ways in which character in computer games becomes an algorithmically controlled set of capabilities which are in fact very different to conventional notions of dramatic character. Newman (2002, online) provides a key account in his discussion of

Marsha Kinder's 1993 observation that her sons would often prefer to play as the princess in *Super Mario Brothers 2*, despite the possible embarrassment of 'trans gender identification'. Newman points out that this model of identification is redundant; the boys in question were in all likelihood choosing 'characters' based not on the real world referentiality of the princess (such as it is), but on their in-game capabilities – in this case the ability to float for longer than any other characters, thus facilitating difficult in-game moves and jumps:

However, it is not just that at the character selection stage players rationally select the best character for the task at hand [. . .]. Far more significant is the realisation that the character-selection process described by Kinder reveals a relationship with these characters that disregards representational traits in favour of the constitution of character as sets of capabilities, potentials and techniques offered to the player.

(Newman 2002, online)

Thus character becomes capability: What can this avatar do that another can't? How will this avatar serve me at this level of a game? Does this avatar have the right combination of weapons and moves to allow me to progress through the game? In team-based online games or tactical squad-based shooters these choices are in a constant state of negotiation as players choose different avatars (sniper, spell caster, bow and arrow attack, etc.) for different in-game challenges. In a later development of this position, Newman argues further that the in-game character is in fact just a piece of game equipment, to recall Eskelinen's game properties: 'a set of capabilities, techniques and capacities that the player can utilize' (2004: 143).

However, these pieces of equipment do not exist in a game vacuum like the tokens in a board game – they have intertextual representational lives that affect the experience of the gameplay, and certainly have a greater power in the various out of game activities of fans. These lives may be merely transmitted through the packaging of the game and their graphic representations; cut scenes are another and different way in which in-game avatars are lent extra-game characteristics, however wooden. Another category also exists – those avatars based on characters that have a completely realized form outside the game world, such as sports players or characters like James Bond or Gandalf who have a fictional life in other media. Here player choice and game experience is likely to be informed by intertextual knowledge. Who chooses to play as Gimli in *The Lord of the Rings* games when the more obviously heroic choices of Legolas and Aragorn are available?

Here then we can observe the development of a kind of post-human drama, in which the *dramatis personae* are like the pieces on a chess board, each with their own mathematically controlled capabilities, placed under the control of the player in the simulation machine of the game. However, the game experience is informed in all kinds of ways by the representational characteristics of the avatars.

## Representation to ritual

In many ways the third framework in our analytic toolkit is the most complex, for thinking about representation is here not just about Aarseth's curse of 'visualism' (2004: 52) but about the whole process by which meaning is generated. Typically, theories of representation attempt to understand how meanings are generated in the encounter between reader and text. However, as we have already seen, the terms of reader and text are already being redefined both in New Media Studies generally and Game Studies very specifically. For Newman, attention to visual representational issues is entirely misguided: '[w]hen I say that appearances don't matter, I am certainly not talking about advertising and marketing games. What I am saying is that the pleasures of videogame play are not principally visual, but rather are kinaesthetic' (Newman 2002).

And yet, issues of representation stubbornly refuse to disappear. Some games seem repeatedly to generate a great deal of writing which focuses on representation; in a general sense this is what we encounter when we meet the frequent news stories about violent game content. Two such examples are the *Tomb Raider* series and *Grand Theft Auto* series (Rockstar Games – *Vice City* (2002) and more recently *San Andreas* (2004)). As we have seen, with *Tomb Raider* the focus of interest has very much been on the role of the female heroine Lara Croft. In relation to *Vice City* and *San Andreas*, the focus has centred around the violent behaviours allowed by the game, especially the fact that players could use a prostitute, then rob and kill her. Representation has always been a contested field, and despite the argument that games are more kinaesthetic than representational, the politics of representation are embedded in every discussion about game violence and effects, about the marginalization of ethnic groups and women in game scenarios or the psychological pleasures of being able to act out any number of fantasy roles from alien splattering commando to vampire slayer.

The conventional method within humanities fields for understanding the ways in which meaning is produced has been through the application of semiotics derived from, for example, C. S. Peirce, Saussure, Eco or Hall. However, all attempts to conclusively apply semiotics to computer-based representation encounter a similar set of problems expressed in the question, 'How are we to understand or evaluate a text that never stays the same way twice?' The interactive text is dynamic and a game engine produces a simulated environment that is constantly changing. In his seminal study of the problem in *Cybertext* (1997), Aarseth observed: '[t]he new [interactive digital media] consist of "interactive dynamic" elements, a fact that renders traditional semiotic models and terminology, which were developed for objects that are mostly static, useless in their present unmodified form' (1997: 26).

Games theorist Gonzalo Frasca, in his influential MA thesis, attempted to adapt Peircean semiotics to account for the mutability of the digital text. However, he concedes in the end that '[w]hile I do believe that this expanded explanation of signs could bring more light on the understanding of how simulations work as representations,

I do not think that a semiotic analysis would be enough to fully explain simulations and videogames' (Frasca 1999, online). (See also Myers 1991, 1999a; Aarseth 1997: 24–57.)

The level of complexity for conventional semiotics is compounded by play theory: How are we to understand the 'meaning' of a game? A documentary about property development has a different quality of meaning generation to a game of Monopoly. Observations about the ideology or meaning of a game are more than likely to be met with the rejoinder, 'But it's just a game' – that's the whole point. As we have already seen, the game is alleged to be an activity occurring within its own 'magic circle', in which the meanings circulate only within its own world and do not 'leak' out into the everyday world of meaning and power. But again this assertion appears to be at odds with player behaviour. It is clear that players show a preference for playing games that offer access to specific kinds of semiotic systems, for one particular genre over another, for playing as a female avatar or as a character from the movies, or for games which allow the player to play as 'cute creatures' (e.g. *Super Monkey Ball*, Amusement Vision 2002). If we were to accept the argument put forward by Aarseth or Eskelinen, we leave play and games secure on a magic circle island, untouched by the troubling waters of the culture that sustains and supports it. In effect we reproduce Huizinga's depoliticized classicism: 'Play lies outside the antithesis of wisdom and folly, and equally outside those of truth and falsehood, good and evil. Although it is a non material activity it has no moral function. The valuations of vice and virtue do not apply here' (1955: 6).

Let us return instead to an application of some of the play theory discussed in Chapter 2. As we saw there, Victor Turner's work has been usefully deployed to locate play and games as part of a socially essential 'liminoid' process; in this reading games serve as a kind of ritualized 'condensed realm of order', a temporary space with constraints and opportunities unlike those operating in the everyday world. Particular rule-bound spaces (for Turner, liminal ritual spaces or liminoid leisure spaces) ritually license otherwise taboo activities, like murder and mayhem (1982: 28). Turner also quotes a passage from Brian Sutton-Smith, written in 1972, which is highly significant in this anthropological construction of the meaning of play:

The normative structure represents the working equilibrium, the anti structure [of liminoid ritual-like space] represents the latent systems of potential alternatives from which novelty will arise when contingencies in the normative system require it. We might more correctly call this second system the proto structural system because it is the precursor of innovative normative forms. It is the source of new culture.

(Sutton-Smith 1972, in Turner 1982: 28)

In this analysis then, play and games do not occur beyond meaning and culture but have a direct structural relationship with their dominant systems insofar as they license a space in which meaning, status, power and identity can be subject to experimentation

and become ‘the source of new culture’. The second point to draw out from Chapter 2 is our observation that the separation between play and everyday life – which informed Huizinga and Caillois and is implied by the ‘It’s only a game’ response of those on the magic circle island – has all but broken down in the commodification of the play principle in consumer societies. Play, through its functions under the sign of consumerism, has itself become a form of productivity. Play therefore has an ambiguous status – it cannot be said to lie completely outside of dominant systems of power since it is now productive of enormous wealth. Jeremy Rifkin argues that the commodification of culture is a primary driver in contemporary capitalism, and that, since playfulness is at the root of culture: ‘the commodification of culture is above all else, an effort to colonize play in all of its various dimensions and transform it into purely saleable form’ (Rifkin 2000: 260, cited by Kline *et al.* 2003: 284).

It is clear then that the status of representation shifts in computer games. Images function as the interface to the simulation system but are constantly dynamic. Their representational force is diffused by their functionality and may be reduced to intertextual reference. However, the game does not exist outside society but in the liminoid spaces of popular culture, its representation still tied into regimes of power and wealth accumulation.

## Conclusion

The application of anthropological theories of play together with an understanding of the functions of play within contemporary capitalism both imply that we must find a way to draw the computer game back into the realm of social semiotics. Here, although the meanings generated in game are circumscribed by the magic circle, they nevertheless exist in relation to meanings made in other kinds of semiotic processes. This relation may be one of inversion, mirroring, experimentation and subversion – but it is a relation nevertheless.

By and large, the game interface is still representational; for many games, perhaps most, representation has not disappeared and cannot easily be argued away. Even though the representative content may only be an interface to the simulation of the game engine, even though action might be more significant than connotation, even though the textual meaning of the representation is secondary to the compulsive engagement with improved game performance – despite acknowledging all this, researchers working within these frameworks insist that most games still use representation; despite ‘The *Tetris* Defence’, it hasn’t gone away. Whilst games use representation, they remain contextually aligned with operations of power; however, this alignment is certainly of a different order to the relations of meaning production encountered in novels, cinema or television.

The sense of agency suggested by play, the expression through activity of the meanings rather than their generation through interpretation, argues for a different quality



to the meanings generated. Meaning generated by play is different to meaning generated by reading. To read is to create meaning cognitively in the encounter with the text. To play is to generate meaning, to express it through play. Play allows us to actively express meaning (to be part of your clan, to be a stealth assassin or princess rescuing plumber). By playing out these roles we are temporarily inhabiting an avatar that functions as part of the gameplay and offers consumers a point of entry into the game world. Because we know we are going to be using our characters and their worlds for purposes other than pure interpretive pleasure, we have far less investment or interest in the meanings generated by the worlds we inhabit. This is not to argue that representation and meaning are not in play. Players clearly have interpretive responses to game worlds, and computer games in their wider circulation are clearly meaningful. However, the importance of a player's interpretive pleasure is less than it would be in a novel or film.

The significance of this 'sliding scale' of narrative versus rule set can only be fully grasped within the context of an intermedial environment. By intermediality, we refer to the contemporary market-driven form of intertextuality in which texts and activities may refer to the same fictional 'world', despite presenting themselves as different media (Lehtonen 2001). In the intermedial age all media texts have a tendency to bleed into one another – distinctive media borders and definitions begin to break down. This intermediality is not merely a technological given driven by digitization, it also concerns the social practice of a medium. Film, for instance, once confined to a large darkened room, now leaks out of its institutional setting via laptops, DVDs, mobile phones, the internet and so on. Media texts of all kinds work in increasingly close symbiotic relationships with other media texts – *The Lord of the Rings* exists as novel, board game, film, several computer games, online trailers, DVDs with new material and new ways of navigating/experiencing the film, plus a range of war gaming toys and other merchandise. Similarly, *The Matrix* exists across three films (1999, 2002, 2003 – excluding the remastered IMAX versions), but also as DVDs, *The Animatrix* (2003) and its soundtrack, the *Enter The Matrix* (Infogrames 2003) game and on the internet. The world of the film/book is 'remediated' in other platforms.

The blockbuster computer game is a typical part of this new media economy, which combines media technologies, practices and formations to build 'storyworlds' with multiple points of access. As the points of entry to these storyworlds proliferate, so the relative strength or weakness of narrative form alters; the narrative experience of reading *The Lord of the Rings* as a novel, watching a DVD on your laptop on a train or playing a computer game will be different in each case. However, the fictional world upon which the intermedial text is promoted in each case does not disappear, it just has a different quality.

### Further reading

- Eskelinen, M. (2001) The Gaming Situation, in *Game Studies: The International Journal of Computer Game Research*, 1(1). Available online at <http://gamestudies.org/0101/eskelinen/>
- Jenkins, H. (2004) Game Design as Narrative Architecture, in Harrigan, P. and Wardrip-Fruin, N. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA: MIT Press.

## BODIES AND MACHINES: CYBORG SUBJECTIVITY AND GAMEPLAY

[Computer] games offer a singular opportunity to think through what it means to be a cyborg. [They] aestheticize our cybernetic connection to technology. They turn it into a source of enjoyment and an object for contemplation. They give us a chance to luxuriate in the unfamiliar pleasures of rote computation and depersonalized perspective, and grasp the emotional contours of this worldview. [. . .] Through the language of play, they teach you what it feels like to be a cyborg.

(Friedman 1999)

### Flow, immersion and configuration

In this chapter we turn to the conceptual problems which arise when we consider the player and the game as inseparable. The computer game only exists as an ‘object for contemplation’ and analysis as and when it is played. In what follows, therefore, we have to find a set of theoretical or critical tools which will enable us to untie the knot of player/game as an object of study.

Intense digital gameplay is often described in terms of a loss of a sense of time, place or self, of immersion. Carr’s analysis of *Tomb Raider* which we discussed in Chapter 5 illustrated how a loss of sense of self is evident in a range of media consumption (being immersed in a film at a cinema, for example), but that immersion in a game world is something different. The challenges, thrills and threats are experienced and produced through intimate mental, emotional and physical engagement by the player with the game and with the game technology. This sense of immersion or engagement within the game world may account for the ways in which sense of time and physical discomfort recede as the player’s skill develops. The state of consciousness achieved during this period can be related to Csikszentmihalyi’s description of ‘deep flow’ – a

total absorption in an activity which is both challenging and emotionally rewarding (1996, 1997). But as we saw in Chapter 1, immersion is a problematic term, associated explicitly or implicitly with notions of passivity. As a consequence, some have wanted to offer other ways of characterizing the specificity of gameplay in more active and participative terms. In order to go beyond the analytical limitations of interactivity as a conceptual framework for understanding player agency, theorists have turned to the notion of ‘configuration’ (Aarseth 2001; Eskelinen 2001b; Moulthrop 2004). In the following we see Moulthrop place gameplay on a continuum with other forms of engagement with computer media:

Games – computer games in particular – appeal because they are configurative, offering the chance to manipulate complex systems within continuous loops of intervention, observation, and response. Interest in such activities grows as more people exchange email, surf the world wide web, post to newsgroups, build web logs, engage in chat and instant messaging, and trade media files through peer-to-peer networks. As in various sorts of gaming, these are all in some degree configurative practices, involving manipulation of dynamic systems that develop in unpredictable or emergent ways.

(Moulthrop 2004: 64)

Configuration enables an assertion of player agency *and* signals the distinction between gameplay and other kinds of cultural consumption. For Moulthrop the idea of configuration becomes a way of conceptualizing the participatory and co-creative practices which new media demand of their users:

Eskelinen [2001b] defines ‘configurative practice’ rather narrowly as the players’ strategic operation upon the elements of a game, but it is possible to broaden this term significantly. If we conceive of configuration as a way of engaging not just immediate game elements, but also the game’s social and material conditions – and by extension, the conditions of other rule-systems such as work and citizenship – then it may be very important to insist upon the difference between play and interpretation, the better to resist immersion.

(Moulthrop 2004: 66)

Here again, however, we see immersion resurface as a problematic ‘state’ to be resisted; the desire for control and agency to reside predominantly with the player underpins these theoretical moves and disavows the agency of the game itself in these configurative practices. There is implicit in these assertions an incipient **humanism** that privileges the playing subject as the agent in computer gameplay. In this chapter we intend to redress this by focusing our attention on both the player and the game as agents in the processes of gameplay.

There are two critical exclusions in the general discourses that have emerged around interactivity, immersion and configuration. The first is the specific material technologies involved in gameplay and the second is the differentiated nature of embodied

playing subjects. Just as in Chapter 4 it became apparent that there were idealized producer subjectivities, the same is also true of players; the discussions of gameplay which we have drawn from thus far assume a taken for granted stable and undifferentiated notion of player subjectivity. In the following section we want to attend to both of these issues through paying close attention to the technological and phenomenological aspects of gameplay – for all their remediation of earlier games or even films or stories, computer game play occurs across a range of different places by virtue of specific computer technologies, engaged in by specific subjects.

### Why the body matters in gameplay

In asserting the primary importance of gameplay as an embodied and technologically mediated experience, we are drawing from and extending the work of Marie-Laure Ryan (2001a), who has specifically focused on questions of immersion and interactivity in virtual worlds. For Ryan the two issues we have set out above are critical for an understanding of the subjects' experience: 'The technological approach asks what features of digital systems produce an immersive experience, the phenomenological issue analyses the sense of "presence" through which the user feels corporeally connected to the virtual world' (2001a: 14). For theorists studying questions of embodiment and subjectivity in virtual worlds, Merleau-Ponty's assertion of the 'embodied nature of perception' (Ryan 2001a: 14) appears to be a critical starting point. It helps us to understand that we are embodied subjects whilst engaged in our experiences of 'virtual reality'. But we are also re-embodied and gain a sense of presence and agency in these virtual spaces through the interface and the avatar. This theoretical point of departure, that perception is embodied, enables Ryan to argue that virtual experiences count as embodied affective experiences. Rather than seeing consciousness as separate from embodiment, physical action and perception are interdependent.

Merleau-Ponty's assertion of the embodied nature of consciousness – that feelings and perceptions are embodied and not solely 'mental states' – lies at the heart of understanding the experience of gameplay. This understanding has subsequently been recontextualized by the explosion of neurological science into philosophy and the humanities. Antonio Damasio, for instance, argues that emotions are 'a complex pattern of chemical neural responses' produced by certain stimuli which result in a 'temporary change in the state of the body proper' (Damasio 2004: 53). The idea of a disembodied spectator/viewer/reader is a fictional subject created by particular ways of conceptualizing the relationship between 'texts' and 'readers'. This fiction is founded on the Cartesian model of perception, whereby consciousness is seen as separate to and distinct from embodiment.

The legacy of Cartesian dualism has created a particular discourse of transcendence in writing about digital technology. This desire for a transcendent unity is also a key component of the **technological imaginary**. Friedman observes:

Connected to the computer, it's easy to imagine you've transcended your physical body, to dismiss your flesh and blood as simply the 'meat' your mind must inhabit, as the protagonist of *Neuromancer* puts it (Gibson 1984). This denial is a form of alienation, a refusal to recognize the material basis for your experience. The return of the repressed comes in the form of carpal tunnel syndrome, eyestrain, and other reminders that cyberspace remains rooted in physical existence.

(Friedman 1999)

It also serves to remind us that our bodily experiences of gameplay are not solely emotional or affective – they are also highly physical. The body is always committed or engaged in gameplay, from sensorial perceptions experienced as embodied emotional states, through busy hands and fingers in many games, and all the way through to the entire body being involved when playing *Eye Toy*. The game interface, 'by providing the connective tissue between our bodies and the codes represented in our machines, necessarily engages them both' (Utterbeck 2004: 218).

## Bodies and avatars

So, for our consideration of embodied gameplay, we need to consider two critical aspects. First, we have to attend to the player's material, situated body that interfaces with the various technologies required to instantiate gameplay: wires, boxes, computers, consoles, arcade games, CDs, joysticks, mouse pads, model steering wheels and model guns. Gameplay involves us in a set of relationships with material objects that must be handled skilfully and appropriately in order for play to take place – gameplay is a tactile and *kinaesthetic* experience. Each of these objects is designed with a particular notion of the playing subject and with specific expectations of the player's technological competence. In a consideration of the situated body of the player we must also attend to issues of cultural and social context, technological aptitudes and tastes, each of which will have a role to play in this engagement with the materiality of the gaming apparatus. The particular spaces and times of play for each gaming situation must also be factored into a discussion of the embodied player. No matter how immersive the gameplay is, or how little attention is being paid to the passage of time or to the world around the player, the body is *always* located in space and time.

Second, we have to pay attention to the ways in which we are re-embodied within the game world itself – critically what means are used by the game to feed back to us as players our actions, experiences and progress within the game world. This feedback could be anything from a save point (that at a bare minimum represents our progress in the game) to a cursor, 2D animated figure (abstract, animal, alien or human-like) or 3D representation ranging from a simple gun (in the *Quake* series and in other first person shooters) through to the proto-filmic realism of Vin Diesel in *The Chronicles of Riddick* (Vivendi Universal 2004). These feedback loops require that we give a

proper recognition to the avatar as an embodiment of the player's actions and experiences in very particular ways. In doing so we must pay attention to how the experience of play is generated as a 'sensorial' experience (involving sights, sounds and a sense of space) and to how the game 'codes' the player into the game world from the first moment we encounter our avatar. The avatar then develops over time (through a variety of means – access to new levels, power ups, new objects which are held in our inventory, etc.) in such a way as to become the in-game embodiment of our gameplay experience.

This focus on the dual aspects of gameplay allows us to consider the ways in which:

. . . increasingly, it is precisely the carnal pleasures of gaming that are being mobilized by producers and sought out by consumers. If something is left behind when we play, it is not the body. We may be toying with the body when we play, but we remain flesh as we become machines.

(Lahti 2003: 169)

Whilst we are distinguishing analytically between these two ways of understanding player subjectivity, they are not truly distinct – they are continuous and complementary because of the **cybernetic** nature of gameplay.

### Why the cyborg? – gameplay as cybernetic

By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism. In short we are cyborgs. The cyborg is our ontology.

(Haraway 1991a: 292)

Computer games, like most computer applications, work through feedback between user and software. It has been argued that computer games, or more precisely the circuit of game and player in the act of playing, is literally (for the duration of the game at least) cybernetic. This idea of the play experience as cybernetic develops from work undertaken by Aarseth in his 1997 book *Cybertext*. Here he argues that any text is made from the material object (e.g. a book), the words and the reader. This 'triad', he suggests, constitutes a 'textual machine' (1997: 21). He goes on to argue that this relationship between text/machine and user/player is cybernetic:

Cybertext, . . . is the wide range (or perspective) of possible textualities seen as a typology of machines, as various kinds of literary communication systems where the functional differences among the mechanical parts play a defining role in determining the aesthetic process. [. . .] cybertext shifts the focus from the traditional threesome of author/sender, text/message, and reader/receiver to the cybernetic intercourse between the various part(icipant)s in the textual machine.

(Aarseth 1997: 22)

This understanding of gameplay as a cybernetic loop in which player and game are inseparable for the duration of the game is a compelling literalization of the ontology of the cyborg – a subjectivity that depends precisely on this collapse of boundary between the human and the machine. The figure of player as cyborg has taken root in many of the most recent articulations of player subjectivity but has also been present in some of the earliest work on computers generally and computer games specifically (see, for example, Stone 1991; Huhtamo 1995; Lancaster 2001; Lister *et al.* 2003; Lahti 2003; Giddings and Kennedy 2006). In the lived enactment of gameplay there is no player separate to the interface and game world; there is a fusion of the two into a cyborgian subjectivity – composed of wires, machines, code and flesh. For the duration of the gameplay ‘a new physiological entity is thus constructed from this network of organic and technological parts’ (Lister *et al.* 2003: 374), which although temporary is a meaningful embodied experience.

By understanding gameplay as cybernetic, issues of interactivity and player agency are recast in terms of networks and flows of energy which are entirely interdependent. The player is not outside the game and the game is not outside the player – both are part of a loop through which information and energy flows.

The cybernetic nature of gameplay and the interdependency of game and player is perhaps the feature that distinguishes gameplay most clearly from other kinds of textual consumption or play. The game signals its dependence on the player as (except during cut scenes) the avatar will not move without some action on the part of the player. Significantly though, it must be emphasized that the capabilities, the limits and the possibilities coded into our avatars also determine the range and form of *our* activities – action and reaction are interdependent, with agency flowing through the network in a constant feedback loop. This ‘new physiological’ entity of avatar, machine and player constitutes the cyborg player. For Haraway (1991a) the cyborg is a means of conceptualizing subjectivity which disrupts the myth of the concrete, stable and bounded **subject** of the **Enlightenment** tradition. We see this cast in light of the dissolution of the boundary between player and game – in gameplay there is only player *and* game, inseparable and irreducible.

The complexity of the circuit of machines, code and bodies is further increased when engaging in multiplayer games, whether console-based or online. Playing *Quake* as a clan in multiplayer mode with shared skins developed to provide a collective in-game identity or collectively working together on a quest in *Everquest* are compelling examples of the cybernetic circuit described above. The complexity of this human/machine circuit is startling; the individual players respond to each others’ actions within the game and the process of feedback through which play advances. These instantiations of gameplay invoke Haraway’s notion of ‘networked and collective selves’ (1991a), an idea she offers to celebrate the affiliations and collective identities developed through technological circuits. During gameplay there is no separation of individuals and machines but only a collective process of engagement where action and reaction flow in a circuit of technologized bodies and their pleasures.



## The cyborg *at* the machine

To get into the loop and play a computer game you have to master the interface, from loading the game through to making the settings suit your play style, and at the very extreme, making skins, patches and modifications to the game. This means that at a very basic level, when playing a game on a PC, for instance, you have to be able to make use of a mouse and operate a keyboard simultaneously – these games require that you are adept at the handling of these controls and are incredibly unforgiving of the absolute novice. This description provided by one female player neatly captures some of this complexity:

. . . you have to be able to use the mouse for more than just point and click, you have to sort of be able to use it around in space which is a bit different and it's easy to end up looking at the ceiling or getting stuck in corners and becoming frag bait. Oh, yeah, and your left and right hands are doing totally different things, you've got to really know where all the keys are . . . at first I couldn't get it all sorted out, changing weapons, jumping, moving around and shooting it was all a bit much and my mouse hand would be doing one thing and I'd have to look at the keyboard to try and find the right keys . . . then after a while it all sort of clicks and you're just staring at the screen and your hands are going like crazy and you just sort of do it all on automatic and you feel like it's you in there, sneaking round corners and fragging that poor little eyeball on legs to bits . . .

(Xena, *Quake* player interview)

Console games are no different in this regard. They require a skilful operation and manipulation of the artefacts and components that make up the interface. In order to play online in a multiplayer game you will also be required to navigate through the web to find a server and choose a level to play that is active – each step requiring you to operate the computer with some skill and proficiency. If you want the play experience to last for any significant length of time, you have to be a reasonably proficient player. The process through which you acquire a level of proficiency which enables you to engage with and manipulate the components of the interface without conscious thought takes time and a great deal of repetition. Until this point the machinery and the interface can be experienced as alien, as obdurate and unfriendly objects. In the initial stages of gameplay the agency of the designers of both the code and the machine are experienced as a malign force in direct antagonistic conflict with your own pleasure. The embodied player, in order to play at all, has to adapt to the various physical competencies expected and *preferred* by the game – the precise coordination of hands in relation to an unfamiliar controller which may feel awkward; too big or too small, too responsive or not responsive enough; the speed of reaction in response to game world events; relating appropriate controller buttons to specific in-game actions. The player is required to become habituated with touching and handling unfamiliar bits of plastic and rubber, to cope with the discomfort of sore thumbs and aching wrists after

extended gameplay. For the cybernetic feedback loop to come into existence at all, for the player/game cyborg to be available as a lived experience, these objects and obstacles have to be adapted to and appropriated into our available repertoire of bodily behaviours and aptitudes.

These cybernetic processes take place within a material context, the space and time of play. So, for instance, the soundscapes of the material world also have their role to play in the experience of the cyborg at the machine. Whether playing on a crowded bus, in a noisy arcade, in a busy and social living room space or a darkened bedroom, these provide the physical context for the body engaged in the circuit and also shape how the gameplay is experienced.

### The cyborg *in* the machine

Through [the] generation of space in response to movements of the body, VR technology offers a dramatization of phenomenological doctrine. As Merleau-Ponty writes, ‘far from my body’s being for me no more than a fragment of space, there would be no space at all for me if I had no body’ (*Phenomenology of Perception*, 102).

(Ryan 2001a: 74)

Computer games are not only populated by ‘cyborgs’ in the form of technologized superbeings and monstrous hybrids, but they also produce the gameplayer *as* cyborg. The second critical aspect of our cyborgian subjectivity is the way in which we are embodied in the game world. This means paying attention to ‘sensorial representation in the game-world, the [experience and] pleasure of modern games is as much a matter of “being there” as a matter of “doing things” ’ (Ryan 2001a: 309). The sensorial aspect of computer games is both game and genre specific. Here we will look at some exemplary aspects of two very distinct gameplay experiences – playing *The Chronicles of Riddick: Escape from Butcher Bay* (Vivendi Universal 2004) and playing *Eye Toy: Play* (Sony Computer Entertainment 2003). These examples can never adequately capture the range of different kinds of gameplay experience available, but the discussion below offers some sense of the form of attention that we might bring to individual games in an exploration of the issues set out above.

In *The Chronicles of Riddick* the player is embodied in the game as a particular actor (Vin Diesel), whose proto-filmic representation in the game displays the very cutting edge of technical possibilities of character ‘realism’ (according to the aesthetics of speed and memory discussed in Chapter 3). Vin Diesel also voices the avatar, contributing to this perceived ‘realism’. As the player moves around the space in first person mode, their sense of presence in the game world is communicated through specific kinds of sensorial feedback. First, there is the fluidity and responsiveness of the controller in manoeuvring the avatar around the exquisitely rendered navigable spaces

of the game. The player perspective is consistent with the height of the avatar, and the space as rendered in response to the avatar's movements appears seamlessly. Our avatar (Vin) casts a shadow that precedes us through the space and climbs eerily up walls in a consistent and realistic response to changes in the way lighting is generated in the game. In contrast to many other first person games, when we look down we can see our feet on the ground and if we raise our fists we see a proportion of our arms as well.

During gameplay our avatar's movements are accompanied by a soundscape encompassing breathing noises, footsteps and grunts, alongside the sounds appropriate to aspects of the game environment – dripping water, mechanical grindings of lifts and other objects and machinery in the game world. There is also a soundtrack which is carefully managed to reflect moments of intense or relatively infrequent action; upcoming moments of combat, or avatar endangerment are always signalled by music appropriate to moments of tension and action derived from cinematic soundtracks. These sounds provoke an immediate response in the player in terms of accelerated heart-rate, jolts of fear and an increase in adrenalin (frequently accompanied by sweating palms). In fight sequences, blows to the body of the avatar are echoed through the **rumble feature** in the Xbox controller. If hit in the head the avatar's point of view alters to reflect the blow, communicating the experience to the player in three ways as a sonic, a **haptic** and a visual event. The complexity of the sensorial feedback often produces sympathetic movements on the part of the player as they flinch and dodge unnecessarily in response to game events.

Importantly though, after a couple of hours of play, the avatar is no longer the game created Vin Diesel – the avatar has become the cyborgian representation of Vin Diesel and the player's actions in the game. By this time the avatar is represented not only as a save point that can be returned to but also in the form of new kinds of equipment, completed tasks and access to different spaces in the game world which were not available at the outset. Similarly, the player is also altered by the experience of the gameplay and now has a repertoire of capabilities and affective experiences to draw from in future gameplay.

Sony's *Eye Toy: Play* – and more recently *Play 2* (2004) – attempts to literalize this sense of 'being in the gameworld' through the use of a camera which projects the player's image 'onto the screen and into the game. The games ask the player to do something simple, like box a robot or wash a window. They do this by boxing the robot or washing the window' (*Edge* 2003, 126: 98). *Play* has 12 different games which require different actions on the part of the player – mimicking the rhythmic dance moves of a non-playable character (NPC) in time to music, spinning plates, setting off fireworks, delivering kung fu style hand movements to defeat tiny attacking NPCs (in this game you appear as a monstrous giant in a lilliputian landscape).

The experiential nature of these mini-games is, of course, different to the experience of playing *Chronicles* – we have a two-dimensional representation of ourselves in the game space and the game responds to whole-body movements. Again, the game

responds to player actions with relevant sounds and actions in the game – a player’s handstroke causes a tiny ninja to fly across the screen with a satisfying ‘thwack’, for example. At the end of the session a player is likely to be experiencing the effects of a couple of hours of steady exercise, including aching limbs, muscle fatigue and dizziness. (Although an adept player can learn quite quickly to minimize their own movements and still achieve the desired effect in the game.) *Eye Toy* has also had a very broad appeal as it does not require the manipulation of complex and unfamiliar controllers (the advertising campaign and the in-game tutorial feature an older woman to signal this). If you have a body that can dance, throw punches or wash windows, you can instantly participate in the gameplay experience.

There are also two recent games that attempt to literalize player activity through the avatar in ways that build on Lionhead’s *Black and White* (Electronic Arts 2001). Here the avatar changes and develops depending not only on how well you play the game but also on your *style* of play. As the name implies, *Black and White* pioneered a Manichaean avatar development profile in which the avatar became an ‘evil’ or a ‘good’ game world presence which was then reflected in the physical appearance of the avatar. In *Grand Theft Auto: San Andreas* (Rockstar 2004), your avatar will be lumpy, bearded and shaggy haired depending on whether or not you visit the gym or the barbers. In the Xbox role-playing game *Fable* (Lionhead 2004), your character will be defined in relation to a specific moral code, depending on the choices you make and the actions you perform as you play. NPCs will respond to you with hostility or you can be barred from particular spaces or activities if your play style has been deemed ‘evil’.

Other kinds of games will involve other kinds of affective embodied experience, but the critical aspects will be the same – the experience will be fed back to the player through a combination of these haptic, sonic and visual cues, leading to a growing sense of ‘being’ in the game. When players talk about their game experiences they invariably use the first person, ‘I went here, I did that, I got stuck, etc’. The feedback loops we have analysed above literally give us the feeling of being ‘in’ the game. The nature of sonic, haptic and visual feedback is an essential component of understanding the distinctiveness of particular genres of gameplay experience and will be different and distinct depending on the game being analysed. There will be a high degree of differentiation in the experience of strategy games, puzzle games, first person shooter games, through to the complexities of massively multiplayer online role-playing games.

## Gameplay and technicity

In Chapter 4 we used the notion of technicity to argue for the centrality of particular kinds of attitudes, aptitudes and skill, with technology as a fundamental aspect of contemporary subjectivities. This technicity emerges again as a critical aspect of this cyborgian subjectivity. Here technicity encompasses not just a set of tastes or

attitudes but also very specific kinds of skill (or competencies) in relation to technology. Those who are actively engaged with trying to improve female access to technology have focused on computer games as a critical means through which to foster technological competence (Cassell and Jenkins 1999; ACM Proceedings 2001; Laurel 2001; Graner Ray 2003).

A similar discourse of access operates amongst the key figures who have been actively involved in the female *Quake* community. Vangie 'Aurora' Beal, who ran the 'gamegirlz' online resource and played in Clan PMS (Psycho Men Slayers), here makes a fairly typical statement enunciating a firm belief in this set of connections between play, technology and technological competence: 'Girls will start off working with computers by playing fun games and will end up being able to fully compete with men in tech skills. Now that's something I like to be encouraging' (Cassell and Jenkins 1999: 328). Computer game play is thus argued to be a critical site for the production, development and display of this culturally valued technicity. This player is just one example among many for whom their gameplay becomes the jumping off point for a greater engagement with technology in general:

It really made me want to learn how to use graphics on the computer – I had never thought that I could or that I would ever be interested, I'd done some online chatting, used the computer for emails and played some free web games and stuff but I had never thought of myself as any good with computers . . . A friend is teaching me how to use Photoshop on his computer and when I'm okay I'm going to try to do a really good skin and stick it up on the web.

(Supergirl, *Quake* player interviews)

Our technicity conditions our access to gameplay and is also further developed through gameplay, through trial and error and through the accomplishment of increasingly difficult tasks and manoeuvres. It may then progress through other game-related practices such as skinning, modding and fan practices. As educationalist J. P. Gee (2003) has persuasively argued, computer games teach us *how* to play *as* we play – managing and directing our use of the controller and directing our movements around the game world, feeding back to the player their growing expertise (or continuously signalling our failure to develop the appropriate competencies). Gee's use of cognitive science usefully illuminates this sense of learnt technicities:

Each level dances around the outer limits of the player's abilities, seeking at every point to be hard enough to be just doable. In cognitive science, this is referred to as the regime of competence principle, which results in a feeling of simultaneous pleasure and frustration.

(Gee 2003: 70)

Some games fail in this regard, or produce too much frustration, or introduce arbitrary barriers to progress in the game, so that we give up the challenge (as is true of any learning situation), leading to depression and anger.

Gameplay is therefore an experience that requires, develops and reflects back a particular kind of technicity. It also affords opportunities for displaying and gaining recognition for this in social gaming, multiplayer games, at LAN parties, over networks in cybercafes, or at the extreme, as a cyberathlete taking part in tournaments against other players. In other words, it affords access to specific kinds of cultural and potentially economic capital. When describing what they enjoy about *Quake*, players use terms such as ‘athleticism’, ‘balance’, ‘coordination’ and ‘taking risks’ in such a way as to suggest that the cyborgian nature of gameplay is experienced as a set of embodied pleasures. Although it is the avatar that performs these feats of athleticism or coordination within the game space, it is the player’s skill in controlling the interface that shapes this performance. Even in single player mode, games such as *Quake* can reflect back to the player their own developing skill and competence:

I really like the way the other bots in the game respond to how well you are doing – they get really narked if you win and say things like ‘let’s all gang up and kill “tankgirl” next time’ or the machine says ‘excellent’ when you frag a couple of bots in a row. I know it sounds a bit, I don’t know, but it makes me feel really good and I feel like I’m really there.

(Tankgirl, *Quake* player interviews)

Different games handle this feedback to the player differently. This can include a very basic ‘highest score’ rating in arcade games, where the player plays not only against the particular game itself but also against frequently unknown other players in an attempt to get their name on the ‘board’ of highest scores. Most fighting games include named sequences of moves (requiring particular speed, dexterity and coordination in the movement of fingers on buttons) which demonstrate particular levels of skill – for example, *Mortal Kombat* (Acclaim 1993 for Nintendo) or *Tekken* (Namco 1996 for Playstation). Games award experience points (or XP), according to how well a mission is completed or how many objects are collected, or assign a rating to the performance of a particular level. Many games will incorporate a range of these; *The Lord of the Rings* games, for example, include both a move rating – the best being ‘perfect’ – and a level rating. These ratings offer motivations and rewards for playing, but critically they also serve to reflect the player’s skill in manipulating the interface and provide a sense of avatar ownership. The idea of technicity as *simultaneously* performed and developed through gameplay allows us to step outside the cybernetic processes in order to reflect on the social and cultural significance of this performed cyborgian subjectivity.

### Gameplay as cyborg performance

In our play we spend an enormous amount of time refining the tactics that will ‘bring us into alignment’ with the strategy encoded within the game. This refinement

of tactics becomes the ‘preferred performance’ that the game seems to demand of us. A perfected level run in which every activity is perfectly timed and economically executed is as pleasurable as hitting the sweet spot on a forehand drive or a carefully plotted checkmate. The desire to achieve this preferred performance goes some way to explaining the extraordinary phenomenon of repetition in gameplay – no other kind of cultural consumption requires this kind of repetition. Instead we find it in cultural activities where musicians or sports players are called upon time and again to repeat actions in order to achieve a preferred performance or a kind of virtuosity.

For experienced and adept players, gameplay *can* give rise to extraordinary cyborgian virtuoso performances, speed and dexterity in managing the interface in console games, through complex physical movements perfectly in time with the demands of the machine in dance or beatmania games. Sony’s *Singstar* (2004) requires performances of voice; Eye Toy games and titles like *Parappa the Rapper* require highly coordinated physical performances that respond to the script provided by the machine. Driving and shooting games require yet another kind of interface control virtuosity. Cyberathlete performances extend the applicability of the idea of gameplay as performance, in that they also attract an audience who watch their gameplay live on large screens. But even in a casual social setting, or in arcades, virtuoso performances are frequently watched and admired as a kind of performance spectacle.

This performance is more than a cognitive reading/interpretative process – it is also a process of manual dexterity, interface control, timing, memory and elegance. In this respect the game ‘text’, the sum of data encoded in the software that can be played in a variety of ways, becomes something very like the definition offered by performance theorist Richard Schechner: ‘The text, where it exists, is understood as a key to action, not its replacement’ (1988b: 28). Every gameplay experience is a live performance, using the set, characters and props provided by the game environment. For Schechner the script for a performance is like the rules of the game (1988: 101); it does not delimit or constrain action with any precision but suggests the same general kind of action. In this sense the application of the idea of performance echoes Murray’s remarks on agency in interactive fiction experiences:

In electronic narrative the procedural author is like a choreographer who supplies the rhythms, the context, and the set of steps that will be performed. The interactor, whether as navigator, protagonist, explorer or builder, makes use of this repertoire of possible steps and rhythms to improvise a particular dance among the many, many possible dances the author has enabled.

(Murray 1997: 153)

Understanding gameplay as a performance allows us to consider further the way in which these ‘other cyborgian selves’ that we perform in our play have an important personal, social and cultural significance.

## Cyborg performances and playful selves

The performed selves made possible by the cybernetic process of gameplay offer us the opportunity to explore alternative subjectivities and to engage in different kinds of affective experience, where embodiment and possibilities are defined by different rules to those imposed in real life. Through these highly differentiated, heterogeneous and playful subjectivities we can experience the thrills of agonistic conflict lived through mechanized hard bodies in games like those in the *Quake* series, *Unreal Tournament* (GT Interactive 1999) and the *Doom* series. We can perform as a kick-ass supervixen against AI-generated NPCs, or against other live subjects in multiplayer contests where the lived differentials of embodiment are levelled out and technicities take over. Once we gain access to these worlds, the possible protean selves are multiple and heterogeneous. In multiplayer role playing we can imagine a world without our existing racial hierarchies and experience inclusion and affiliation on the basis of technicity alone – unsullied by ethnic, gender or class prejudices, or disabilities. Although, as we have seen in Chapter 5, these can be imported into the game world through the imagery used in the game or through players' attitudes to each other, importantly they are not part of the rule set of possible actions within the game. We can role play racial aggressor as a dwarf in pursuit of the elves, often offering complex ways of appreciating the arbitrary and constructed nature of interracial conflict, as fantasy alien clans and species are pitted against one another purely to provide the context for agonistic play. In *Everquest* the choice of role will affect the kind of experience you will have in the game:

Users can choose to be a barbarian, dark elf, dwarf, erudite, gnome, half elf, halfling, high elf, human, iksar, ogre, troll, wood elf, and vah shir. Each 'race' has its own starting point in the lands of *EQ* and comes with particular advantages and disadvantages. For example, gnomes are not able to carry very much weight but they are endowed with particularly good night vision. The decision users make about what class they will play is equally important due to the fact that it shapes in a very deep way the nature of their experience.

(Taylor 2003: 23)

In Chapter 5 we saw the importance of the spatial dimension of gameplay pleasure and the potential 'freedom of movement' offered within game worlds (Jenkins 1999). In Taylor's study of women players, this access to space emerges not only as a specific pleasure of gameplay but also as a means through which to experience a sense of agency and mastery not necessarily available in their everyday lives. Critically, this agency and mastery are produced through a set of processes and technologies that are, as we argued in Chapter 4, culturally coded as masculine. In the context of gameplay it is technicity, not ethnicity, gender or age, that determines inclusion and participation. On the basis of extensive online player ethnography, Taylor argues that:



While both the landscape and its creatures might threaten the explorer, in the game space this threat is not based upon gender. Unlike the ‘real world’ in which gender often plays a significant role in not only the perception of one’s safety, but its actuality, in *EverQuest* women may travel knowing they are no more threatened by the creatures of the world than their male counterparts are. Because of this gender-neutral approach to threat and safety, there is a kind of freedom of movement afforded that women often don’t generally have access to otherwise. It is also the case that as one levels and obtains greater mastery of the game space, zones of free exploration are broadened.

(Taylor 2003: 31–2)

These meaningful affective experiences performed through and with our virtual body (the avatar) in the virtual spaces of persistent worlds contribute significantly to the experiences we can draw on in our perception of self. The cyborg self in gameplay enables us to reflect on the arbitrary or unjust nature of limitations experienced by the material body in everyday life, or in contrast to the dominant representations of femininity that form a ubiquitous part of our cultural landscape.

### Cyborgian heterotopias

As we have already discussed in Chapter 4, Haraway’s cyborg was explicitly invoked for specifically radical feminist purposes, and yet we have seen how this cyborgian identity is frequently cast as a specifically masculine man/machine hybrid (both in fictional representations – as demonstrated so persuasively by Springer (1996) – and in the new mythologies of the idealized designers). Despite these dominant representations of cyborg subjectivity, we also see that through the experience of gameplay there is simultaneously a proliferation of heterogeneous subject positions, playful experimentation and boundary exploring. Haraway argues that:

... cyborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves ... [and provide] a powerful infidel heteroglossia. It is an imagination of a feminist speaking in tongues to strike fear ... It means both building and destroying machines, identities, categories, relationships, spaces, stories.

(Haraway 1991a: 223)

In the evidence gathered by Taylor in her study of female *Everquest* players and in the experiences described by the female *Quake* players, we see just such processes in play:

While gender swapping is also certainly something that occurs in *EQ*, one of the more interesting aspects to consider is the way the game may allow access to gender identities that are often socially prohibited or delegitimised offline – simultaneously sexy and powerful or masculine and beautiful identities. Women

in *EverQuest* are constantly engaged in playing with traditional notions of femininity and reformulate gender identities through aspects of the space that are directly tied to its nature as a game.

(Taylor 2003: 27)

These fantasy constructions of identity offer an exploration of alternative subjectivities, in which being feminine doesn't necessarily equal being a victim or needing rescuing. New imagery is generated as well as differentiated subjectivities that undermine dominant notions of femininity and female technocompetence.

Many of these women articulate a strong sense of pleasure in surprising male players with their competence and skill when playing online or over LAN connections. They are aware that they are not expected to be good at these games and gain enormous satisfaction in flouting convention. In this typical response, the player first encountered *Quake* with a group of male friends at a cybercafe, became hooked, bought the game to practise at home and then subsequently had the opportunity to play against the same group of male players: 'Next time we played together over a lan I held up my end and I could see that the blokes were really surprised and even a bit fed up that I was "fragging" them so successfully . . . I LOVED IT!' (Amanda/Xena, *Quake* interviews).

These female players who take pleasure in the mastery of game, which is seen as requiring skills that are clearly demarcated as masculine, are aware of the transgressive nature of their pleasure. Respondents will describe themselves as having always 'been tomboys' or never liking 'girly stuff'. They demonstrate a full awareness of the fact that playing these games is not something 'good girls' should do and also resolutely reject the discourse of appropriate feminine behaviour, simultaneously aware of a discourse that positions them as abnormal whilst also insisting that they *are* normal. So they will say, 'I know loads of other girls or women who like the same things as me' or 'I'm just the same as everyone else, I just happen to like games where I get to "frag" things rather than stupid games about dolls or cute animals.' Or, 'it's the advertising of games that makes it seem like women don't play – they do play these games all over the place and they are all kinds of women too – housewives, teachers, office workers, students like me, it's just you never see them or hear about them'. These differentiated practices and subjectivities should be seen as remaining faithful to Haraway's original hopes for the cyborg as both a productive metaphor and as a lived experience – an agenda that seeks to offer new images of technologized embodiment *and* to foster an active engagement with technology amongst women.

## Conclusion

In order to analyse and understand gameplay it is essential to attend to the issues raised above, and this will require developing methodologies which are appropriate to the

study of cybernetic systems. Gameplay cannot be understood by recourse solely to the game itself, but has to be understood through careful attention to it as a materially, temporally and spatially determined process and as a culturally meaningful experience and performance. Ten years on, it appears that Cameron was remarkably prescient in his anticipation of the ways in which the dynamic simulations of games and our performances of them will have to draw from disparate and apparently unsympathetic theories: ‘An as yet unformulated critical approach to the simulation will probably be informed by **cybernetics**, **architecture** and the **theatre**’ (Cameron 1995, our emphasis). To this we would want to add play theory (in all its many guises), as well as the semiotic and critical theories already familiar to us within Cultural and Media Studies.

We will end with a set of critical questions that draws from the issues raised in both this chapter and Chapter 5. These questions should work to shape the forms of attention which are brought to bear on a wide variety of different game analyses which seek to do justice to the lived materiality of gameplay, to the meanings afforded to gameplay experience by the players themselves, and how gameplay experience is also productive of subjectivities appropriate to contemporary technoculture. Whilst no single piece of critical work could address all of these questions at once, we offer these areas of inquiry as a way of beginning to build an analytic framework for Game Studies:

1. What kind of game is it? Here we have to think about the issue of genre – is the game a first person shooter game, a role-playing game, a massively multiplayer online game, a puzzle game, an adventure game, a simulation game, or a combination of these? This starting point should begin to tell us something about the role of the player, as in each case there is an existing convention for player participation in the game which will either be upheld or form the basis for deviation in each specific game.
2. What kind of economic, technological and cultural determinations have been brought to bear upon the game during its production history? How did the game come to be as it is? Blockbuster franchised games like *Harry Potter* are likely to be of quite a different character to an independently produced artist’s game.
3. What is the game platform – PC, handheld, GameCube, Playstation, Xbox, mobile phone, arcade, online? This question will help us to think about the kinds of bodily activities required of the player. The proximity to the screen, the size and nature of the interface, and the range of technologies involved in the interface all affect the body in gameplay. What prior expertise is assumed/required in order to play the game? Is this a question of genre or a question of technology, or a combination of both? Playing a first person shooter on the Xbox is quite a different experience to playing the same game on a computer or in an arcade.
4. What does the game ask us to do? What are its winning and losing states? What kinds of rules operate to produce game outcomes? What can we do within that rule set? What constraints and affordances does the rule set provide? How might cheating affect our experience of the rule set? Given the rule set as a layered set of

missions or tasks, from the overall game mission to a series of micro tasks, what kinds of preferred performance might a player aim for and the designers expect or anticipate?

5. To what extent are the player's actions wholly or partially determined by the game – how open or closed is the game system? Some games have very narrow limits for player action and player movement within the space. How is this action limited/controlled, guided? What techniques are used to control the behaviour? In the *Doom* titles, for example, it is part of the game design (and functions as a part of the game world) that we will be moving principally through rather narrow corridors with little or no room for exploration on the part of the player. Still others set up an apparently more expansive and open universe (but still limited for all that) for the player to inhabit, such as Rockstar's *Grand Theft Auto* series.
6. How does the game represent the player? Are we a cursor, a figurative snake, a small furry animal, a recognizably humanoid character, an alien? What feedback is provided on the performance of the avatar? Does the game speak to us directly? If so, how does it do this? In *Halo 2* (Bungie 2005), for example, the game incorporates training in the controls as part of the narrative in such a way as to make becoming familiar with them seem a natural part of the game events. In the *Ratchet & Clank* (Sony Computer Entertainment 2002) series of games, for instance, the guide book addresses the player as Ratchet and presents instructions and information on the controls and options as part of a mission brief.
7. How is the player's performance in the game fed back to the player? This would have to include the haptic devices that provide sensory feedback, but would also extend to how progress and performance are represented in the game. This might be in terms of avatar transformation, in the form of **XP** at minimum, but ranging through to physical transformations or new capabilities in the game which are all a direct result of our playing experience. In the two examples we cite above (*Fable* and *Grand Theft Auto: San Andreas*), there are obviously very clear ways in which our play performance becomes embodied in the avatar. However, all games afford some kind of representation of the play performance because of the *interdependency* of all gameplay events.
8. What meanings are attached to gameplay by the players themselves? What evidence is there of communities developing around gameplay, and how are these formed and experienced by the players? What networks of support and affiliation are there that support particular kinds of gameplay preferences and experiences? What role does gameplay serve in the creation of social events – informal gaming parties, LAN parties, online in-game gatherings, performances and celebrations? How do players draw from their gameplay experiences in their everyday life? What practices do they participate in which relate to or draw from gameplay – participation in discussion lists, talking about gameplay with friends, building stories around gameplay and other fan-type practices? What evidence is there for differentiated playing styles or experiences? Do these differ according to gender, age, 'race', location, duration?

What appear to be the wider referential meanings produced by the game as a text, and as a form of play, that therefore have specific relations with the culture as a whole?

### Further reading

- Haraway, D. (1991) A Cyborg Manifesto: Science Technology and Socialist Feminism in the Late Twentieth Century, in Haraway, D., *Simians, Cyborgs and Women: The Reinvention of Nature*. London: Free Association Books.
- Lahti, M. (2003) As We Become Machines: Corporealized Pleasures in Video Games, in Wolf, M. J. P. and Perron, B. (eds) *The Video Game Theory Reader*. London: Routledge.
- Ryan, Marie-Laure (2001) *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*. Maryland: Johns Hopkins University Press.
- Taylor, T. L. (2003) Multiple Pleasures: Women and Online Gaming, *Convergence*, 9(1): 21–46.
- Utterbeck, Camille (2004) Unusual Positions: Embodied Interaction with Symbolic Spaces, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA and London: MIT Press.

The old rhetoric of opposition and cooptation assumed a world where consumers had little direct power to shape media content and where there were enormous barriers to entry into the marketplace, where-as the new digital environment expands their power to archive, annotate, appropriate, and recirculate media products.

(Jenkins 2003a)

### Computer games as co-creative media

We have argued in previous chapters that computer games are largely the product of ‘dominant technicities’ working within the ambit of very sophisticated, tightly organized industries that are ‘risk averse’. In this chapter we want to draw attention to the wide range of production practices that arise from inside player communities themselves. We will argue that these practices constitute interventions that *could* create a more diverse and culturally enriched medium. In this respect computer games can be seen as prototypical of new media economies insofar as they are an excellent example of the shift from a participatory media culture (see Jenkins 1992) to what games theorist Sue Morris, talking about FPS games, has termed a ‘co-creative’ media form:

While the concept of ‘participatory culture’ is familiar from research into television fan communities, I would argue that multiplayer FPS games are ‘co creative media’; neither developers nor player creators can be solely responsible for production of the final assemblage regarded as the ‘the game’, it requires input from both.

(Morris 2003)

This aspect of computer game cultures offers a very significant limit case which affords us empirical evidence into the shifting relationships between media producers

and consumers at the beginning of the twenty-first century. Cultural and Media Studies' conceptualization of audiences has travelled a 30-year path from spectatorship, through active audience theory, to the model of participatory audiences established through studies of fan cultures (see, for example, Dickinson *et al.* 1998; Jenkins 1992; Tulloch 2000; Hills 2002). The dissemination of digital media communication has offered media audiences a wide variety of participatory social spaces and sites for producerly activities. These activities were first identified by the tradition of Computer Media Communications study (see, for example, Stone 1995; Jones 1998). Lister *et al.* extend this work into theorizing the shift to productive possibility occasioned by the web (2003: 166–86):

Every message to a bulletin board or conversation in a chat room, every homepage or downloaded MP3 home music compilation facilitates the individual communicating in a pseudo – public sphere mode of address. What is clear is that a great deal of web use facilitates a feeling of participation in media space.

(Lister *et al.* 2003: 185)

In this reading, the increasingly interactive audience is constructed as being part of an ever more intimate feedback loop with media producers. Just as the interactive author has to give away complete textual control to the interactor, so media industries at large recognize that consumers' participation in the 'intermedial' landscape must inform their own production processes. The understanding of media audiences as having a 'configurative' relationship with media texts of all kinds, developed by Moulthrop and others, is a *claim* that is fast becoming a central quality of the discourse of new media. The Jenkins quotation at the start of this chapter represents an influential and typical position that argues for new media 'opening up' as we are enabled to 'archive, annotate, appropriate, and recirculate media products' (Jenkins 2003a).

One way to understand this new agency of the media consumer is through recourse to play theory as a model for audience/text relationships. That is to say, to return to the use of Winnicott made by Silverstone and Hills (see Chapter 2), in which fan engagements with media worlds, far from representing an unhealthy retreat from social subjectivity 'can be theorised as a form of good health' (Hills 2002: 112). This is a compellingly seductive position in many respects – however, we would want to hold onto the context of political economy in order to understand it fully. Corporate media's new 'embrace' of playful fan cultures can also be seen as an extension of the business practice of '360 degree marketing' and 'just-in-time' management techniques, in which enterprises strive to be constantly in touch with consumer behaviour in order to inform production and marketing decisions. These business practices were reflected in books like Hagel and Armstrong's *Net Gain* (1997), which sought to teach business leaders how to use the web not just for e-commerce, but to build 'communities' around specific brands through drawing consumers into 'sticky' websites. Moreover, as we shall see, the 'co creative' activities of game communities require a fairly advanced level of technical skill; we have also therefore to ask what kinds of 'technicity' are being

exercised here? If we go to co creative media processes looking for diversity, inclusion and innovation, then we need to develop a critical language that goes beyond the mere celebration of fan communities and enables us to make specific distinctions between different kinds of interventions.

### Aspiration, tributes and tactics

In 2001, one of the main industry gatherings, the Game Developers Conference, gave the game *Counterstrike* (Sierra 2000) its Rookie Studio Award and its Game Spotlight Award. The game has sold over a million copies despite always being available as a legally free download; it has spawned a huge online user community since its release in 2000 (see Boria *et al.* 2002). *Counterstrike* is a team-based terrorist/counter-terrorist game with a real world referentiality that sets it apart from some of the other more fantastic or sci-fi FPS games. However, the notable aspect of *Counterstrike* is that it was produced not by a major games studio, but by a group of ‘player creators’. Led by Canadian student Minh ‘Gooseman’ Le, a team of game enthusiasts created *Counterstrike* from the *Half Life* game engine. It is a ‘total conversion mod’, a modification of the original artefact in which an entirely new and different game is created from software written by Valve’s programmers for their 1998 *Half Life* (which in turn was based on the *Quake* game engine). It would be a mistake to romanticize Minh Le and his team as a bunch of lucky/talented amateurs; here the distinction between amateur and professional (developer) begins to break down; the *Counterstrike* production project was a highly skilled, focused collective effort that is typical of the shareware culture that underpinned the development of computer software in its early days and of the internet throughout its history. Nor were the *Counterstrike* team unknowns – the game first saw the light of day at the Half Life Mod Expo, an event funded by Valve to showcase the best and most interesting modifications of their game being made by these ‘player creators’.

This player creativity takes many forms. Rebecca Cannon, Australian games activist, took the setting and characters from *Quake Arena* and used them to create a hilarious artwork, *The Buff and the Brutal*, which she describes as ‘. . . a soap-opera parody. In it the very tough, mutant characters of “Quake 3 Arena” become emotionally vulnerable, jealous, gay lovers caught in an intricate web of treachery and deceit. Fragging is synonymous with sex, linking in-game pleasure/pain responses to S&M sexuality’ (Cannon 2004, online).

We are in a familiar FPS dungeon world with massively armoured avatars toting huge weapons, but the soundtrack is not quite what we might expect:

‘Hello there Razor, you’re looking sharp.’

‘Hi Anarchy, you’re more fraggable than ever and I’m not the only one who thinks so.’



‘Does someone else have a crush on me?’

‘Apparently the Major just slaughtered Ranger, again, but before he went down, apparently he swore undying love for you.’

*The Buff and the Brutal* is a piece of machinema – a new form of graphic animation that has been developed by computer game fans and artists. It uses the facility of a game to record its own playing; these recordings can then be stored as video sequences that can be edited and revoiced in the usual way. Again, machinema is a form of media production that arises from fan engagements, practices that begin with enthusiastic play and occasionally lead on to production. Fan art production creates a sprawling, vibrant diversity of creative responses to games, from obsessively re-drawing your favourite characters for web posting, to creating alternative ‘skins’ or satirical S&M fantasies.

The range of co-creative possibilities opened up in game cultures may also take on a more overtly critical political position. Just as the US military is able to use games as a recruitment and training tool (see van der Graaf and Nieborg 2003), so we begin to see oppositional groups use the potential of games to offer a powerful way of creating counter propaganda. In the Australian game *Escape from Woomera* (EFW 2004), the player finds herself in a graphic representation of the infamous detention centre for asylum seekers established in the South Australian desert. The avatar informs us at once that he is going crazy in the prison conditions. There must be a way out, which we set out to discover. The game uses pull down dialogue menus between the characters, rather than fast-paced explosive FPS action, as we collaborate with our fellow inmates in order to find the resources to make a breakout attempt.

In 2001/02, the conditions in the actual Woomera camp had become a national scandal in Australia, with frequent hunger strikes and famously a mass breakout in 2002. Remarkably, the development team were awarded a A\$15000 grant from the Australia Council to support the production – a recognition by a far-sighted arts funding body that games design should be supported in the same way as other art and media practices, especially if critical voices and localized industries are to develop. Again, this game is a total conversion from the *Half Life* engine, but undertaken for completely different ends to the *Counterstrike* example above.

These three examples, *Countersrike*, *The Buff and the Brutal*, and *Escape from Woomera*, serve to illustrate the variety of work that is possible as players become the ‘co creators’ of computer game cultures, offering paradigmatic prototypes for the different relationships between producer and consumer made possible by new media. In what follows, we argue for a broad classification of this work through its intention – what do the creators of the work want it to do in the world?

- Aspiring independent game producers – the ‘independent’ media production tag is itself a complex designation. In film, music and now games it is used to describe enterprises which attempt to maintain financial and creative control of their products. In game cultures it might cover anything from financially independent

studios to groups of hobbyist shareware programmers. We use the classification here specifically to refer to those elements of player communities who share the aim of breaking into the industry to produce commercially successful games or gameplay software.

- Fan art – work produced by the player that is primarily designed to display the creator’s aficionado status as regards the game, work that Schott and Burn (2003) have called ‘tribute’ art. This might cover anything from drawings, making skins, to the vast majority of game modifications in which displays of expertise and appreciation are more important creative drivers than commercial success.
- Mod art – work in which the software and hardware platforms of computer game culture become tools for fine artists in the tradition of media and computer arts. The cultural significance of the computer game can be gauged as much by its increasing appearance in art galleries as by its economic success.
- Tactical media – work that actively seeks to use game forms and tools to make critical, subversive and oppositional works that both critique mainstream game practices and have comments to make about the wider social and political world. The entrance of game software into fine art practices have to date been characterized by this critical edge.

In practice no such set of classifications can be hermetic; in reality these ‘classes’ of player creator activity overlap, co-inform and support one another.

### Productive paradox – women and *Quake*

The case study of women *Quake* players as producers serves to illustrate how intention to be aspirant producer, fan, artist and tactical commentator all in fact overlap, informing one another in complex new discourses of critique and participation. Female *Quake* players have deployed a sometimes contradictory feminist discourse in the articulation of their relationship to the game culture in general. On the one hand, they have produced websites, web pages and formed clans through which to enunciate their outsider status through the naming of these clans and the imagery which inspires their skins. On the other hand, they have clearly expressed a simultaneous desire for full integration and acceptance within the culture more generally. By foregrounding both their ‘femaleness’ and their skill in the game, they offer a different set of meanings to computers, computer games and technicity. By bringing their own bodies or their fantasised bodies to the arena, they disrupt the assumption of a white, male, heterosexual player and avatar.

As a result of the highly gendered culture which surrounds computer games playing, first person shooter games are often seen as the most masculine and the most challenging genre; it created a tremendous stir when Stevie Case – aka KillCreek – a young female game player from Kansas, defeated John Romero in a series of *Quake* Death

Matches in 1998. He was so impressed by her that he created a web shrine to celebrate her prowess. KillCreek's skill and renown attracted a great deal of attention within the *Quake* community, as well as outside – including features on Case in *Rolling Stone* and *Playboy*. KillCreek was subsequently involved in the beta testing for later versions of *Quake*.

Mastering the strategic and technical skills necessary to beat the designer of a game as popular as *Quake* is a significant achievement, and KillCreek remains an icon for other female 'quakers'. KillCreek's success led her to be approached by Angel Munoz, who was the founder of the Cyberathlete Professional League. She was signed up as the first member and competed for 18 months during which she was hailed as a 'torch-bearer' for other female gamers and particularly for those interested in professional competitive gaming. Subsequently, KillCreek was able to make the move into game design; Romero hired her to work for him at Ion Storm when he left id. Commentary from the women in the games community stresses the importance of her symbolic success:

Case was getting all sorts of press and was the basic representative of women in games. I felt that it was a shame that the only woman in the spotlight was a gamer, and not a developer or someone with more influence in the world of game creation. But Stevie Case demonstrated just what it meant to be a woman gamer at the time. It was like she was from outer space, as if aliens had landed.

(Zoe Flower, <http://www.gamegal.com/zoe/flower/zoe5.htm>)

Case's journey from expert player to *Playboy* feature, game developer and Romero's sometime partner precisely illustrates the difficulty of understanding player co-creativity in simple terms of 'resistance or recuperation'. Both processes are occurring simultaneously and the agents involved are being changed through them.

KillCreek and other female quakers also refuse to treat their presence in this gaming community as problematic, but rather treat the gaming community itself as at fault for having excluded them in the first place. They assert a right to belong and to be catered for within this culture. The design decision to include the choice of a female avatar in *Quake 2* is said to have resulted from female *Quake* players creating female avatar skins. The game also focused its advertising campaign around a female player, with the tag line 'I am woman watch me kick ass', which was designed by Debh Eng, another amateur/fan turned professional within the gaming community.

In the following example of Chiq/Milla, we have further evidence of the potential continuity between computer games play and productivity. Chiq is the online/game persona used by another female *Quake* player who has subsequently taken on another identity as a professional 'skinner', recently renamed Milla:

Skinning is the art of creating the images that get wrapped around 3D player character models in 3D games. These images are what gives the mesh a solid, realistic look. A good analogy is if you think of the skin as the paper that goes

around the bamboo frame (mesh) of a chinese lantern. You paint what you want on the paper and the game wraps it around the frame for you based on the mapping the model has with it.

*(www.chiq.net)*

Milla describes her favourite avatar: 'Woods woman/warrior in a post-apocalyptic context. She's flaking rust, greasy and has these damn pesky hoverblades stuck to her feet' (*www.chiq.net*). The imagery used draws heavily from fantasy/science fiction, as well as closely resembling the types of female subjects that have featured in feminist cyberpunk literature. These fantasy constructions of identity offer exploration of alternative subjectivities in which being feminine doesn't necessarily equal being technically incompetent, in need of rescue, or simply the object of male desire.

The ability to play in this masculine context, with an avatar/persona created out of their own fantasies of empowerment, mastery and conquest, appears significant in this transition from consumption to production. These female players have found in computers a means to experience a sense of power, just like the figures discussed in Chapter 4. These examples offer further evidence that playing computer games and technological competence can develop simultaneously and lead to a more direct and active relationship with the game world as creators, not just as consumers. A critical articulation of feminine subjectivity is at work here, at the same time as a desire to display game virtuosity and, if possible, turn these qualities into employment opportunities. All four of our classifications of game cultures' 'co-creativity' above are at work in the KillCreek and Milla examples.

### **From piracy to open systems – configurative practice as brand loyalty?**

The significance of the gradual shift towards consumer as co-creator can be best understood by reference to the fundamental shifts in copyright law which new-media industries are having to develop. Economic power in media industries rests on control of the production and reproduction of media texts; the traditional machinery of copyright is designed to ensure that these texts, the intellectual property, are protected from any kind of reproduction that does not produce a financial return to its owner. In the age of electronic reproduction, the technologies of the photocopier, the audio cassette and the VCR posed particular problems of copyright control for a law originally designed for the reproduction of sheet music, piano rolls, vinyl and celluloid film.

Home tapers, fanzine writers and slash video makers all utilized electronic technologies to repurpose intellectual property as a way of expressing their fan status and beginning the shift from participation to co-creation. However, domestic electronic media technologies like these created problems for the media industries. They created an implicit conflict between the producers of hardware that make media easy to

reproduce and the producers of media software, intellectual property, who need to protect their ownership. This implicit conflict within the systems of production spawned a massive expansion of the business of copyright policing and collection, as legal structures designed to enforce mechanical copyright attempted to cope with the explosion of ‘piracy’ provoked by electronic media technologies. Digital technologies intensified the problem a hundred times by producing media as pure data and breaking the analogue link between the intellectual property and its physical substrate – the photograph, the vinyl disc, the paper page and so on. Here data become infinitely reproducible. This has resulted in media like the web or certain kinds of online gaming being developed on the basis of a very different system of copyright, usually referred to as shareware or open source.

Shareware systems have historically been driven by three overlapping factors. First, the ideological position that ‘information wants to be free’ derived from Californian libertarianism circa 1970 (see Barbrook 1999). This ideology characterized much of the subculture of the development of networked computing throughout the 1970s and 1980s. Second, the material fact that complex systems of computer code benefit by having very many minds attend to them over a limited period – games get debugged by many beta testers because they have far more chance of finding the few bugs in a million lines of code than a few quality control operators. The complexity of digital systems makes cooperative working an obvious method. Finally, shareware also has a cultural driver insofar as it facilitates the display and delight in technical virtuosity that characterizes and maintains certain subcultures which are often predominantly male. Technical expertise can provide the means of exchange for an exclusive male domain of *communitas*. Communities of expert consumers, hackers and modders are usually highly gendered. The oppositional force of the examples of KillCreek and Milla derive precisely from the fact that female players have often been entirely excluded from the communities that form around practices of co-creativity.

The convergence of a shareware ethos with diffusion of digital distribution/production systems has created an entirely unprecedented legal response. As we shall see below, game softwares are now distributed *on the assumption* that players will want to customize them and create their own versions. Up until very recently all such activity would have been viewed as piracy; now, however, we see the evolution of a production system that accommodates the pirate in us all by understanding our ‘configurative practice’ as brand loyalty. Thus all media softwares start to approach the condition of ‘open systems’. Salen and Zimmerman describe games that facilitate the activities of players as producers as ‘open system games’ (2004: 539), drawing our attention to the way in which they echo the open source software movement, as well as functioning as game systems with a ‘set of components that function together across multiple games’ (2004: 546), such as a deck of playing cards. They observe that:

This kind of process requires that the game system designer give up a significant degree of control, as other player designers decide how the game system will be

used in actual games. But this loss of control is ultimately what is so satisfying about designing game systems; as a platform for player driven creativity, a game system is a catalyst for truly transformative and emergent play.

(Salen and Zimmerman 2004: 547)

The history of online gaming and dissemination of games online has many examples of ways in which the game *becomes* a game system that facilitates emergent play behaviour, beginning with players doing things that designers never predicted in a game environment right through to using the game engine and its editing tools as the ‘game system’ that will facilitate new forms of play.

### A brief history of modding

Even before the advent of online gaming the player communities’ tendency to want to ‘tinker under the hood’ manifested itself with total conversion mods like ‘Castle Smurfenstein’, a game that replaced the Nazi enemies of the original Apple II version of *Castle Wolfenstein* with Smurfs from the TV cartoon. The shifting balance of power between authors and users can be seen as having its first major impact in the ‘revolt’ of players against Origin, the developers of Richard Garriot’s *Ultima IV* (Kushner 2003: 169). This was the most sophisticated iteration of Richard Garriot’s *Ultima* world, in which the virtues of compassion, valour, honesty and justice were championed. The online game world, however, was quickly overrun by gamers more used to the worlds of *Doom* and *Quake*, where player-kills were a more reliable measure of success. An online revolt of *Ultima* subscribers eventually spilled over into real life when players organized a class action against the producers on the basis of poor software and poor support for players. The case was thrown out by a judge, who stated that its success ‘would kill online gaming if consumers were allowed this power’ (Kline *et al.* 2003: 162–3). In 1999 Origin closed down the *Ultima* bulletin board sites which they had supported. However, the lesson had been learnt and publishers realized that this kind of player power could be an asset through the cultivation of online fan communities who could be recruited for beta testing, level editing and modding.

These possibilities were foreseen most clearly by Carmack and Romero, the lead designers for *Doom*. When the game was released in 1993, id’s strategy was to release a freeware version on the internet, with access to some of the game, which would encourage users to buy the registered licensed version. The strategy was an astounding success; moreover, id requested that modders only work with the licensed versions of the game, which by and large the player creators did. This is an astonishing new version of intellectual property consumption, benefiting the player by making creative work possible and the company by building brand loyalty and player community.

The modding community can now help to secure the success of a game: ‘[d]isappointment tinged reviews of *Quake III*, while often nonplussed with the actual content

of the game proper, insisted it was worth buying for the support it would inevitably receive from the mod community' (*Edge Magazine* 2003, 126: 58). Valve's *Quake* appeared in 1996, followed shortly by level editors, and in 1997 it made *all the Doom* source code available online. In the same period, 19-year-old Ben Morris from Canada developed 'Worldcraft' (1996), a level editor and mod creation package that allowed the user to make *Quake* total conversions much more easily and to push the new game even further towards innovative games that looked little like the original. This process has been continued with the 1998 release of *Half Life* based on the *Quake* engine, which in turn spawned the massive success of *Counterstrike* (2000). Since then the *Unreal* (1998) engine has gained ground for modders and enthusiast level editors. According to Walter Au (2002), this is because the *Unreal* development team was drawn from *Doom* and *Quake* modding communities who themselves understood that the first iteration of a game was merely a precursor to the efforts of lots of players like them. The *Unreal* engine has a level editor that is not so deeply 'embedded' into the engine itself, which meant that the editor too could be customized by users without referencing the underlying engine code. *Unreal* also offered UnrealScript, which allowed modders to access and change the physics of the game – again an innovation that allowed more radical conversions to be created.

### The age of co-creative media

The complex technical, legal and cultural interplay between players, player/creators and developers is brilliantly exemplified by Sue Morris' account of the steps she goes through to play *Quake III Arena* (Morris 2003). The Gamespy server which she uses to access the game engine was originally developed by Joe Powell, a *Quake* gamer, but is now a commercial portal; it uses voice software developed by gamers using venture capital. The latest update is downloaded from another portal developed by gamers in 1996 to organize LAN tournaments. In turn this update includes anti-cheat software originally developed by a team of gamers but now commercially deployed by a range of online game companies. She then finds a local server running games that may either be commercial or enthusiast run; there she can choose from the games offered by Valve or from any one of 1600 player-created environments made for *Quake III Arena*. Once there, again she may choose to play as a ready made avatar or choose a skin made by another gamer or indeed by herself. Before play commences she will choose customized configurations for her machine that 'optimise the game's performance and appearance to my liking'. These configurations might be unique to her or learnt from online player community forums:

In a multiplayer FPS game such as *Quake III Arena*, the 'game' is not just a commercially released program that players use, but an assemblage created by a complex fusion of the creative efforts of a large number of individuals, both

professional and amateur, facilitated by communication and distribution systems that have developed out of the gaming community itself. As a cocreative media form, multiplayer FPS gaming has introduced new forms of participation, which have led to the formation of community structures and practices that are changing the way in which these games are developed and played.

(Morris 2003)

The cooperation between developer and user has now become standard business procedure for some developers of online games. In 2002 Valve announced the launch of the 'Steam' broadband network exclusively devoted to distribution of Valve titles and Valve game mods. According to Valve founder, Gabe Newell, the new network would provide 'a smoother transition between the amateur world and the professional world' (Au 2002). *Sims* auteur Will Wright echoes this sentiment in an interview with Celia Pearce:

I think the Internet's probably the prime example of that. I think there are going to be certain types of new media where this is the natural form of interaction, a smooth ramp from consumer to producer . . . I think right now, it comes down to how steep maybe the ramp is. Because I think you have this kind of natural progression in all media between a consumer and an author, a producer, a designer . . . That possibility exists more now than it did twenty years ago.

(Pearce 2002)

Louis Castle of game giants Electronic Arts comments on the development of their own 'mod college' intervention:

As we were developing the tools for *Command and Conquer: Renegade*, it became very clear from the beginning that it was really important to engage the mod community because these folks have a great deal to do with why the game is successful three months later or four months later . . . So rather than wait for them to do it, we flew them out to Las Vegas, took care of them for a week, sat them down with the development teams, gave them copies of all our tools and showed them how to use them.

(Pearce 2002)

The gradual development of the modding community over the past ten years has ensured that it has become a naturalized part of game cultures. Olli Sotamaa (2004) has begun the work of classifying the endlessly fecund variety of mods that online game players might use in *Quake III Arena*. The *Quake III Arena* mod world is populated by player created avatars that turn the game into a cult playground, where Maximus from *Gladiator* can battle against the Terminator, Darth Vader or Dr Evil from the *Austin Powers* films; Neo from *The Matrix* can be matched against Flic from *Bugs Life*, with extra support from the cast of *The Simpsons* if need be. These 'practices of intermedi-ality' (Sotamaa 2004: 8) are gloriously undisciplined, creative, playful customizations



of game software. They extend from skinning to partial and total game modifications in which weaponry is either boosted to ridiculous levels or else transformed into something else such as 'Q3 Paintball'. Whole new game worlds have been created in mods such as 'Matrix Quake III', which reproduces scenes from the film as well as bullet time and wall walking as in-game features (Sotamaa 2004: 12); 'Western Quake 3' is, Sotamaa observes, produced by a team keen to reproduce historical accuracy of the 'wild west', including 'new weapons that are based on detailed information about damage, rate of fire and reload time of the late 19<sup>th</sup> Century weapons' (Sotamaa 2004: 12). 'Political Arena' is a mod with a number of iterations, beginning with the 2000 US presidential election allowing play as Republicans or Democrats in 'capture the flag' mode; the 'Usurper' version takes on the post 9/11 world with both state terrorists and fundamentalists offered as player options:

More than anything Political Arena is a statement concerning violence and video games. According to the Political Arena website, 'Video games have just become politically conscious – and they're fighting back! Not with guns or bombs, but with art, ideas, and the constitutionally guaranteed freedom of expression.'

(Sotamaa 2004: 11)

Although unevenly available and restricted to those with particular technical competencies, game modifications do suggest that the era of media as software will produce new legal relationships between consumers and producers. However, these relationships are *not* the precondition for a utopian democratization of creativity – they still exist within the prevailing economic nexus. Game modders provide the industry with free research and development of new ideas and sometimes whole new titles; the work of creating mods, maps and skins also extends the life of a game, and this life becomes revenue when the tools to do it are only available with licensed versions. As Morris' example above shows, the productive activities of gamers lie at the heart of player communities facilitating the use of the game – these communities provide beta testing for publishers, as well as reflecting user tastes and aspirations. Henry Jenkins cites Kurt Squires' research into the way that Lucas Arts recruited fans to the design team for the online multiplayer version of *Star Wars* by posting initial design ideas for fan feedback (Jenkins 2003a). Finally, the mod community now provides a reliable source of labour for the industry, with very low or no training investment.

Andrew Mactavish argues in his study of game mods that in fact they are already a highly restricted and regulated practice – first, by the way the necessary high end computer skills restrict access to a particular kind of 'technicity' and, second, through the ways in which End User Licence Agreements function. These agreements, signed by us all by clicking the 'accept' button when we open new software, contain clauses that restrict the circulation of mods to non-profit networks; modders wishing to charge for use of their mods are prohibited or instructed to contact the copyright owner. In other words, the point at which modding becomes competition rather than brand development and viral marketing is very carefully policed (Mactavish 2003).

## Fan art

Fan art evolves from player communities that form cooperatively online to support gameplay through swapping cheats and making available game walkthroughs. For very many players swapping cheats or accessing walkthroughs is the first step towards participation in a player community. Cheating itself can be seen as a player's creative response to the limitations of the rule set imposed by the game. Extensive social networks are founded on the exchange of information that will aid a player's progress through a game, producing masses of 'cheats and tips' material in, for instance, the many give-away booklets made available with gaming magazines. For many players there is little distinction between cheats that allow progress and tips that reveal 'secret' game features, such as using a particular combination of console controls to make the rain in a 'race' game fall upwards or being able to turn all your cars into racing tanks.

Cheating is currently an under-researched area that may have much to reveal about players' attitudes towards rules which may reflect on play theory as a whole. Since, as we have seen, much play theory is predicated on the notion of a demarcated zone within which particular rules operate, how then are we to understand forms of play which are irredeemably marked by 'breaking' or at least bending the rules? Similarly, walkthroughs seem to offer a negation of the game designers' intention by allowing the player to reduce the time spent searching for in-game solutions, and thus to progress more quickly. Newman and Simons observe: 'For many players . . . the use of walkthroughs appears to signal a privileging of performance over puzzling' (2003).

This instrumental engagement by player communities provides the opportunity for other kinds of active fan engagement to develop. Online game forums display extremely intense levels of engagement with game detail in which participants are able to share their devotion and expertise to a game (see Newman 2004). In their study of the 'Abe's Oddworld' fan communities, Schott and Burn (2004) show how this passionate engagement expresses itself through productive activities that are far removed from the sophisticated skills of game modders. Fan artists, they demonstrate, share their own game artworks produced with nothing more sophisticated than paper and pencil. They note how the community is supportive of one another's efforts, offering help for better reproduction of the designers' original artwork, with the highest form of compliment being that the author could be employed by the studio as an artist. They argue that this form of fan art is primarily 'tribute' work: 'Oddworld fans honour their role as representatives of the game brand, rarely critical and often aspirational, especially in their art practices' (Schott and Burn 2004). However, the intensity and volume of fan engagement with games also has unexpected creative outcomes. The family album facility of 'The Sims Online', for instance, quickly became adapted by players as a means to create narrative scenarios using graphic and text that cover all kinds of celebratory as well as subversive themes (see <http://simalbums.tripod.com/> for *Sims* artworks).

Similarly, Salen and Zimmerman (2004: 550) record how machinema was created by

*Quake* players utilizing the software's ability to record, store and play back gameplay as a movie sequence. Originally conceived as an 'action replay' facility, it was soon used and distributed by players wishing to display their virtuosity through 'speedrunning', completing levels in record time. In turn, with the addition of simple video editing, new soundtracks and choreographed staged performances, software was utilized to create entirely new standalone pieces of video that had a parodic relationship to the main game, like the Rangers Clan 'Diary of a Camper' (1996). Subsequently, this form of animation has been developed in masterful animations by the Ill Clan production team (<http://www.illclan.com/apthunt.htm>), who have created an entire ironic and hilarious game universe in which the vengeful progress of the FPS player is, for instance, converted into a very camp hunt for real estate.

The compellingly strange phenomenon of the 'All Your Are Base Belong to Us' wave of fan production in 2000 perhaps best encapsulates the divergent currents that flow through fan activity as it circulates in the unpredictable viral environment of the internet. The Japanese company Toaplan released a game called *Zero Wing* for the Sega Genesis console which contained a particularly appalling translation in the intro cut sequence. The translation was then picked by a website specializing in weird game quotes which in turn inspired the Overclocked.org site to release a version of the cut scene with a parody voiceover using the original text. This version then spread through game related message boards, inspiring users to post their own 'All Your Base' images; this material was then collated with a remixed soundtrack and released online as a flash movie which rapidly spread outside the gamer communities throughout the web, crashing servers and becoming a Lycos top 50 searched title within weeks. The surviving video is effectively a series of witty photomontages edited to a track that remixes the original parody of the odd translation. At this point, long after the original creators had ceased to find it in the least funny, the mainstream media picked up on it with stories recounting the 'AYB' wave appearing in news media (see [www.planettribes.com/allyourbase](http://www.planettribes.com/allyourbase)). This story illustrates the ways in which active player fan engagement becomes *playful* productivity. Participation in this playful productivity itself then becomes a marker of 'subcultural capital', of being 'in the know' with others of a similar technicity. By the time the phenomenon becomes mainstream, there is no more subcultural capital to be had from it and the craze dies out.

## Mod arts

As well as producing aspirant independent producers and fan artists, this unprecedented popular creative engagement with software also produces its own art practices which often have the character of a tactical, critical relationship to the game cultures they inhabit. In this observation, we take issue with Henry Jenkins' argument that in some way 'culture jammers' and fans have inimical intentions: 'Culture jammers want to opt out of media consumption and promote a purely negative and reactive

conception of popular culture. Fans on the other hand see unrealized potentials in popular culture and want to broaden audience participation' (Jenkins 2003a). Our reading of modding, fan arts and tactical intervention is that pleasure, enthusiasm and virtuosity are *prerequisites* rather than 'purely negative and reactive conceptions of popular culture'. The artist Brody Condon, for instance, makes his fan/artist status clear in the statement that supported his 'Fake Screenshot Contest' piece at the Killer Instinct exhibition:

My life is a vast ghetto littered with neotolkien elves, eight-barrel rocket launchers, endless hordes of faceless muscle-bound goons, armor-cum-lingerie, the seven artifacts of the evil overlord, a billion overacted cut scenes, terrorists-du-jour, neogeiger aliens, hovertanks, troglodytes, vampires, and +7 potions of healing; all set in a neo-post-industrial steam-cyberpunk castle with teleportals and elevators and platform puzzles in every room.

(<http://www.newmuseum.org/killerinstinct/#>)

The rapidly developing global network of video-game artists follows on a long twentieth century tradition of media artists working with mechanical or electronic means which implicitly and explicitly made a critique of dominant cultures. Photomontage artists such as Hannah Hoch and John Heartfield showed how popular media could be reconstructed for creative, social and political ends (see Huhtamo 1999). The subsequent history of video art and of fine artists using electronic and increasingly digital media has created a whole range of art practice which places itself in relation to popular culture, either in the way that it recycles it, critiques it or aestheticizes it. This tradition has mapped onto the sampling aesthetic of digital art. As Manovich observes, we have arrived at a point in cultural history where the DJ is the archetypical creative figure:

The rise of this figure can be directly correlated to the rise of computer culture. The DJ best demonstrates its new logic: selection and combination of pre-existent elements. The DJ also demonstrates the true potential of this logic to create new artistic forms. Finally, the example of the DJ also makes it clear that selection is not an end in and of itself. The essence of the DJ's art is the ability to mix selected elements in rich and sophisticated ways. In contrast to the 'cut and paste' metaphor of modern GUI that suggests that selected elements can be simply, almost mechanically, combined, the practice of live electronic music demonstrates that true art lies in the 'mix'.

(Manovich 2001: 134–5)

This remix aesthetic is characteristic of the creative work emerging from game cultures – all software art is after all a 'remix' of a pre-existent artefact. The British game art curators and critics Grethe Mitchell and Andy Clarke (2003) offer a classification that refines the approaches taken by digital media artists working within game cultures:

- Remixing – referring to game iconography or sounds being taken and reused in completely different works in audio pieces by artists such as DJ Spooky, and Aphex Twin, or in the kinds of fan art discussed above.
- Referencing – here they refer to works that ‘reference back’ the users’ knowledge of existing games but do something completely different with it, such as Tony Ward’s ‘Alien Invasion’ (2002), which uses *Space Invaders* to comment on the politics of ethnicity in the UK, or Thompson and Craighead’s witty ‘Triggerhappy’ (1998), which again uses *Space Invaders* but this time replacing the invaders with quotations from Foucault’s *Death of the Author*.
- Reworking – here used to refer to game patches, skins, maps or levels, mods, and machinema, the creation of original works that use existing technologies, editors and engines.
- Reaction – works that have a performative basis insofar as they require participation in the ‘event’ that is the work, such as Brody Condon’s ‘Gunship Ready’, which is an online game intervention requiring the author to load up his team into a ship for transport to a distant location requiring them to ‘die’ to rejoin the game.

Game arts first surfaced in Europe and America in 1998–9 in small exhibitions and online exchange; in the 1999 catalogue essay for ‘Cracking the Maze – Game Patches and Plug Ins as Hacker Art’, Anne Marie Schleiner made a prophetic call:

As an entertainment form linked to online network data flow, computer gaming is at the present time more open than television ever was to reinvention and rearticulation of its genres and modes of interactivity, sign systems and politics of representation. The time seems ripe for critical intervention from artists and theorists, who follow in the wake of the fervid cultural sabotage and shape shifting of the game fan players and hackers themselves.

([http://switch.sjsu.edu/nextswitch/switch\\_engine/front/front.php?artc=49](http://switch.sjsu.edu/nextswitch/switch_engine/front/front.php?artc=49))

In 2002 the Barbican in London hosted ‘Game On’, a major three floor computer game exhibition, featuring game history, design and art games. ‘Game On’ has subsequently toured Holland, Finland, France and America. In late 2003 the ‘Killer Instinct’ exhibition at New York’s New Museum of Contemporary Arts gathered together some of the world’s leading artists in a high-profile exhibition of game art featured in the 2004 New York Whitney Biennale. In 2004 Britain’s leading contemporary arts competition, The Turner Prize, shortlisted a piece by Langlands and Bell called ‘The House of Osama bin Laden’, which used a game engine to allow users to explore a photorealist rendering of a deserted house in Afghanistan once occupied by the eponymous terrorist.

The entry of computer game art into mainstream galleries represents a significant point in its history – distinctive art practices have already begun to emerge. These practices rely upon an intense technological engagement with PC based systems and display a range of concerns from formal to critical. Rebecca Cannon and Julian

Oliver's Melbourne based Selectparks portal offers a thorough and comprehensive curatorial project that makes work available (<http://www.selectparks.net/>).

## Tactical arts

The overlap between 'tactical' media and fine art practices has been nowhere more apparent than in the post-9/11 responses of computer game artists. Here we can observe the emergence of an art form that is robust and socially engaged. Anne Marie Schleiner answered her own call for intervention through the 'Velvet Strike' project in 2002; Schleiner and her co-creators, Joan Leandre and Brody Condon, created a post-9/11 piece that allowed users to intervene in online games of *Counterstrike* by downloading patches that would allow them to decorate the in-game environment with anti-war and subversive messages (<http://www.opensorcery.net/velvet-strike/>). This is analogous to the activities of real world stencil graffiti artists who have pre-prepared artworks that can be applied to buildings. This was not the only anti-war online intervention post 9/11. A project called 'downloadpeace' started a graphic arts collection, 'Tiny Signs of Hope', which allowed *Sims* players to decorate their environments with pro-peace posters. Not all interventions were anti-war by any means – 'Desert Combat' (2002), for instance, is a mod of *Battlefield 1942* that allows players to fight in an Iraq-like setting. Similarly, skins of Saddam Hussein, Osama Bin Laden and 'Chemical Ali' appeared in online war games (Poremba 2003). Responses to the 'Velvet Strike' project indicated that the relationship between fan communities and a critical art practice were often inimical, as the collection of flaming posts on the project's website indicates:

Hello, What a stupid initiative!!! If you don't like the game just don't buy it, and don't piss off other people with your shit.

Just a woman could have think of making something like Velvet Strike . . . if you don't realize that videogame is just a VIDEOGAME, an that its a fake world, well then, GO PLAY WITH YOUR BARBIE!' [sic]

(<http://www.opensorcery.net/velvet-strike/mailgallery.html>)

The Kinematic project '911 Survivor' (<http://selectparks.net/911survivor/index.html>) is an even more interesting artists' response to the 9/11 disaster. An *Unreal Tournament* level mod, the game allows the user to control a single avatar as he attempts to escape a collapsing representation of the World Trade Center before plunging endlessly to his death. Received with shock and revulsion in some quarters, the piece is a perfect example of the media artists' attempt to intervene in the mediasphere through providing a site for participation and processing repressed discourses. Media coverage of 9/11 quickly self-censored images of those leaping to their deaths – here, however, those absent images are re-presented as a computer graphic, 'return of the repressed', in

which *all* the player can do is endlessly leap to destruction. By contrast, Gonzalo Frasca's 'Sept 12' is unambiguous, clear and makes a brilliant subversive use of interactivity. The project was the first to be offered under the banner of Frasca's 'News Gaming' project hosted on his Ludology.org site. The project homepage explains:

Simulation meets political cartoons. We are a team of independent game developers who believe video games are not simply an amusement. Games and simulations can also make us think about what is going on in this world. Periodically, we will use games and simulations to analyze, debate, comment and editorialize major international news.

*(<http://www.newsgaming.com/index.htm>)*

'Sept 12' is a simple Flash game that shows us an aerial view of a non-specific Middle Eastern town; in amongst the sim population there are one or two carrying guns; each time we release a missile to try to kill them more and more gun toting 'terrorists' are produced. It is a game that cannot be won (*<http://www.newsgaming.com/games/index12.htm>*).

In these tiny games, and the reaction against them, the hegemonic conflict between the kinds of dominant technicities which we have described in Chapter 4 and 'other' gamers is at its sharpest. Computer game artists are also players and fans; however, their explicit refusal to accept the dominant mould disturbs the field, triggering cultural interference patterns which, viewed from the perspective of performativity, become as much a part of the artwork as the artefact itself. Media artists rarely involve themselves in a field which they hate; their work is also driven by a passion, but a passion that is looking for something other than unthinking ideological complicity in the service of social exclusion or oppression.

As game art moves from subculture to mainstream gallery practice, it broadens its scope, from an internal reflexive concern with computer game cultures and its problems, typified by the patch and hack intervention, to address wider and more ambiguous themes. Within this development game art meets the existing tradition of interactive gallery art practice. C Level's 'Waco Resurrection' (2003) may be taken as typical in this regard – a large-scale piece that has shown in the US, Europe and Australia, the user wears a headset to enter an environment that is a fantasy reconstruction of the 1993 Waco siege. The game runs as a LAN in which there may be more users each playing as David Koresh, the Branch Davidian leader killed in the siege. The piece clearly partakes of a contemporary art trend towards the performative, the interactive and the reconstruction. However, its themes produce ambiguous echoes of the contemporary political landscape:

The game commemorates the tenth anniversary of the siege at a unique cultural moment in which holy war has become embedded in official government policy. In 2003, the spirit of Koresh has become a paradoxical embodiment of the current political landscape – he is both the besieged religious other and the logical

extension of the neo-conservative millennial vision. Waco is a primal scene of American fear . . .

(<http://waco.c-level.cc/>)

Significantly, ‘Waco Resurrection’ was made using not one of the usual proprietary industry game engines, but the ‘Torque’ engine produced by Garage Games, who are seeking to support an independent games community by making flexible cheap software available for game production. Garage Games aims to be ‘the home of independent games’ by providing tools and developer support outside of the mainstream industries. It is reported as having a developer community with over 40,000 members, with more than a 1,000 game projects in development (Guardian Online, 19 February 2004; <http://www.guardian.co.uk/online/story/0,3605,1150662,00.html>).

The ‘grail’ of an independent games industry has become more sought after as increasing numbers of players and developers become frustrated with the narrow range of products produced by the mainstream industry. In 2002 Eric Zimmerman noted that the equivalent of an art house circuit for games did not yet exist; however, by 2004, we find Eddo Stern, one of the designers for ‘Waco Resurrection’ claiming in relation to the ‘Killer Instinct’ show: ‘If computer games are as big as Hollywood then this is the art house scene’ (Guardian Online, 19 February 2004; <http://www.guardian.co.uk/online/story/0,3605,1150662,00.html>). Whilst one downtown art show is hardly the equivalent of the global art house cinema circuit, there are signs that as gaming culture becomes a central part of the mediated environment it will begin to produce a diversification of product and personnel at its margins.

However, as we suggested above, the notion of independence needs to be interrogated somewhat if it is to have any purchase. As we have seen in the film and music industries, the ‘indy’ tag may not signify much more than ‘wannabe’. In other words, the power of already established publishers may in fact be strengthened by the creation of an industrial diaspora of hopeful independents looking for commercial sustainability by copying game formats that already exist. If the concept of independence is really to change the nature of existing game cultures it might have to incorporate some understandings of the cultural forces that have shaped what we already have.

### Playing at technicity

Theoretical understandings of the development of co-creative media have sought to try to contain it within what Jenkins aptly summarizes as, ‘The old either-or oppositions (co-optation vs. resistance) which have long dominated debates between political economy and cultural studies,’ which he argues, ‘simply do not do justice to the multiple, dynamic, and often contradictory relationships between media convergence and participatory culture’ (Jenkins 2003b). He goes on to suggest that, where convergence and participation cross over in the zone of co-creative media, ‘The result may be



conflict . . . critique . . . challenge . . . collaboration . . . or recruitment.’ Whilst this taxonomy is clearly descriptive and useful we would also want to place it in the context of play. As Schechner reminded us at the start of Chapter 2, play ‘is a rotten character tainted by unreality, inauthenticity, duplicity, make-believe, looseness, fooling around, and inconsequentiality’. As playful subjects we enjoy an agency within the mediasphere through our co-creative engagements with digital texts. What continues to be at issue is what kinds of technicity we are able to develop as playful subjects. How far does our co-creativity allow for the development of a heterogeneity of technicities, a diversity of games? And how far does it merely instantiate another (new) layer of exclusion from cultural industries?

## Conclusion

As we make the final changes to this manuscript, Maxis/Electronic Arts are running a new TV advertising campaign for the most recent *Sims* iteration. The ad features voiceovers from ‘real’ players describing their own particular pleasures in playing *The Sims* – for example, an eloquent comparison of surfing a sim wave with being in love or an account of being architecturally inspired by the satisfactions of landscaping a plot of sim land. The campaign’s tagline is, ‘How do *you* play?’ It understands that every player is unique, every play style an expression of subjectivity, hailing us to buy the product as a means to self-expression.

In Chapter 2 we saw how Turner and Sutton-Smith argued that the privileged liminoid space of play makes it the ‘seedbed of cultural creativity’. However, the advertisement above indicates this liminoid space has in some sense become the mainstream. ‘How do you play?’ constructs itself as the defining question for the ideal subject of Western technocapitalism at the start of the twenty-first century. This is no longer the humanist subject of the Enlightenment, of industrialization and mass culture. This is the networked subject as node in a matrix of different systems. Ludic engagements with culture offer themselves as the ideal expression of an identity which experiences itself as subject to the multiple determinations of biological and technological systems.

These ludic engagements take the form of increasingly configurative relations with media in which the computer game emerges as absolutely paradigmatic. We have argued, therefore, that the political economies, textual strategies and emergent identities of computer game cultures are central to understanding early twenty-first century developments in media culture.

In traditional play theory analysis we might assume that the *structural* relation between play (the ‘seedbed of cultural creativity’) and its context *creates* new social forms as an ‘inevitable’ process. Certainly it is true that the material in this chapter attests to an exciting, energetic and rapidly growing field of ‘independent’ game cultures. However, the question ‘How do you play?’ is now constructed as everyone’s defining question. Play no longer confines itself to the liminoid but leaks into work and

into culture at all levels. In these circumstances it may not be enough just to champion the co-creative engagements described above. To transcend fully the ‘old rhetoric of opposition and cooptation’, we may also need to develop a practice of ‘critical play’ – a practice which aims not only to ‘play by the rules’ but to change them.

### Further reading

- Hills, M. (2002) *Fan Cultures* (Sussex Studies in Culture and Communication). London: Routledge.
- Jenkins, H. (2003) *Interactive Audiences: The Collective Intelligence of Media Fans*. Available at <http://web.mit.edu/21fms/www/faculty/henry3/collective%20intelligence.html>
- Schott, G. and Burn, A. (2004) Art (Re)production as an Expression of Collective Agency within Oddworld Fan-Culture, *Works and Days*, 43/44, 22(1&2): 1–24.
- Sotamaa, O. (2004) *Computer Game Modding, Intermediality and Participatory Culture*; [www.imv.au.dk/eng/academic/pdf\\_files/Sotamaa.pdf](http://www.imv.au.dk/eng/academic/pdf_files/Sotamaa.pdf) – accessed 23 January 2005.

# GLOSSARY TERMS

**Alternate reality games:** mystery narratives driven by puzzle solving which require players to register in order to find clues both online and in real world locations. Players hunt down information and also receive emails and text messages from the game design team. The experience is characterized by the blurring of the boundaries of the actual and the game worlds.

**Artificial intelligence:** a research practice aimed at making intelligent software programmes (soft AI) or artificially intelligent things, e.g. robots (hard AI). In games, AI is used to programme the behaviour of non-playable characters or game environments, creating the illusion that they have independent agency.

**Avatars:** the in-game graphic characters that represent the player and the player's actions. Originally the divine made flesh in Hinduism, now the flesh made virtual.

**Bemani games:** derived from the Japanese term 'Beat Mania', these are games that require the player to coordinate their actions to music in response to onscreen commands. They include dance mat games such as *Dance Dance Revolution* or some of the games available through Sony's Eye Toy package.

**Cartesian:** the adjective used to describe ideas originating with the French philosopher René Descartes, particularly here the notion that mind and body are separate and distinct, which is often referred to as 'dualism'.

**Co-creator:** the consumer of digital software products who uses them to make new artefacts and is thus said to be in a co-creative relationship with the original authors of the software.

**Configuration:** the ability for the user to intervene in a mediated environment in such a way as to make significant changes to the system, where 'system' is both program and representation.

**Cut scene:** the full motion graphic animation sequence with which most video games begin and which punctuates the beginning and end of game levels.

- Cyberculture:** here used to refer to that tradition of theoretical approaches to technology and culture relations which takes its lead from cybernetics. It therefore emphasizes the feedback networks which constitute consciousness and the direct relationships with technology that they imbricate us in. This body of work can also be seen as part of a wider set of discursive formations to be found in ‘science’ fictional writing, film and technology journalism.
- Cybernetics:** according to its first theorist, cybernetics is the ‘science of control and communication in the animal and the machine’ (Norbert Wiener 1948). Cybernetics gives the idea that as organisms we are connected through feedback loops to both our external and internal environments, and thus function *systematically* in relation to technological, mediated and biological stimuli.
- Cyborg:** beings existing in a condition of machine/consciousness interface. This may exist in a number of ways, from heart pacemakers in the actual world to androids in the fictional world. However, the discourse of the cyborg, after Haraway, exists as a radical new opportunity for identity reformulation in which hierarchies of nature/nurture, body/mind, self/other have the potential to be reconstituted. In science fictional representation from Gibson to Cronenberg’s *Existenz*, the computer game player has been seen as a kind of cyborg, ‘plugged into’ a different environment.
- Enlightenment:** the eighteenth-century period of thought during which reason and scientific rationalism were used to challenge church and state. Associated with the rise of the mercantile classes and the political foundation of modernity, but also understood as a ‘grand narrative’ made untenable by post-modernity.
- ESA:** Entertainment Software Association – US trade association.
- Experience, also XP:** the experience points earned in gameplay and either rewarded in-game or more usually at the end of a level, allowing the player access to different kinds of abilities and weapons.
- Eye Toy:** the package of games released with the Playstation web-cam game device which required rapidly coordinated whole body physical engagement by the player(s).
- Flaneur:** derived from the nineteenth-century term for the appreciation of urban cityscapes through undirected wandering – introduced to cultural theory through Walter Benjamin. In particular, it now carries the sense of the particular modes of disinterested yet fascinated attention generated by contemporary urban consumer culture.
- Fordist:** production line techniques for the manufacture of mass goods, which also have the effect of regulating time and labour. Derived from Henry Ford’s use of the production line and the regimes of production and consumption associated with it.
- FPS:** First person shooters – games in which the player’s avatar only has two points of view, either ‘over the shoulder’ representing an arm with a weapon, or direct point of view through the weapon’s firing sights. ‘First person’ because the player’s point of view is always the avatar’s point of view.
- Fragging:** the term given to killing another bot (game character) that can either be a non-player character (NPC) or, in multiplayer games, the avatar of another person.

**Game editor:** software tools which allow different game elements – e.g. characters, landscapes, vehicles – to be manipulated in a common environment. In a design studio, level editors work in the game editor software perfecting the game. Literally editing all the elements to produce and refine the gameplay. Also increasingly made part of consumer game purchases facilitating the consumer's production of customizations and additions to the game.

**Gameplay:** the experience of playing the game. Used very widely in game reviews and often described in terms of interface, speed and strategy. A category which underlines the *experiential* rather than interpretive nature of gameplay.

**Habitus:** used by Bourdieu to describe the sign systems made through consumer choices, work and cultural capital; this is a sign system which produces distinction, in the form of good or bad taste, and is profoundly generative of identity in the form of lifestyle.

**Hacker:** a person fascinated by the production and manipulation of elaborate systems. Now most popularly associated with data theft and software violation, the term was originally a self-description for computer programmers and enthusiasts who substantially developed the PC and the internet. Originally a practical joke, the 'hack' retains a sense of the playful which might characterize both the skilled and elegant programmer and the cracker, a programmer who infringes copyright law, security or ethics.

**Haptic:** that which relates to touch, especially the manipulation of objects and the sense of our own bodies. Hence game controllers with their feedback 'rumblepads' are 'haptic' devices.

**Hegemony:** widely used to refer to class domination or leadership. The concept has developed a more specific meaning in Marxist theory after Gramsci, where it describes the intellectual and cultural values associated with a dominant class and internalized even by those against whose interest they work.

**Hermeneutic process:** the art and processes of interpretation, of discovering meaning.

**Human computer interaction (HCI):** the study of the interaction between computers and people. This includes screen design, software and hardware. HCI aims at making computer-user interaction fluid and intuitive. It is highly interdisciplinary, drawing on psychology, design and computer science.

**Humanism:** the belief that the human subject is the most significant agent in all social and cultural systems. Derived from the Greek Protagoras' dictum that 'man is the measure of all things', humanism originally served to emphasize the importance of individual experience in the face of religious or legal systems and later came to be associated with Enlightenment rationality. However, humanism has also been seen as problematic by cyberculture theorists who insist on the agency of biological and machine systems in human experience.

**Immersion:** the experience of losing a sense of embodiment in the present whilst concentrating on a mediated environment. This usage was originally used to describe so-called immersive virtual reality, when a user appears to be 'inside' a constructed image environment. However, now also used to describe a variety of audio and screen-based experiences in which the subject 'loses track' of immediate physical surroundings.

- Interactive:** the ability of the user to intervene in computing processes and see the effects in real time. Originally used to describe the ability to intervene in main frame computer processing as it happened, the term now refers to the wide variety of ways in which we use computer-based systems. This technological sense also overlaps with meanings derived from sociolinguistics, in which face to face communication between humans is understood as the ‘most’ interactive form of experience.
- Intermediality:** the increasing tendency for texts on different media platforms (e.g. cinema, the internet, games) to have symbiotic relationships. Here many different media texts and experiences might take the user to the same representational world. So, for instance, increasingly we can read a comic or a novel, watch the TV cartoon, play the computer game and see a movie all set in the same environment or storyworld.
- Kinaesthesia:** the sense of the body’s movement – hence games offering the pleasures of ‘ilinx’, or vertigo (e.g. race games), have very strong kinaesthetic qualities.
- LAN parties:** Local area network parties – in which a number of computers are linked together in order for the participants to play together in a common interactive graphic environment. Often set up as a competitive event running over a weekend or other distinct time period. Distinct from online gameplay because the network is local, often temporary, and not linked to the entire internet network.
- Locative media/games:** media which depend for their use on the site and the space in which they are encountered; for instance, media delivered through global positioning satellites are locative, from the Latin *locus* for space. Locative games are designed for play in particular real world environments and often use a combination of live action role play and digital technology like mobile phones or handheld computers.
- Ludology:** the study of games and gaming that emphasizes the experiential nature of rule-based interactions.
- Ludic:** like a game.
- Mediasphere:** analogous to the idea of the ecosphere, the mediated part of our environment which, through communication, has a role to play in structuring consciousness.
- Mimesis:** imitation of the real in art and in representation more generally. Distinguished from realism and naturalism by a drive to *reproduce* rather than merely represent the material world.
- MMORPG:** massively multiplayer online role-playing games, e.g. *Everquest* and *World of Warcraft*.
- Modding:** derived from ‘modification’, hence any alteration by players of a game. This may range from customizing characters to the creation of entirely new games using pre-existent game engines.
- MOOs and MUDs:** online text-based role-play environments popular during the 1980s, the precursors of 3D online gaming. MUD is the abbreviation for multi-user dungeon (from the popular dungeons and dragons table top role-play games), whilst MOO stands for ‘multi-user object oriented’ spaces, in which the world building aspects of the MUD are emphasized.

- Narratology:** theories of narrative elaborated by structuralist critics, e.g. Claude Lévi-Strauss, A. J. Greimas, Gerard Genette and Tristan Todorov. In the context of Game Studies, it is most often used in opposition to ludology in order to describe game critics who argue for the importance of narrative experience as part of the pleasures of gameplay.
- Newbie/Noob:** inexperienced game player, most often in online game environments where their lack of practice makes the newbie very vulnerable.
- Non-playable characters (NPCs):** in-game avatars which the player cannot control. NPC behaviours are controlled by the computer code of the game engine.
- Paidia:** the name given by play theorist Roger Caillois to improvised, open-ended, creative play, as opposed to games of 'ludus' like chess in which player action is tightly controlled by the game's rule set.
- Phenomenology:** the philosophical method that seeks to describe the embodied meaning of experience for the subject prior to any theoretical interpretation. Here used to emphasize the *experience* of players as the ground for understanding gameplay without recourse to either narratological or ludological presuppositions.
- Polygon:** the two-dimensional triangle which is used by computer graphic designers to build up the framework of three-dimensional and moving objects or characters.
- Prosumer:** this originally referred to a range of video and audio goods which were produced for a market 'between' the domestic and professional, thus making the production of high-quality media artefacts more widely disseminated.
- Rumble feature:** the vibrating feedback mechanisms found in game controllers which afford the player physical sensations.
- Simulation:** a system of representation which has no real world referent. Derived from computer science and critical theory through the legacy of Baudrillard. In computer science, simulation is able to predict the behaviour of complex systems which cannot be directly observed and is now widely used alongside theory and experiment as a method for the production of knowledge. Baudrillard has argued that 'signs' no longer stand for a reality in the world but themselves constitute the world. Computer games combine these two strands of meaning insofar as they graphically represent environments which usually do not exist in the world and which are generated by the complex dynamic system of the game engine.
- Storyworld:** an imaginary world that has internally consistent rules, belief systems and cultures to which the reader/user gives credence. Originally a literary construct but now available to us through media like cinema, television games and products like toys.
- Subject:** the individual in discourse who is both subject *to* the way they are linguistically and culturally constructed as well as being the subject *of* the state. The subject is both active and passive, having agency as well as being acted upon.
- Systems theory:** a method arising from a wide range of fields, including the natural sciences, organization theory and cybernetics, which emphasizes the way in which events are the product of complex webs of agents and interactors. A system emerges from the regular interaction of mutually dependent parts.

**Technicity:** that aspect of identity expressed through the subject's relationship with technology.

Particular tastes and their associated cultural networks have always been marked by particular technologies, e.g. rockers with motorbikes and mods with scooters. However, our increasingly intimate relations with and through digital media and communications technologies intensify the identity/technology interface. Technicities associated with the consumption and manipulation of digital technologies become key characteristics of the preferred subject of twenty-first-century capitalism and therefore the heterogeneity of other kinds of technicity are marginalized or excluded.

**Technological imaginary:** discourses or statements can be understood as shaped by the 'technological imaginary' when technologies are enthusiastically embraced as a generative solution to the actual political and cultural difficulties. Nevertheless, the technological imaginary remains a very potent force; technophilia drives whole areas of government practice and economic aspiration.

**Technologically determined:** the 'common sense' assumption that social and cultural developments are caused by technology, i.e. that contemporary cities are shaped by the motor car. More recently, the common sense view of history has been reclaimed through cyberculture and the figure of the cyborg as a way of realigning the human/machine relationship.

**TinyRape:** sexual assaults carried out in cyberspace; originally used to describe the behaviours written into the text programs of MOOs which would disable a user in order to display text describing their assault.

**Ubiquitous media:** media disseminated and diffused into the fabric of everyday life. Phone headsets, palmtops and GPS are all examples of media that have become miniature, portable, locative and therefore ubiquitous.

**Virtual reality:** a historically overdetermined idea that consists in three overlapping kinds of discourse: that surrounding the rarely manufactured material technologies of headset and data glove interface; the idea that cyberspace, the space of communications, is virtual; finally, the idea that fantasy and the future itself are also virtual. Currently an idea often applied to the 'virtual' worlds of online gaming insofar as they are both very immersive and very communicative as well as being dramatic fantasy spaces.

**XP** see **Experience**.



## REFERENCES

- Aarseth, E. (1997) *Cybertext: Perspectives on Ergodic Literature*. Baltimore, MD: Johns Hopkins University Press.
- Aarseth, E. (2001) Computer Game Studies, Year One, *Game Studies: The International Journal of Computer Game Research*, 1(1). Available online at <http://gamestudies.org/0101/editorial.html> – accessed 18 May 2004.
- Aarseth, E. (2003) We All Want to Change the World: The Ideology of Innovation in Digital Media, in Gunnar Liestol, Morrison, Andrew and Rasmussen, Terje (eds) *Digital Media Revisited: Theoretical and Conceptual Innovations in Digital Domains*. Cambridge, MA and London: MIT Press, pp. 415–42.
- Aarseth, E. (2004) Genre Trouble: Narrativism and the Art of Simulation, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA and London: MIT Press, pp. 45–56.
- Aarseth, E., Smedstad, S. M. and Sunnana L. (2003) A Multi-Dimensional Typology of Games, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht, pp. 48–54.
- All Your Base Belong to Us*, at <http://www.planettribes.com/allyourbase/>
- Andersen, Peter Bogh (2004) Acting Machines, in Liestol, Gunnar, Morrison, Andrew and Rasmussen, Terje (eds) *Digital Media Revisited: Theoretical and Conceptual Innovations in Digital Domains*. Cambridge, MA and London: MIT Press, pp. 183–214.
- Asakura, Reiji (2000) *Revolutionaries at Sony: The Making of Sony Playstation and the Visionaries Who Conquered the World*. New York: McGraw-Hill.
- Atkins, B. (2003) *More Than a Game: The Computer Game as Fictional Form*. Manchester: Manchester University Press.
- Au, J. W. (2001) The Return of Lord British – interview with Richard Garriott at *Salon.com*, December 2001. Available online at <http://dir.salon.com/tech/feature/2001/12/04/garriott/index.html>
- Au, J. W. (2002) The Triumph of the Mod, *Salon.com*, 16 April 2002; [www.salon.com/tech/feature/2002/04/16/modding](http://www.salon.com/tech/feature/2002/04/16/modding) – accessed 12 September 2004.

- Barbrook, R. (1999) *The Hi Tech Gift Economy*, at <http://www.brc.wmin.ac.uk/theory-hightechgifteconomy.html> – accessed 22 January 2005.
- Baudrillard, J. (1998) The End of the Millennium or the Countdown, *Theory, Culture and Society*, 1, February.
- Bell, David and Kennedy, Barbara M. (eds) (2000) *The Cybercultures Reader*. London: Routledge.
- Black Family Network (2004) High-tech's 'Invisible Man', 15 January 2004; [http://www.blackfamilynet.net/v2/news\\_display.php?id=14](http://www.blackfamilynet.net/v2/news_display.php?id=14) – accessed 18 May 2004.
- Bolter, Jay David and Grusin, Richard (1999) *Remediation: Understanding New Media*. Cambridge, MA and London: MIT Press.
- Bordwell, D. (1989) *Making Meaning: Inference and Rhetoric in the Interpretation of Cinema*. Cambridge, MA and London: Harvard University Press.
- Boria, E., Breidenbach, P. and Wright, T. (2002) Creative Player Actions in FPS Online Video Games: Playing Counter-Strike, *Game Studies*, 2(2). Available online at <http://www.gamestudies.org/0202/wright/>
- Bourdieu, Pierre (1986) *Distinction: A Social Critique of the Judgement of Taste*. Trans. Richard Nice. London: Routledge.
- Breeze, Mary-Anne (1997) Quake-ing in My Boots: Examining Clan Community Construction in an Online Gamer Population, *Cybersociology Magazine* 2, 20 November. Available online at <http://members.aol.com/cybersoc>
- Butler, Judith (1990) *Gender Trouble: Feminism and the Subversion of Identity*. London: Routledge.
- Butler, Judith (1992) Contingent Foundations, in Butler, Judith and Scott, Joan (eds) *Feminists Theorize the Political*. London: Routledge.
- Caillois, R. (1961) *Man Play and Games*. Trans. Meyer Barash. The Free Press of Glencoe, Inc.
- Calvert, S. L. (1999) *Children's Journey Through the Information Age*. Boston: McGraw-Hill.
- Cameron, Andrew (1995) The Future of an Illusion: Interactive Cinema, *Millennium Film Journal*, 28, Spring: 33–47.
- Canada, K. and Brusca, F. (1991) The Technological Gender Gap: Evidence and Recommendations for Educators and Computer-based Instruction Designers, *Educational Technology Research and Development*, 39: 43–51.
- Cannon, R. *The Buff and the Brutal*. Available online at <http://www.selectparks.net/> – accessed February 2005.
- Carr, Diane (2002) Playing with Lara, in King, Geoff and Kryzwinska, Tanya (eds) *Screenplay: cinema/videogames/interfaces*. London: Wallflower Press, pp. 178–80.
- Carr, D., Schott, G., Burn, A. and Buckingham, D. (2004) *Doing Game Studies: A Multi-Method Approach to the Study of Textuality, Interactivity and Narrative Space*. Media International Australia Publication, Australian Key Centre For Cultural and Media Policy, 110, February, pp. 19–30.
- Carroll, J. (1994) Guerillas in the Myst, *Wired*, 5(8), August. Available online at <http://www.wired.com/wired/archive/2.08/myst.html>
- Cassell, J. and Jenkins, H. (eds) (1999) *From Barbie to Mortal Kombat: Gender and Computer Games*. Cambridge, MA: MIT Press.
- Castells, Manuel (1996) *The Information Age: Economy, Society and Culture. Vol.1, The Rise of the Network Society*. Oxford: Blackwell.
- Castells, Manuel (2000) *The Rise of the Network Society*. Oxford: Blackwell.

- Castronova, Edward (2001) Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier, *CESifo Working Paper Series No. 618*, December; <http://ssrn.com/abstract=294828>
- Chesher, C. (2003a) Layers of Code, Layers of Subjectivity, *Culture Machine* 5; <http://culturemachine.tees.ac.uk/Cmach/Backissues/j005/Articles/cchesher.htm> – accessed 10 August 2004.
- Chesher, C. (2003b) Neither Gaze Nor Glance, But Glaze: Relating to Console Screens, *Scan: Journal of Media Arts Culture*; [http://scan.net.au/scan/journal/display.php?journal\\_id=19](http://scan.net.au/scan/journal/display.php?journal_id=19) – accessed 3 May 2004.
- Chow, Rey (1992) Postmodern Automaton, in Butler, J. and Scott, J. (eds) *Feminists Theorize the Political*. London: Routledge, pp. 101–17.
- Citizen Lab*, 13 February 2003; <http://citizenlab.org>
- Cockburn, Cynthia (1992) The Circuit of Technology: Gender, Identity and Power, in Silverstone, Roger and Hirsch, Eric (eds) *Consuming Technologies: Media Information and Domestic Spaces*. London: Sage, pp. 32–47.
- Copier, M. and Raessens, J. (eds) (2003) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht.
- Coyle, Karen (1996) How Hard Can It Be?, in Cherny, Lyn and Weise, Elizabeth Reba (eds) *Wired Women: Gender and New Realities in Cyberspace*. Washington DC: Seal Press, pp. 42–55.
- Cringely, Robert (1996) *Accidental Empires*. London: Penguin.
- Csikszentmihalyi, M. (1996) *Creativity: Flow and Psychology of Discovery and Invention*. New York: Harper Perennial.
- Csikszentmihalyi, M. (1997) *Finding Flow*. New York: Basic Books.
- Damasio, Antonio (2004) *Looking for Spinoza*. London: Vintage.
- Danet, Brenda (1998) Text as Mask: Gender Play and Performance on the Internet, in Jones, Steven G. (ed.) *Cybersociety 2.0*. London: Sage, pp. 129–58.
- Darley, A. (2000) *Visual Digital Culture: Surface Play and Spectacle in New Media Genres*. London: Routledge.
- De Lauretis, T., Woodward, K. and Huyssen, A. (1980) *The Technological Imagination: Theories and Fictions*. Madison, Wisconsin: Coda Press.
- Deleuze, Gilles (1990) *The Logic of Sense* (trans. Constantine V. Boundas). New York: Columbia University Press.
- Deleuze, Gilles (1993) *The Deleuze Reader* (trans. Constantine V. Boundas). New York: Columbia University Press.
- DeLoach, A. (1996) Grrls Exude Attitude, *Computer Mediated Communications Magazine* 3, (3)1.
- Dickinson, R., Linne, O. and Harindranath, R. (eds) (1998) *Approaches to Audiences*. London: Arnold.
- Douglas, J. Yellowless and Hargadon, Andrew (2004) The Pleasures of Immersion and Interaction: Schemas, Scripts and the Fifth Business, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA and London: MIT Press, pp. 192–207.
- Dovey, J. (2000) *Freakshows – First Person Media and Factual TV*. London: Pluto Press.
- Dovey, J. (2002) Notes Toward a Hypertextual Theory of Narrative, in Rieser, M. and Zapp, A. (eds) *New Screen Media: Cinema/Art/Narrative*. London: BFI, pp. 135–45.
- Downes, E. and McMillan, S. (2000) Defining Interactivity, *New Media and Society*, 2(2): 157–79.

- Drummond, L. (1984) Movies and myths: theoretical skirmishes, *American Journal of Semiotics*, 3(2): 1–32.
- DTI/Spectrum Consultants (2002) *From Exuberant Youth to Sustainable Maturity – Competitiveness Analysis of the UK Games Sector*; TIGA [www.tiga.org.uk/](http://www.tiga.org.uk/) – accessed 24 March 2004.
- Edge Magazine* (2003), 120, February.
- Edge Magazine* (2003), 126, August.
- Edge Magazine* (2003), 129, November.
- Edge Magazine* (2004), 133, February.
- Edwards, Paul N. (1996) *The Closed World: Computers and the Politics of Discourse in Cold War America*. Cambridge, MA: MIT Press.
- ELSPA (Entertainment and Leisure Software Publishers' Association) (2003a) *The Cultural Life of Video Games*, August; [www.elspa.com/](http://www.elspa.com/) – accessed 23 February 2004.
- ELSPA (2003b) *Computer and Video Games: A British Phenomenon Around the World*, August; [www.elspa.com/](http://www.elspa.com/) – accessed 23 February 2004.
- ELSPA (2004) *Video Games Continue to Grow*, Press Release, 6 January; [www.elspa.com/](http://www.elspa.com/) – accessed 23 February 2004.
- ESA (2002) *Essential Facts About the Computer and Video Game Industry*. Available at [www.theesa.com/fastfacts\\_frame.html](http://www.theesa.com/fastfacts_frame.html) – accessed 23 February 2004.
- ESA (2004) *Essential Facts About the Computer and Video Game Industry 2004*. Download from <http://www.theesa.com/pressroom.html> – accessed 3 January 2005.
- Escobar, Arturo (2000) Welcome to Cyberia: Notes on the Anthropology of Cyberspace, in Bell, D. and Kennedy, B. (eds) *The Cybercultures Reader*. London: Routledge, pp. 56–76.
- Eskelinen, M. (2001a) Introduction to Cybertext Narratology, in Eskelinen, M. and Koskimaa, R. (eds) *Cybertext Yearbook 2000*. Saarijaarvi: University of Jyväskylä, pp. 52–68.
- Eskelinen, M. (2001b) The Gaming Situation, in *Game Studies: The International Journal of Computer Game Research*, 1(1). Available online at <http://gamestudies.org/0101/eskelinen/>
- Eskelinen, M. (2004) Towards Computer Games Studies, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA and London: MIT Press, pp. 36–45.
- Featherstone, Mike and Burrows, Roger (eds) (1995) *Cyberspace Cybodies Cyberpunk: Cultures of Technological Embodiment*. London: Sage.
- Fiske, J. (1987) *Television Culture*. London: Methuen.
- Flanagan, Mary (1999) Mobile Identities, Digital Stars and Post-Cinematic Selves, *Wide Angle*, 21(1), January: 76–93.
- Flower, Zoe, at <http://www.gamegal.com/zoeflower/zoe5.htm> – accessed September 2004.
- Flynn, Bernadette (2000) Towards an Aesthetics of Navigation – Spatial Organisation in the Cosmology of the Adventure Game, in *Media Culture*, University of Queensland; [www.media-culture.org.au/0010/navigation.txt](http://www.media-culture.org.au/0010/navigation.txt)
- Frasca, G. (1999) Ludology Meets Narratology: Similitudes and Differences between (Video)-Games and Narrative, *Game Studies* 1(1). Available online at <http://www.gamestudies.org>
- Frasca, G. (2003) Ludologists Love Stories, Too: Notes from a Debate That Never Took Place, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*, University of Utrecht, pp. 92–100.
- Frasca, G. (2004) Videogames of the Oppressed: Critical Thinking, Education, Tolerance and

- Other Trivial Issues, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA and London: MIT Press, pp. 85–95.
- Friedman, Ted (1999) Civilization and Its Discontents: Simulation, Subjectivity, and Space, in Smith, Greg (ed.) *On a Silver Platter: CD-ROMs and the Promises of a New Technology*. New York: New York University Press. (Also at [www.gsu.edu/~jouejf/computergames.htm](http://www.gsu.edu/~jouejf/computergames.htm) – accessed 15 October 2002.)
- Gadamer, H.-G. (1981) *Truth and Method*. London: Sheed and Ward.
- Gailey, C. (1993) Mediated Messages: Gender, Class, and Cosmos in Home Video Games, *Journal of Popular Culture*, 27(1): 81–97.
- Garis, Leslie (1992) Susan Sontag Finds Romance, *The New York Times Magazine*, 2 August: 43, quoted by Regina Cornwall in Fun or Funambulist Catalogue Essay for *Serious Games*, Barbican Art Gallery/Laing Art Gallery, Newcastle, 1996.
- Gee, J. P. (2003) *What Video Games Have to Teach Us About Learning and Literacy*. Basingstoke and New York: Palgrave MacMillan.
- Geertz, Clifford (1973) *The Interpretation of Cultures*. New York: Basic Books.
- Gibson, William (1984/1995) *Neuromancer*. London: HarperCollins.
- Gibson, William (1987) *Count Zero*. London: HarperCollins.
- Giddings, S. (2003) ‘Circuits’ Video Essay, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht /DIGRA (CD ROM). See also [www.badnewthings.co.uk](http://www.badnewthings.co.uk)
- Giddings, S. and Kennedy, H. W. (2006) Digital Games as New Media, in Bryce, J. and Rutter, J. (eds) *Understanding Digital Games*. London: Sage.
- Gilbert, N. and Conte, R. (eds) (1995) *Artificial Societies – The Computer Simulation of Social Life*. London: UCL Press.
- Gilbert, N. and Doran, J. (eds) (1994) *Simulating Societies – The Computer Simulation of Social Phenomena*. London: UCL Press.
- Gilmour, H. (1999) What Girls Want: The Intersections of Leisure and Power in Female Computer Game Play, in Kinder, M. (ed.) *Kid’s Media Culture*. Durham, NC: Duke University Press, pp. 263–93.
- Guest, T. (2005) Lost in Cyberspace, *Sunday Telegraph Magazine*, 13 March, 28–30.
- Guins, Raiford (forthcoming, 2006) May I Invade Your Space? Evidencing the Presence of Video Games in Black Technocultural Production, in *Callaloo* (forthcoming, 2006).
- Gygax, Gary, at <http://www.womengamers.com/interviews/garygygax.html> – accessed February 2005.
- Hagel, J. and Armstrong, A. (1997) *Net Gain*. Watertown, MA: Harvard Business School Press.
- Haraway, D. (1987) Contested Bodies, in McNeil, M. (ed.) *Gender and Expertise*. London: Free Association Books.
- Haraway, D. (1989) *Primate Visions: Gender, ‘Race’ and Nature in the World of Modern Science*. London: Verso.
- Haraway, D. (1991a) A Cyborg Manifesto: Science, Technology and Socialist-Feminism in the Late Twentieth Century, in Haraway, D., *Simians, Cyborgs and Women: The Reinvention of Nature*. London: Free Association Books.
- Haraway, D. (1991b) The Actors are Cyborg, Nature is Coyote, and the Geography is Elsewhere:

- postscript to Cyborgs at Large, in Penley, C. and Ross, A. (eds) *Technoculture*. Minneapolis: University of Minnesota Press, pp. 21–6.
- Haraway, D. (1992) Ecce Homo, Ain't (Aren't) I a Woman and Inappropriate/d Others: The Human in the Post Humanist Landscape, in Butler, J. and Scott, J. (eds) *Feminists Theorize the Political*. London: Routledge.
- Haraway, D. (1997) *Modest Witness@Second\_Millennium.FemaleMan@Meets\_OncoMouse™: Feminism and Technoscience*. London: Routledge.
- Harding, Sandra (1986) *The Science Question in Feminism*. Milton Keynes: Open University Press.
- Harding, Sandra (1998) *Is Science Multicultural? Postcolonialisms, Feminisms, and Epistemologies*. Indiana: Indiana University Press.
- Hartsock, Nancy (1983) The Feminist Standpoint: Developing the Ground for a Specifically Feminist Historical Materialism, in Harding, Sandra and Hintikka, Merrill (eds) *Discovering Reality: Feminist Perspectives on Epistemology, Metaphysics, Methodology and Philosophy of Science*. Dordrecht: Reidel/Kluwer.
- Harvey, David (1989) *The Condition of Postmodernity*. Cambridge, MA: Basil Blackwell.
- Hayles, N. K. (1999) *How We Became Posthuman. Virtual Bodies in Cybernetics, Literature and Informatics*. Chicago and London: University of Chicago Press.
- Herman, A. and Swiss, T. (eds) (2000) *The World Wide Web and Contemporary Cultural Theory*. New York: Routledge.
- Hills, M. (2002) *Fan Cultures* (Sussex Studies in Culture and Communication). London: Routledge.
- Holmes, David (ed.) (1997) *Virtual Politics*. London: Sage.
- Homans, Margaret (1994) Women of Color, Writers and Feminist Theory, *New Literary History*, 25: 73–94.
- Horrocks, Christopher (1999) *Baudrillard and the Millennium Icon*. Reading: Icon.
- Huhtamo, E. (1995) Encapsulated Bodies in Motion: Simulators and the Quest for Total Immersion, in Penny, S. (ed.) *Critical Issues in Electronic Media*. Albany, NY: State University of New York Press, pp. 159–86.
- Huhtamo, E. (1999) 'Game Patch Son of Scratch', *Switch*; [http://switch.sjsu.edu/nextswitch/switch\\_engine/front/front.php?artc=119](http://switch.sjsu.edu/nextswitch/switch_engine/front/front.php?artc=119)
- Huizinga, J. (1955) *Homo Ludens: A Study of the Play Element in Culture*. London: Beacon Press.
- Ill Clan Machinema, at <http://www.illclan.com/apthunt.htm>
- Iser, W. (1974) *The Implied Reader: Patterns of Communication in Prose Fiction From Bunyan to Beckett*. Baltimore, MD: Johns Hopkins University Press.
- Jameson, Fredric (1991) *Postmodernism, or, the Cultural Logic of Late Capitalism*. Durham, NC: Duke University Press.
- Jarvinen, A. (2003) Making and Breaking Games: A Typology of Rules, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht, pp. 68–80.
- Jenkins, H. (1992) *Textual Poachers: Television Fans and Participatory Culture*. London: Routledge.
- Jenkins, H. (1999) 'Complete Freedom of Movement': Video Games as Gendered Play Spaces, in Cassell, J. and Jenkins, H. (eds) *From Barbie to Mortal Kombat: Gender and Computer Games*. Cambridge, MA: MIT Press.
- Jenkins, H. (2001) *From Barbie to Mortal to Kombat – Further Reflections*; <http://cultural.policy.uchicago.edu/conf2001/papers/jenkins.html> – accessed February 2005.

- Jenkins, H. (2002) *Complete Freedom of Movement: Video Games as Gendered Play Spaces*; <http://web.mit.edu/21fms/www/faculty/henry3/pub/complete.html>
- Jenkins, H. (2003a) *Interactive Audiences: The Collective Intelligence of Media Fans*. Available at <http://web.mit.edu/21fms/www/faculty/henry3/collective%20intelligence.html>
- Jenkins, H. (2003b) *Quentin Tarantino's Star Wars? Digital Cinema, Media Convergence, and Participatory Culture*; <http://web.mit.edu/21fms/www/faculty/henry3/starwars.html>
- Jenkins, H. (2004) Game Design as Narrative Architecture, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA: MIT Press, pp. 118–31.
- Jensen, Jens E. (1999) Interactivity: Tracking a New Concept in Media and Communication Studies, in Mayer, Paul (ed.) *Computer Media and Communication*. Oxford: Oxford University Press.
- Jones, Steven G. (ed.) (1998) *Cybersociety 2.0*. London: Sage.
- Juul, J. (2001) Games Telling Stories: A Brief Note on Games and Narratives, *Game Studies: The International Journal of Computer Game Research*, 1(1). Available online at <http://gamestudies.org/0101/juul-gts/>
- Juul, J. (2002) The Open and the Closed: Games of Emergence and Games of Progression, in Mayra, F. (ed.) *Computer Games and Digital Cultures Conference Proceedings*. Tampere University Press.
- Juul, J. (2003) The Game, The Player, The World: Looking for a Heart of Gameness, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht, pp. 30–47.
- Keller, Evelyn Fox (1983a) *A Feeling for the Organism*. San Francisco: Freeman.
- Keller, Evelyn Fox (1983b) Gender and Science, in Harding, Sandra and Hintikka, Merrill (eds) *Discovering Reality*. Dordrecht: Reidel/Kluwer.
- Keller, Evelyn Fox (1990) From Secrets of Life to Secrets of Death, in Jacobus, M., Keller, E. F. and Shuttleworth, S. (eds) *Body/Politics: Women and the Discourses of Science*. New York: Routledge, pp. 177–91.
- Kendall, Lori (1996) MUDer? I 'ardly know 'er! Adventures of a feminist MUDder, in Cherny, L. and Weise, E. R. (eds) *Wired Women: Gender and New Realities in Cyberspace*. Washington DC: Seal Press, pp. 207–23.
- Kennedy, Helen W. (2002) Lara Croft: Feminist Icon or Cyberbimbo? On the Limits of Textual Analysis, *Game Studies*, 2(2); [www.gamestudies.org/0202/](http://www.gamestudies.org/0202/)
- Kent, Steven L. (2001) *The Ultimate History of Video Games*. New York: Three Rivers Press.
- Kinder, M. (1993) *Playing with Power in Movies, Television and Video Games: From Muppet Babies to Teenage Mutant Ninja Turtles*. London: University of California Press.
- King, B. and Borland, J. (2003) *Dungeons and Dreamers: From Geek to Chic*. San Francisco: McGraw-Hill.
- King, Geoff and Kryzwinska, Tanya (eds) (2002) *Screenplay: cinema/videogames/interfaces*. London: Wallflower Press.
- Klabbers, J. H. G. (2003) The Gaming Landscape: A Taxonomy for Classifying Games and Simulations, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht, pp. 54–68.
- Kline, S., Dyer-Witherford, N. and de Peuter, G. (2003) *Digital Play: The Interaction of Technology Culture and Marketing*. Montreal: McGill Quarry University Press.

- Kramarae, Cheri (1998) Feminist fictions of future technology, in Jones, Steven G. (ed.) *Cybersociety 2.0*. Thousand Oaks, CA: Sage.
- Kucklich, J. (2003) The Playability of Texts Vs. The Readability of Games: Towards a Holistic Theory of Fictionality, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht, pp. 100–7.
- Kushner, David (2003) *Masters of Doom: How Two Guys Created an Empire and Transformed Pop Culture*. London: Piatkus.
- Lahti, M. (2003) As We Become Machines: Corporealized Pleasures in Video Games, in Wolf, M. J. P. and Perron, B. (eds) *The Video Game Theory Reader*. London: Routledge.
- Lancaster, Kurt (2001) *Interacting with Babylon5: Fan Performance in a Media Universe*. Texas: University of Texas Press.
- Laurel, Brenda (1993) *Computers as Theatre*. New York: Addison Wesley Longman.
- Laurel, Brenda (1998) Technological Humanism and Values Driven Design, Keynote Address CHI 98 Conference, April 1998; [http://www.tauzero.com/Brenda\\_Laurel/Recent\\_Talks/Technological\\_Humanism.html](http://www.tauzero.com/Brenda_Laurel/Recent_Talks/Technological_Humanism.html)
- Laurel, Brenda (2001) *Utopian Entrepreneur*. Cambridge, MA: MIT Press.
- Lauwaert, M. (2003) In Search of a ‘Fifth Dimension’, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht, pp. 80–91.
- Lee, Raina (ed.) (2001) *1-UP: Adventures in Video Game Culture Metazine*, 1, Winter.
- Lee, Raina (ed.) (2002) *1-UP: Adventures in Video Game Culture Metazine*, 1, Winter.
- Lee, Raina (ed.) (2003) *1-UP: Adventures in Video Game Culture Metazine*, 1, Winter.
- Lehtonen, Mikko (2001) On No Man’s Land: Theses on Intermediality, *Nordicom Review*, 1: 71–83.
- Levy, Steven (1984) *Hackers: Heroes of the Computer Underground*. Harmondsworth: Anchor Press/Garden City, NY: Double Day.
- Lie, M. (1995) Technology and Masculinity: The Case of the Computer, *The European Journal of Women’s Studies*. Special Issue on Technology, 2(3): 379–94.
- Liestol, Gunnar (2004) ‘Gameplay’: From Synthesis to Analysis (and Vice Versa), in Liestol, Gunnar, Morrison, Andrew and Rasmussen, Terje (eds) *Digital Media Revisited: Theoretical and Conceptual Innovations in Digital Domains*. Cambridge, MA and London: MIT Press, pp. 389–414.
- Lister, M., Dovey, J., Giddings, S., Grant, I. and Kelly, K. (2003) *New Media: A Critical Introduction*. London: Routledge.
- Lury, C. (1998) *Prosthetic Culture: Photography, Memory and Identity*. London: Routledge.
- MacKenzie, D. and Wajcman, J. (eds) (1986) *The Social Shaping of Technology*. Milton Keynes: Open University Press.
- MacKenzie, D. and Wajcman, J. (eds) (1999) *The Social Shaping of Technology: How the Refrigerator Got its Hum*, 2nd edition. Milton Keynes: Open University Press.
- Mactavish, A. (2003) Game Mod(ifying) Theory: The Cultural Contradictions of Computer Game Modding, delivered at ‘Power Up: Computer Games Ideology and Play’, Bristol, UK, 14–15 July 2003.
- Manovich, L. (1998) Navigable Space; <http://www.manovich.net>
- Manovich, L. (2001) *The Language of New Media*. Cambridge, MA: MIT Press.
- Marvin, Carolyn (1988) *When Old Technologies Were New: Thinking About Electric Communication in the Nineteenth Century*. Oxford: Oxford University Press.



- McNab, A. (1993) *Bravo Two Zero*. London: Corgi Books.
- McNeil, Maureen and Franklin, Sarah (1991) Science and Technology: Questions for Cultural Studies and Feminism, in Lury, Celia and Stacey, Jackie (eds) *Off-Centre: Feminism and Cultural Studies*. London: HarperCollins Academic.
- McRae, Shannon (1996) Coming Apart at the Seams: Sex, Text and the Virtual Body, in Cherny, L. and Weise, E. R. (eds) *Wired Women*. Washington DC: Seal Press, pp. 242–63.
- Mitchell, G. and Clarke, A. (2003) Video Game Art: Remixing, Reworking and Other Interventions, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht, pp. 338–49; see also <http://www.kinonet.com/>
- Morris, Sue (2003) Wads, Bots and Mods: Multiplayer FPS Games as Co-Creative Media, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht /DIGRA (CD ROM).
- Mortensen, Torill (2004) Flow, Seduction and Mutual Pleasures, Paper presented at *Other Players* conference, Center for Computer Games Research, IT University of Copenhagen, Denmark, 6–8 December 2004; proceedings published online at <http://itu.dk/op/proceedings.htm>
- Moulthrop, S. (2004) From Work to Play: Molecular Culture in the Time of Deadly Games, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA and London: MIT Press, pp. 56–70.
- Mulvey, Laura ([1975] 1992) Visual Pleasure and Narrative Cinema, originally published in *Screen*, 16(3): 6–18.
- Murray, Janet (1997) *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. Cambridge, MA: MIT Press.
- Myers, D. (1991) Computer Game Semiotics, *Play and Culture*, 4: 334–45.
- Myers, D. (1999a) Simulation as Play: A Semiotic Analysis, *Simulation and Gaming*, 30: 147–62.
- Myers, D. (1999b) Play and Paradox: How to Build a Semiotic Machine, *Semiotica*, 123(3/4): 211–30.
- Nakamura, Lisa (2002) *Cybertypes: Race, Ethnicity, and Identity on the Internet*. New York: Routledge.
- Negroponte, Nicholas (1995) *Being Digital*. London: Hodder and Stoughton.
- Newman, J. (2002) The Myth of the Ergodic Videogame: Some Thoughts on Player-Character Relationships in Videogames, *Game Studies*, 2(1), July.
- Newman, J. (2004) *Videogames*. London: Routledge.
- Newman, J. and Simons, I. (2003) All Your Base are Belong to Us; Videogame Culture and Textual Production Online, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht (CD ROM).
- Oriard, M. (1991) *Sporting With the Gods: The Rhetoric of Play and Game in American Culture*. Cambridge: Cambridge University Press.
- Pargman, D. (2003) Word and Code, Code as World. Melbourne: DAC; <http://hypertext.rmit.edu.au/dac/papers/Pargman.pdf>
- Pearce, C. (2002) Sims, BattleBots, Cellular Automata, God and Go: A Conversation with Will Wright; <http://www.gamestudies.org/0102/2002a>
- Pearce, C. (2003) Towards a Game Theory of Games, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person, New Media as Story, Performance and Game*. Cambridge, MA: MIT Press, pp. 143–54.
- Penley, C. and Ross, A. (eds) (1991) *Technoculture*. Minneapolis: University of Minnesota Press.

- Pivotal Games (2003) Case Study Interviews with authors, December 2003.
- Plant, Sadie (1993a) Beyond the Screens: Film, Cyberpunk and Cyberfeminism, *Variant*, 14, Summer: 12–17.
- Plant, Sadie (1995) The Future Looms: Wearvng Women and Cybernetics, in Feathertone, Mike and Burrows, Roger (eds) *Cyberspace Cyberbodies Cyberpunk: Cultures of Technological Embodiment*. London: Sage.
- Poole, Steven (2001) *Trigger Happy: The Inner Life of Videogames*. London: Fourth Estate.
- Poole, Steven (2003) Tomorrow's Man: Interview with William Gibson, *Guardian*, 3 May.
- Poremba, C. (2003) Patches of Peace: Tiny Signs of Hope in Digital Games, in Copier, M. and Raessens, J. (eds) *Level Up: Digital Games Research Conference Proceedings*. University of Utrecht /DIGRA (CD ROM).
- Poster, M. (1995) *The Second Media Age*. Cambridge: Policy Press.
- Poster, M. (2002) High-Tech Frankenstein, or Heidegger Meets Stelarc, in Zylinska, J. (ed.) *The Cyborg Experiments: The Extension of the Body in the Media Age*. London: Continuum.
- Postigo, Hector (2003) From Pong to Planet Quake: Post Industrial Transitions From Leisure to Work, *Information Communication and Society*, 6(4): 593–607.
- Prensky, Marc (2001) *Digital Game Based Learning*. New York: McGraw-Hill.
- Propp, V. I. (1969) *Morphology of the Folk Tale*. Texas: University of Texas Press.
- Provenzo, Eugene F. (1991) *Video Kids: Making Sense of Nintendo*. Cambridge, MA and London: Harvard University Press.
- Rabinow, Paul (1984) *The Foucault Reader*. New York: Pantheon.
- Rehak, Bob (2003) Mapping the Bit Girl: Lara Croft and New Media Fandom, *Information, Communication and Society*, 6(4): 477–96.
- Richtel, M. (2005) Fringes vs. Basics in Silicon Valley, *New York Times*, 9 March.
- Rieser, Martin and Zapp, Andrea (2003) *New Screen Media: Cinema/Art/Narrative*, London: BFI.
- Rifkin, Jeremy (2000) *The Age of Access: The New Culture of Hypercapitalism Where All Life is a Paid-for Experience*. New York: Putnam.
- Roig, A. E. and Hurtado, M. J. R. (2004) The Digital Gap: Gender and Computer Games, *Interactive Educational Multimedia*, 9: 1–15. Available online at [www.ub.es/multimedial/iem](http://www.ub.es/multimedial/iem)
- Rollings, A. and Adams, E. (2003) *Andrew Rollings and Ernest Adams on Game Design*. Berkeley, CA: New Riders.
- Rose, H. (1983) Hand, brain, and heart, *Signs: Journal of Women in Culture and Society*, 9(1): 73–96.
- Rose, H. (1994) *Love, Power and Knowledge: Towards a Feminist Transformation of the Sciences*. Cambridge: Polity Press.
- Rosenthal, P. (1990) Jacked In: Fordism, Cyberpunk, Marxism, *Socialist Review*, 21(1).
- Rosenthal, P. (1993) Remixing Memory and Desire: The Meanings and Mythologies of Virtual Reality, *Socialist Review*, April.
- Ryan, C. (1996) *Stand By, Stand By*, London: Arrow Books.
- Ryan, M.-L. (1991) *Possible Worlds, Artificial Intelligence, and Narrative Theory*. Bloomington and Indianapolis: Indiana University Press.
- Ryan M.-L. (2001a) *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*. Baltimore, MD: Johns Hopkins University Press.
- Ryan M.-L. (2001b) Beyond Myth and Metaphor: The Case of Narrative in Digital Media, *Game Studies*, 1(1); [www.gamestudies.org/0101/](http://www.gamestudies.org/0101/)

- Salen, K. and Zimmerman, E. (2004) *Rules of Play: Game Design Fundamentals*. Cambridge, MA and London: MIT.
- Sandoval, Chela (2001) New Sciences: Cyborg Feminism and the Methodology of the Oppressed, in Bell, D. and Kennedy, B. (eds) *The Cybercultures Reader*. London: Routledge, pp. 374–87.
- Sarkis, M. (1993) Interactivity Means Interpassivity, *Art and Cyberculture*, 69, August: 13–16.
- Schechner, R. (1988a) Playing, *Play and Culture*, 1.
- Schechner, R. (1988b) *Performance Theory*. London: Routledge.
- Schleiner, Anne Marie (1999) *Switch Art and Games*, Special Issue – editorial; [http://switch.sjsu.edu/nextswitch/switch\\_engine/front/front.php?artc=49](http://switch.sjsu.edu/nextswitch/switch_engine/front/front.php?artc=49)
- Schott, G. and Burn, A. (2004) Art (Re)production as an Expression of Collective Agency within Oddworld Fan-culture, *Works and Days*, 43/44, 22(1&2): 1–24.
- Screen Digest* (2003) Interactive Leisure Software Global Market Assessment and Forecast to 2006, March.
- Silverstone, R. (1999a) Rhetoric, Play, Performance: Revisiting a Study of the Making of a BBC Documentary, in Gripsrud, Jostein (ed.) *Television and Common Knowledge*. London: Routledge, pp. 71–90.
- Silverstone, R. (1999b) *Why Study the Media?* London: Sage.
- Silverstone, R. and Hirsch, E. (eds) (1992) *Consuming Technologies: Media and Information in Domestic Spaces*. London and New York: Routledge.
- Skirrow, Gillian (1988) Hellivision: An Analysis of Video Games, in Alvarado, M. and Thompson, J. (eds) *The Media Reader*. London: BFI Publishing.
- Sobchack, Vivian (2001) New Age Mutant Ninja Hackers, in Bell, D. and Kennedy, B. (eds) *The Cybercultures Reader*. London: Routledge, pp. 138–48.
- Sotamaa, O. (2004) *Computer Game Modding, Intermediality and Participatory Culture*; [www.imu.au.dk/eng/academic/pdf\\_files/Sotamaa.pdf](http://www.imu.au.dk/eng/academic/pdf_files/Sotamaa.pdf) – accessed 23 January 2005.
- Springer, Claudia (1991) The Pleasure of the Interface, *Screen*, 32(3).
- Springer, Claudia (1996) *Electronic Eros: Bodies and Desire in the Post-Industrial Age*. London: Athlone Press.
- Squires, Judith (2001) Fabulous Feminist Futures and the Lure of Cyberculture, in Bell, D. and Kennedy, B. (eds) *The Cybercultures Reader*. London: Routledge, pp. 360–73.
- Stabile, Carol (1994) *Feminism and the Technological Fix*. Manchester: Manchester University Press.
- Stephenson, N. (1993) *Snow Crash*. Maryland: Bantam Spectra.
- Stone, A. R. (1991) Will the Real Body Please Stand Up? Boundary Stories about Virtual Cultures, in Benedikt, M. (ed.) *Cyberspace: First Steps*. Cambridge, MA: MIT Press.
- Stone, A. R. (1995) *The War of Desire and Technology at the Close of the Mechanical Age*. Cambridge, MA: MIT Press.
- Storey, John (2000) *Cultural Theory and Popular Culture: An Introduction*. Harlow: Pearson Education.
- Suits, B. (1990) *Grasshopper: Games, Life and Utopia*. Boston: David R. Godine.
- Sutton-Smith, Brian (2001) *The Ambiguity of Play*. Cambridge, MA: Harvard University Press.
- Takahashi, D. (2002) *Opening the Box*. Roseville, CA: Prima Publishing.
- Taylor, T. L. (1999) Life in Virtual Worlds: Plural Existence, Multimodalities, and Other Online Research Challenges, *American Behavioral Scientist*, 43(3), November/December: 436–49.

- Taylor, T. L. (2003) Multiple Pleasures: Women and Online Gaming, *Convergence*, 9(1): 21–46.
- Terranova, Tiziana (2000) Free Labour Producing Culture for the Digital Economy, *Social Text*, 18(2): 33–57.
- The Independent Games Association (TIGA), at [www.tiga.org.uk/](http://www.tiga.org.uk/) – accessed 24 March 2004.
- Thompson, T. (2005) They Play Games for 10 hours and earn £2.80 in a ‘virtual sweatshop’, *Observer*, 13 March.
- Tomas, D. (2000) The Technophilic Body: On Technicity in William Gibson’s Cyborg Culture, in Bell, D. and Kennedy, B. (eds) *The Cybercultures Reader*. London: Routledge, pp. 175–89.
- Tronstad, Ragnhild (2004) Performing the MUD Adventure, in Liestol, Gunnar, Morrison, Andrew and Rasmussen, Terje (eds) *Digital Media Revisited: Theoretical and Conceptual Innovations in Digital Domains*. Cambridge, MA and London: MIT Press, pp. 215–38.
- Tulloch, J. (2000) *Watching Television Audiences: Cultural Theory and Methods*. London: Arnold.
- Turkle, S. (1984) *The Second Self: Computers and the Human Spirit*. New York: Simon & Schuster.
- Turner, Victor (1982) *From Ritual to Theatre: The Human Seriousness of Play*. New York: Performing Arts Journal Publications.
- Utterbeck, Camille (2004) Unusual Positions: Embodied Interaction with Symbolic Spaces, in Wardrip-Fruin, N. and Harrigan, P. (eds) *First Person: New Media as Story, Performance and Game*. Cambridge, MA and London: MIT Press, pp. 218–27.
- Van der Graaf, S. and Nieborg, D. (2003) Together We Brand: America’s Army, in Copier, M. and Raessens, J. (eds) *Level Up: Proceedings of Digital Games Research Conference*. University of Utrecht, pp. 324–37.
- Vogler, C. (1992) *The Writer’s Journey*. London: Michael Wiese Productions.
- Wajcman, J. (1991) *Feminism Confronts Technology*. Cambridge: Polity Press.
- Wajcman, J. (2004) *Technofeminism*. Cambridge: Polity Press.
- Wakeford, Nina (1997) Networking Women and Grrrls with Information/Communication Technology: Surfing Tales of the World Wide Web, in Terry, J. and Calvert, M. (eds) *Processed Lives: Gender and Technology in Everyday Life*. London: Routledge, pp. 51–66.
- Walther, B. K. (2003) Playing and Gaming: Reflections and Classifications, in *Game Studies* 3(1), May; <http://www.gamestudies.org/0301/walther/>
- Wearing, B. (1998) *Leisure and Feminist Theory*. London: Sage.
- Williams, Raymond (1990) *Television: Technology and Cultural Form*, 2nd edn (edited by Ederyn Williams). London: Routledge.
- Wilson, Laetitia (2003) Interactivity or Interpassivity: A Question of Agency in Digital Play, DAC 2003 Proceedings. Available online at <http://hypertext.rmit.edu.au/dac/papers/Wilson.pdf>
- Winnicott, D. W. (1971) *Playing and Reality*. London: Tavistock Publications.
- Wolf, Mark J. P. (ed.) (2001) *The Medium of the Videogame*. Austin: University of Texas Press.
- Woolgar, S. (1991) Configuring the User: The Case of Usability Trials, in Law, J. (ed.) *A Sociology of Monsters. Essays on Power, Technology and Domination*. London: Routledge.
- Young, I. M. (1990) *Throwing Like a Girl and Other Essays on Feminist Philosophy*. Indiana: Indiana University Press.
- Zimmerman, E. (2002) Do Independent Games Exist? *Game On* Exhibition Catalogue.

# GAMEOGRAPHY / LUDOGRAPHY

Barbie Fashion Designer (Mattel 1996)  
Black and White (Electronic Arts 2001)  
Civilization (Firaxis 1990–2003)  
Conflict Desert Storm (SCI 2001)  
Conflict Desert Storm (SCI 2002)  
Conflict Vietnam (SCI 2004)  
Counterstrike (Valve 2004 official release)  
Doom (id Software 1993)  
Enter The Matrix (Infogrames 2003)  
Everquest (Sony 1998)  
Eye Toy Kinetic (SCEA 2005)  
Eye Toy Play (SCEA 2003)  
Eye Toy Play 2 (SCEA 2004)  
Eye Toy Singstar (SCEA 2004)  
Fable (Lionhead 2004)  
FIFA 2005 (EA 2005)  
Grand Theft Auto (Rockstar 2002)  
Grand Theft Auto: San Andreas (Rockstar Games 2004)  
Grand Theft Auto: Vice City (Rockstar Games 2002)  
Half Life (Vivendi Universal 1998)  
Half Life 2 (Vivendi Universal 2001)  
Halo (Bungie 2001)  
Halo 2 (Bungie 2005)  
Harry Potter – Quidditch World Cup (EA 2003)  
Lego Racers (EA 2001)  
Lego Star Wars (Eidos 2005)  
Lord of the Rings: The Battle for Middle Earth (EA 2004)  
Lord of the Rings: The Fellowship of the Ring (EA 2002)

Lord of the Rings: The Return of the King (EA 2003)  
Lord of the Rings: Two Towers (EA 2002)  
Majestic (EA 2001)  
Mega Man (Capcom 1995–2005)  
Mortal Kombat (Acclaim Entertainment 1993)  
Myst (Broderbund 1993)  
PacMan (Namco 1980)  
Parappa the Rapper (Sony 1997)  
Quake (id Software 1995–2003)  
Rainbow Six – Raven Shield (Ubisoft 2003)  
Ratchet & Clank (Sony Computer Entertainment 2002)  
Sim City (Electronic Arts 1989–2004)  
Space Invaders (Japan Taito 1978, US Midway 1978)  
Splinter Cell – Pandora Tomorrow (Ubisoft 2004)  
Star Wars – Republic Commando (Lucas Arts 2004)  
Streetfighter II (Capcom 1991)  
Super Mario Brothers (Nintendo 1985–2005)  
Super Monkey Ball (Amusement Vision 2002)  
Tekken (Namco 1996)  
Tetris (US Atari & Nintendo 1989)  
The Chronicles of Riddick (Vivendi Universal 2004)  
The Legend of Zelda (Nintendo 1998)  
The Sims (Electronic Arts 2000)  
The Sims (Maxis 2002)  
Tomb Raider (Core/Eidos 1996)  
Tomb Raider Chronicles (Core/Eidos 2000)  
Tomb Raider II (Core/Eidos 1997)  
Tomb Raider III (Core/Eidos 1998)  
Tomb Raider The Last Revelation (Core/Eidos 1999)  
Tomb Raider: Angel Of Darkness (Core/Eidos 2003)  
Tomb Raider: Legend (Core/Eidos 2006)  
Unreal Tournament (GT Interactive 1999)  
XIII (Ubisoft 2003)



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