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FEMINISM AND TECHNICAL CAPITAL

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Graeme Kirkpatrick

FEMINISM AND TECHNICAL CAPITAL

The case of the computer game

Taking the computer game as an example of digital technology the paper argues that the embodied aesthetics of technology use are an important dimension of its implication in gender. Drawing on ideas from Pierre Bourdieu and Nigel Thrift the discussion rejects analyses that focus on video game content and asserts the importance of looking at what players do with their hands in the course of game play. The experience of form and space in games are best understood as part of a popular cultural employment of dance as a method for the navigation of socio-technical complexes. This situates computer games as a variety of gendered performance that is conflicted and not straightforward, combining agonistic and aesthetic strains. The paper reflects on the importance of using dance terminology to comprehend this, in terms of our reflexive understanding of computer games, gamers and gaming as a cultural practice.

Keywords computer games; gender; Bourdieu; technical capital; aesthetics; dance

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1. Introduction

This paper takes the computer game as an important case study in the development of the relationship between technology and gender. Recent feminist thinking has argued that the transition to digital technology has seen a largely successful reproduction of both masculine influence on technology and the investment of technological values in masculinity, despite changes in the underlying character of both, including their morphology.¹ Consequently, it is argued that cultures of computing are still based on competitive, masculine values associated with domination and mastery. It is claimed that these values are off-putting to women and the fact that computers are symbolically associated with them deters females from entering technical professions, women numbering only about 20 per cent of computer science students, for example (Wajzman

2006, p. 86). This has the further implication that future technology designs will continue this tendency, ensuring that computer technology remains masculine and perpetuating the exclusion of women. Feminist 'design critique' has assigned particular significance to the computer game in explaining womens' exclusion and, in doing so has focused on the content of the computer game as a communications medium. Judy Wajcman writes that, 'Many of the most popular games are simply programmed versions of traditionally male non-computer games, involving shooting, blowing up, speeding or zapping in some way or another. They often have militaristic titles ... highlighting their themes of adventure and violence' (Wajcman 2006, p. 87). The idea that games should be discussed in this way, as fictional environments with storylines and characters to be 'played' as an actor assumes a role has been widely accepted in the humanities as the obvious point of intersection of the video game form with social and cultural practices more broadly construed (King & Krzywinska 2002, 2006; Atkins 2003). Often this reflects the internalization of norms of technical design by humanities scholars (Kirkpatrick 2008), so that sociology inherits the goal of 'seamless insertion' of digital artefacts from H-CI, for example.² This neglects the possibility that the mode of insertion of technology may have aspects that are not treated or reflected upon by technologists, or indeed anyone else. I argue that this is particularly true of computer games and this makes them illuminating in relation to digital technologies more generally.

My objective in this paper is to draw on ideas from Bourdieu (1990, 1993, 2001) to explore the incorporation of computer games into embodied habitus and to focus particularly on the question of gender and its relation to computer gameplay. Computer games are not straightforward objects in that our interaction with them involves our bodies in ways that are unpredictable and not, in my view, assimilable into an analysis that assumes the process is organized under a horizon of communicated or communicable meanings. The actual terms of our engagement with them may be grounded in embodied practices.³ The argument of the paper will be that understanding the relevant incorporation processes as a modality of popular dance is illuminating with regard to the true position of gender in relation to computer games. This is in turn revealing in relation to digital technology and its relation to gender in a wider sense. I begin by reviewing some feminist writing on digital technology and computer games in particular, turning in Section 3 to Bourdieu's concept of *hexis* and analysis of the process of incorporation. Section 4 advocates the use of dance aesthetics as a way to understand these processes better. I then engage the idea of a technical capital, as this has been formulated in connection with computer games by Dovey and Kennedy (2006), through their concept of technicity. While recognizing their approach as an advance on previous scholarship, in Section 5, I suggest an alternative theoretical approach based on a different employment of Bourdieusian categories. This theoretical approach is, I suggest, more attentive to the nature of computer gameplay as a subjective practice and provides an alternative

objectification of it as a cultural form, one that opens up a different perspective on the question of gender in its relation to digital technology. In conclusion, I try briefly to clarify some implications of this approach for feminist critical theory.

2. Feminism, technology and computer games

Most feminist critiques of the computer game have focused on its properties as a representational medium. This comports with claims by Wajcman (2004) and others that technologies, including technological media, get culturally *coded*, or socially constructed as masculine. In consequence, their symbolic aspect, which communicates their functions to putative users, also aligns them with other things in the world that are identified as male and projects values associated with masculinity. A common theme in such discussion is the idea of a 'hegemonic masculinity' that is associated with violence. For example, interpreting most computer game content as violent, Kline *et al.* (2003) argue that games are 'only one manifestation of a larger thematic complex that focuses gaming culture on the subject-positions and discourses of what we term "militarised masculinity . . ." (p. 254). They situate this latter idea within ' . . . a hegemonic strain of gaming culture that mobilizes fantasies of instrumental domination and annihilation, tracing out a virtual refrain that chants again and again, though in tones ranging from a muted whisper to a scream of rage, "Command, control, kill"' (Kline *et al.* 2003, p. 255). The hegemonic masculinity thesis maintains that a male disposition to physical violence and associated displays of a capability for such violence are produced by patriarchal societies and inculcated into young men through formative socialization processes. The persistence of the ideology of violence is explained by its role in functionally reproducing societies in which men enjoy power and special advantages over women in the home and workplace.

However, setting aside the question whether violence in games has the character ascribed to it here, the thesis of a hegemonic masculinity based on violence has been subjected to the searching critique by Hall (2000, 2002). Without taking issue with the evidence that there are disparities of income and status that point to a pattern of male advantage, Hall points out that these benefits are not enjoyed by all males and that those who are most caught up in violence are, in fact, the ones least likely to be beneficiaries of male privilege. This makes hegemony a singularly inappropriate concept, since the violence is not part of a neutral cultural scene subject to diverse articulations (Laclau & Mouffe 1985) which men have successfully colonized but is in fact severely detrimental to those involved in it. The men who benefit most from contemporary gender inequalities are the ones *least* likely to be involved in physical violence, either as perpetrators or as victims, suggesting that what is presented as 'hegemonic' is actually anomalous from a feminist viewpoint:

It's quite erroneous to claim that the use of unstructured privatised violence or aggression is the continuation of some trans-historical strategy of 'male dominance' – as some feminist and proto-feminists would have it – when the result is quite obviously a *notable lack of success* in mainstream culture, society and economy.

(Hall 2000, p. 39)

Moreover, the context in which computer games have become important elements in youth culture involves economic changes that have disadvantaged young working class men more than other groups. As economist Glyn (2006, p. 105) points out, it has been easier for women to find alternative employment in the new service and informational sectors, where low wages are the norm. In communities devastated by these changes, the levels of real violence among some groups of males has increased, possibly thirty-fold (Hall 2002, p. 42). Involvement in violence is more likely to indicate low status in terms of social class than enjoyment of gender-based privilege. This makes it implausible to suggest that young males' proclivity for accessing violent content in a popular entertainment form can be explained in terms of their subsequent access to special rights of domination. Kline *et al.*'s generalisation that, '... what teenage boys want, teenage boys get' from video game designs (Kline *et al.* 2003, p. 157) may be true, but to take on explanatory significance, it must be disentangled from the idea that 'violent games' reproduce 'hegemonic masculinity'.

A more nuanced starting point for reflection on the issue of gender in video game design has been developed by Kennedy (2002; Dovey & Kennedy 2006). In her study of *Tomb Raider*, Kennedy discusses the central character Lara Croft's paradoxical appearance as both heavily sexualized object and chief protagonist in an action adventure scenario. Lara is drawn in such a way as to exaggerate feminine characteristics held to be most appealing to the heterosexual male gaze⁴ yet at the same time she races through underground chasms, fights deadly enemies, and swings from chandeliers while shooting guns and wielding a knife in her teeth. For Kennedy, the presence of such a character in a game is a vitally important ingredient, on a par with the game's story or, indeed, how the game plays. She attaches particular significance to Lara's presence as a female character in spaces that would tend to be interpreted as masculine, in contrast to domestic spaces that would be the more conventional location of such a feminized body.⁵ Lara's appearance invites the male gaze but the player has to identify with Lara to play the game (Kennedy and others call this 'virtual embodiment') and, according to Kennedy, this involves castration anxiety. The fear of emasculation that would result from playing 'as a woman' is compensated for by the weapons and tools that Lara carries around in her utility belt, which Kennedy (2002) identifies as a fetish and as a moment in the 'phallicisation' of the female body (p. 4). At the same time, Lara's contradictory body acts within spaces that define her capabilities and set limits to what players can do in the

game. Kennedy says that these limits are tested by players motivated by a kind of 'curiosity' that is distinctive to *Tomb Raider*. What in other games, with male characters, might appear straightforwardly as a built-in disposition to action and exploration within the game environment, here gets modulated to a female characteristic. The result is an inflection of the player's normal disposition to 'play', which has often been theorized in agonistic, masculinist terms,⁶ with a female quality. Kennedy cites Mike Ward's description of Lara in those moments when the player is perhaps thwarted or has paused in gameplay: 'There seems to be a frustrated potentiality in the way she stands and breathes, the user's ineptitude holding all her agility and lethality at bay' (Ward 2000; cited in Kennedy 2002, p. 4).

While her analysis of the avatar is illuminating, however, Kennedy's emphasis on character in games seems to me unwarranted and potentially detracts from her main insights into the 'gendered pleasures' of the computer game artefact. Of particular significance here is the interplay of technical and narrative components in the constitution of any computer game element and the likelihood of tensions arising between them. Other theorists point out that the interest computer game objects hold for us lies in what we can get them to do. This is a technical process of experimentation (curiosity) that involves repetitious performances of actions that flout the principle that the game's narrative is the key to its intelligibility as a cultural practice. This is why computer games never become simulations. Instead there is always what Bogost (2006) calls a 'simulation gap', which is a kind of deficit or discrepancy between what we can do and what we ought to be able to do if the game was consistent with the fiction it appeared to be. To play the game, we respond to the seeming simulation by acting on it, which involves a tacit acknowledgement that the simulation is incomplete. At the same time, working with the simulation and implementing what Bogost calls its unit operations⁷ is both a kind of affirmation of the model and a denial of what he calls its intrinsic biases. He argues that when we play a game we are in the grip of 'simulation fever'; we oscillate between accepting and rejecting the simulation, we refuse it and accept it at the same time.⁸ Moreover, this is the key to how the form works, since it presupposes this human reaction in its very design. Bogost locates the simulation gap between 'the rule-based representation of a source system and a user's subjectivity' (Bogost 2006, p. 107).

This has implications for our understanding of character in computer games. In her discussion, Kennedy refers to work done by Laura Mulvey on movie representations of certain female characters, who are made to appear as either machine or as deception and correctly observes that this also applies to Lara, who has '... a beautiful surface that is appealing and charming to man [which] masks either an "interior" that is mechanical or an "outside" that is deceitful' (Mulvey 1996; cited in Kennedy 2002, p. 5). The problem is that this observation does not apply uniquely well to Lara or to female game characters, it

is exactly how *all* video game characters are experienced by players. This is why Espen Aarseth writes that, when he plays *Tomb Raider* he does not even see Lara's body 'but through it and past it', since 'a different looking body would not make me play differently' (Aarseth 2004, p. 48). Indeed, it is as succinct a formulation as one could hope for of the specific difference of computer game avatars from characters in movies, who normally possess the kind of agency that requires us to apply some kind of empathy or interpretation to understand them as beings with an inner, albeit fictitious human reality. What Kennedy succeeds in highlighting here is that the computer game *enacts* a relationship to an object that is presented both as a person and as available to be controlled like a machine.⁹ That this enactment more typically involves masculine heroes is the strange thing and probably illuminating in regard to the exaggeratedly masculine designs of most computer game avatars. However, the appropriate point from which to interrogate computer games in relation to gender is not through their characters, but rather the complex mode of incorporation of the games that is necessary for this enactment to take place. Mastery of the hollowed out (bereft of meaning) body of the avatar is made possible through a dance of the hands that we engage with as players and is mediated through sensations of space more than it relies on any sense of story-line coherence or fictional character development. As Alain Badiou writes of dance, here the body is 'caught up in an affirmative attraction that restrains it' (Badiou 2005). Looking at games in this way suggests another way to build on the insights Kennedy offers above, concerning the balance of attraction and restraint as a tension in the avatarial form. This would lay greater stress on the generative role of the player's real body and a shift of perspective on the kinds of space that are involved in computer game play, to a wider concern with the space of hands and the intersection of multiple visual planes in a single aesthetic experience. The latter is not organized under the horizon of story or fictional meaning but of form or pattern in sensation.

3. Habitus and embodied play

In 'fighting' games like *Mortal Kombat: Deception*, players control the movements of their characters using a circular pad. Pressing this way and that changes the direction of movement of the avatar on the screen. However, the relation between hand movements and on-screen developments is much more nuanced than this simplistic description makes it appear. A complex sequence of 'ups', 'downs', 'lefts' and 'rights' must be entered at exactly the correct speed in order to produce 'moves' by the on-screen avatar that have little or no intuitive relation to the 'directions' signified by the arrows on the pad. Sequences link to effects; directional inputs become detached from the direction of movement of the avatar, just as the speed with which one presses the pad loses any connection to its impetus or momentum. Indeed, if a sequence goes wrong, perhaps because

it is mistimed, the movements of our avatar may regress to a crude correspondence with the buttons we press, so that a 'left' press really makes her run towards the left of the screen, and this is both a sign of failure and a source of frustration. There is an interpretative gap here that is enjoyed by players, in the distance between the significance of on-screen events and what players know about their own and each others hand movements – their dexterity. Observing players, it is easy to miss their appreciation of one another's manual skills because when we hear people expressing their enjoyment, even amazement at what is going on, it can seem as if they are commenting on the on-screen action. However, this interprets gameplay as if it were organized under the rubric of a visual narrative. More often, players see a movement on screen and recognize it as the sign of mastery in the hands. After all, a cartoon effect like a fireball or a cartwheel is not that exciting in itself – we have been seeing those on screens since about 1920. Manual dexterity is central to computer gameplay. So how should we understand this activity and what value should be attached to it?

Pierre Bourdieu's concept of habitus is useful to think through the implications of recentring our understanding of computer gaming as a cultural practice on the hands of players. His focus on embodied practices widens our perspective on the range of processes through which technology gets taken up and used by human beings. Bourdieu defines habitus as 'an acquired system of generative schemes' (Bourdieu 1990, p. 55) that we learn through the early socialization processes. We learn habitus by copying physical behaviours; it is acquired unconsciously and present in the way we are disposed within our own bodies. In the early work, he refers specifically to *hexis*, which is the incorporation of learned physical routines that precedes and makes possible their investment with meaning (Nordmann 2006, p. 26). In a particularly telling passage, he describes how the 'embodied belief' of habitus when confronted with a new situation is manifest as a 'rhythm', beneath the level of conscious meaning. He likens this to 'the rhythms of a line of verse whose words have been forgotten' (Bourdieu 1990, p. 69) and continues, 'The constraints of rhythm or metre are internalized at the same time as melody and meaning, without ever being perceived in their own right' (Bourdieu 1990, p. 74). If we want to understand how the computer game insinuates itself into the field of gender relations, then this will be the appropriate level of analysis.

To illustrate the relevance of this perspective to an understanding of gender and computer game practices, consider the explanations advanced to explain the relative popularity of the *Wii* console among girls and women.¹⁰ This has been attributed to convergence of the allegedly enhanced capacity for accurate simulation or mimesis in relation to real-world activities like playing tennis offered by the *Wii*-mote controller combines with the production of a new generation of game programs whose narrative or thematic content is more appealing, or at least less repulsive to female players. However, this explanation of the *Wii*'s

popularity is not particularly convincing because of the failure of previous initiatives to feminize game content (Laurel 1995) and the fact that many of the games sold for the *Wii* are the same as for other consoles. Moreover, if we look at the advertising of the *Wii*, which might have been expected to have shaped its culture of reception and incorporation, much of this was more overtly sexist than any of the adverts for the *X-Box* or *PS3* gaming consoles. Indeed, the *Wii* was marketed as a slim, athletic woman to play with in adverts that contrasted her with a more dumpy looking, technologically savvy woman who represented the *X-Box*. It is also by no means clear that the *Wii*-mote really does enhance the power of games as simulations. Many of the most popular games for the console use the *Wii*-mote in ways that have nothing to do with simulating a real-world context of action or performance. *Mario Smash Football* for example, involves flicking the *Wii*-mote and waving it about in the air in ways that have nothing to do with playing real football. Even if *Wii* tennis appears at first to offer an experience like playing tennis in your living room, a few minutes play soon dispel this illusion. If female players are more attracted to the *Wii*, this suggests that its coding as masculine has been reduced on some level other than game content, as conventionally understood. The real difference between playing a game on a traditional console and playing with the *Wii* involves the experience of space that is made possible by each apparatus.

The phenomenological aspects of controller use; the different ways in which games are incorporated by players are the key point in the production and contestation of computer games as gendered artefacts. The introduction of controllers that interpret bodily movements of wider scope than just hand movements are more attractive to female players because they invite women into a space which, although far from liberating for them, is familiar.¹¹ According to Bourdieu's analysis of masculine domination, this is precisely the way that gender works through habitus. The 'manly man' or the 'womanly woman' are 'social artifacts' produced through a kind of deep dressage that 'concerns every part of the body' (Bourdieu 2001, p. 23, 27). Bourdieu argues that over much of human history and across many different cultures there have been observable differences in the ways that men and women comport themselves. Disposing oneself differently within one's body inclines us towards some activities and deters us from others, purely on grounds of the kind of patterns of movement they involve.¹² Bourdieu suggests that, historically, centripetal movement has been masculine and centrifugal motion feminine. This applies directly to the two kinds of controller. The traditional hand held involves development of a concentrated set of forces contained in the hand and applied to a few specific points on the plastic device. In contrast, energies expended in using the *Wii*-mote are centrifugal; players sway and rotate in homogeneous, empty space until a given movement is played out, at which point they rest and then resume a starting position. In terms of dance theory, the kinematic¹³ bases of each correspond to gendered habitus. Associated with each is a different experience of space.

The first is intimate, closed space that is to some extent withheld from the world. This corresponds to the male attitude of uprightness and targeting a fixed point. The second is the space of dressage; it allows the scrutiny of bodies in the open and is the space that is historically more familiar to women than to men. It is no coincidence that among the top selling games for the *Wii* are products that are concerned with 'getting in shape', with personal fitness and exercise. It would be easy to decode these artefacts as gendered, through their advertising and the explicit cultural politics that links them with the beauty industry and the mainly female concern with weight loss and appearance. However, to understand how the games console came to be used for these purposes, it is necessary to grasp the technology in terms of the largely unconscious dynamics of its incorporation by bodies, the kinds of space that get produced when people use it and the sorts of sensation that people experience in connection with it and this leads us to pay more attention to player's hands.

4. A dance aesthetic

According to Bourdieu (1993), as well as viewing designs as responses to works within the same cultural sub-field, we should also understand them in terms of homologies they establish with developments elsewhere in the culture. Positions taken have to be interpreted in this broader perspective if we are to understand their proper significance for the field as a whole and for its relation to other fields and to their common traversal by the economy. If we situate the activity of players' hands in light of this it becomes clear that there have been homologous innovations across a range of cultural practices. An important part of the context for understanding the role of the hand and of controllers as the locus of frenzied and experimental manual activity is the contemporary culture of the hand, a domain in which we have seen highly significant changes over the past few decades. It is by no means unprecedented for seemingly quite small changes in how we use our hands to be part of paradigm-shifting practices whose significance we are not fully aware of at the time (Jameson 1975, p. 75). Such changes modify the aesthetics of social life, where the hand plays a uniquely productive role. There has been a largely uncommented change in the culture of the last decade and a half, associated with mobile phones as much as with computer game controls. As these devices have modified our experience of intimate space (Fortunati 2002) and lived time, so we have responded with increased attention to digital dexterity and manual precision. We have incorporated the devices into the rhythms of contemporary life via bodily processes of tapping, stroking, squeezing and twisting. In this process, we have forged a kind of living space beneath the level of linguistically mediated investments of the constructionist kind. The cultural significance of these practices and tendencies is not yet clear but my argument is that homologous changes visible in such disparate

areas as mobile phone use, personal computing, even watching television are crystallized by computer games in a form that presents them free of any purpose. In other words, the computer game exhibits a distinctive kind of aesthetic form, or what Ranciere (2009) calls a 'division of the sensible' that is paradigmatic for our time.

If we adopt the description of computer games as a form of dance with the hands, it is possible to align them with other recent developments that constitute something of a revolution in manual culture. For example, on video sharing web sites people exchange videos of their hands dancing to Daft Punk's song 'Harder, Better, Faster, Stronger'. The words of the song are written on fingers, wrists and palms and the movies start with the camera fixed in position with a view of the hands at rest. As the song starts to play, the hands come to life and present us with the words of the song as they are sung. As the pace quickens, the feat of keeping the correct words on screen in time with the track becomes increasingly impressive. Similar videos show screen shots of perfect (and sometimes less than perfect) performances using the *Guitar Hero* game program. Here, we do not see hands directly, but the record of their activity in the form of coloured buttons flashing at the bottom of the screen, as the player presses the buttons on the controller in synchrony with melodies predominating in the accompanying soundtrack. This may not sound like much of a feat. The *Guitar Hero* controller is a childish lump of plastic that seems to afford few of the expressive possibilities of a real guitar and, in several senses, this is indeed the case.¹⁴ However, there is an evident skill required to keep up with and maintain accuracy in striking the correct buttons to perform a *Dragonforce*¹⁵ song, for example, all the way through without mistakes. The skills are not those of playing the guitar; they are not even remotely similar to those skills, but anyone watching these videos can see that this performance is difficult. It requires discipline, rehearsal and mental focus and it requires all of these things be deployed for no end other than performance itself – this pleasure is aesthetic in the classical sense of lacking regard to consequences.¹⁶ Dancing with the hands has become a self-conscious, creative performance in popular culture. It corresponds to the element of public performance, for which players get peer recognition just as they do in connection with musical instruments and other traditional arts (Figure 1).

Thrift (2008) argues that our collective experience of space and time is being reconfigured as a result of changes in which the hand enjoys a new priority. Thrift points out that we are living through a period in which number has taken on a peculiarly central and productive role in culture.¹⁷ Increasingly, our experience is of or with objects and situations that, he says, are neither natural nor technological but are produced through unseen alterations at the level of the mathematically defined structuration of sites of experience. This process is altering the human sensorium, so that 'qualculation' – a novel sensibility that combines an active apprehension of data structures with manipulating and getting a feel for them



FIGURE 1 Images from one version of the YouTube 'daft hands' video.

rather than recognizing them as such – becomes the dominant social aesthetic. In this context, the hand takes on strange new powers; as Thrift (2008) puts it, ‘... the hand is changing its expectations’ (p. 102) and consequently, ‘... “touch” will ... become a more important sense, taking in and naming experiences which heretofore have not been considered as tactile and generating haptic experiences which have hitherto been unknown’ (Thrift 2008, pp. 103–104). Thrift (2008) describes contemporary play as ‘a process of performative experiment’ (p. 119). In this context, dance takes on methodological, or epistemic significance – it is part of the way that we gather knowledge and understand the fundamental nature, or grounding conditions of contemporary society:

... dance has a particularly rich history consisting of experimentation with many genres and styles, which is of immense significance in trying to forge a symptomatology of movement which can help us both to understand and create expressive potential by gesturing to new ground.

(Thrift 2008, p. 140)

Thrift’s qualculation resolves an anomaly in our understanding of play with video games. One of the reasons many have sought to understand video games primarily as virtual spaces that resemble familiar scenarios and invite mimetic action responses is that players respond to them in ways that appear to be unmediated by thought about controls, or extended reflection on the differences between negotiating a real space and finding your way through a computer generated one. For example, in sports simulation games, players seemingly intuit how long they have to hold down a button to get a ‘good throw’ of a javelin. Is this because of the presence of visual clues in the game’s interface? What if the content of the interface (the game’s fiction) becomes more abstract, as in a game like ‘worms’, which also involves us lining up shots and holding down buttons for a period of time to determine the force of the shot? Never having been a militarized worm I can hardly relate to this (two dimensional) scenario on the basis of any actual experience. At the same time, it is surely true that I do not sit with a stop-watch and time the difference between any two shots in

my efforts to make them more accurate. Rather, I am engaged in a kind of physical testing out of the game's propensities, which is what Thrift has in mind when he suggests that dance – my rhythmic and pleasurable to and fro with the game object – is performing epistemic functions. Dancing with the game enables me to develop a qualculative understanding of its properties as an object.

5. Technical capital

Dovey and Kennedy (2006) suggest that biologically embodied player activity should be viewed as part of a 'cybernetic circuit' that also involves the mediation of a 'virtual body'. This second body exists on the screen and although they do not make this explicit,¹⁸ I take it that they intend the assumption of avatariation as a kind of heuristic device, without which the activity of gamers would perhaps defy interpretation. The player of the game, they say, is involved in multiple 'feedback loops' with the game and 'these feedback loops require that we give a proper recognition to the avatar as an embodiment of the player's action and experiences' (Dovey & Kennedy 2006, pp. 107–108). Feeling embodied in the avatar must be part of what is going on for players; it is a necessary assumption if we are to interpret gameplay, to make it consistent with what people *do* in connection with computer games and other technologies. Although they acknowledge a central role for players' biological bodies in driving the machine along, they think that these embodied energies have no privileged position in the cybernetic mechanism:

In the lived embodiment 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, codes and flesh.

(Dovey & Kennedy 2006, p. 109)

However, this vision of computer game play as a closed circuit in which the human element has been distributed is in tension with their claims elsewhere that what motivates the movement of the apparatus is players' pursuit of particular pleasures.¹⁹ They associate the latter with 'sweet spots' like those encountered in sports (Dovey & Kennedy 2006, p. 116) and in players' pursuit of 'virtuosity'.²⁰

Paradoxically, this post-humanist conception of the computer game threatens to abstract games from their social context in the direction of what Bourdieu might have called a 'fictitious reconciliation' (Bourdieu 1990, p. 38) of actions that may have contradictory rationales. The cybernetic circuit is a theoretical fiction that threatens to swallow the practical, embodied logic of computer gaming, when what is needed is a framework that respects its intrinsic messiness and contradictions. More sensations are present in the repetitive repertoire of a

player's hands,²¹ its successes and failures in terms of the progress of the game, the player's frustrations, habituations and pleasures, than are accounted for by Dovey and Kennedy's reference to the 'virtuosity' with which players strive for success. Interpreting this activity as flowing, rather than as a disjoint struggle waged by an individual who wants to achieve something with an object is a reification of gameplay as a practice. In contrast, we should recognize that there is not one organizing meaning that suffuses the activity, but that its primary moments are in a sense just meaningless. Learning a routine in computer games involves countless interruptions, pauses and rethinks, as well as repetitions ending in different kinds of failure. There is a clear analogy between the way that Colleen Dunagan learns a new dance move and the process through which a player learns to master a new sequence:

Frequently, in order to learn a new dance movement, I find myself having to translate or transform the whole into a series of smaller actions that are familiar to me. Often in doing this, as I watch a demonstration of the movement, I assess the action in terms of what it feels like in my head. Developing a mental 'image' of the physical sensations assists me in analysing the step in terms of its similarity to other actions within my repertoire of physical possibilities.

(Dunagan 2005, p. 30)

The comparison with identifying formally identical situations, which vary widely in terms of their visual narrative trappings, within game situations is fairly clear here. Players learn movements of their hands and associate them with formal sensations (swooping, diving, swerving, or just 'picking up') that recur throughout a game and to some extent carry over between games. These sensations represent possibilities for experiencing space with a given game programme. Once mastered, moves can take on a different significance for a variety of actors – as part of a larger sequence later in the game where it might attract the admiration of other players, for example – but the core dynamic concerns these movements and their feel as embodied performance.²² This experience is not adequately comprehended by locating its actions within the technical intelligibility of a 'circuit'.

Taking the idea of a cybernetic circuit whose intelligibility specifies the discursive limits of gameplay leads Dovey and Kennedy, in common with most video game criticism, into an analysis that conflates game spaces with the ones that are seen on screen. Avatarial embodiment involves 'freedom' and its main pleasures are those of 'free movement' through what is sometimes referred to as 'virtual space' (Bolter & Grusin 2000). In Jenkins' (2000) work, the presentation of these spaces as spaces of exploration is a key factor in the way that video games are constituted as male domains: boys traditionally roamed the space in their physical neighbourhoods, while girls stayed at home and learned

to crochet or keep the house clean. Freedom to explore and its excitement are reproduced in the visual context of the computer game and this is both more attractive to boys learning the male habitus through an acquired attitude to space and this in turn reinforces the principle that such exploration and by implication computers with their 'virtual environments', are masculine. The problem with this approach is that it is one-sidedly focused on the idea of a space that is *seen* as against spaces that are defined through the movements of bodies.²³ It is in connection with habitus space that we find other processes relevant to gender and its reproduction. The assumption that repetitive bodily activity must be articulated to a coherent interpretation integrated under the horizon of meanings derived from one privileged perspective, whether this is the game's alleged fictional content or its smooth workings as a decentred pleasure machine, inhibits the development of a full understanding of such performances and their implications.

However, Dovey and Kennedy make an important conceptual innovation when they discuss the investment of specific social values in computer games. They identify a novel dimension within the processes of establishing social distinctions, one that emerges and grows with the significance of computer gaming itself as a social practice and the related diffusion of digital technical artefacts through contemporary culture. What they call 'technicity' 'encapsulate[s] 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' (Dovey & Kennedy 2006, p. 17). Later they add that 'technicity encompasses not just a set of tastes or attitudes but also very specific kinds of skill (or competencies) in relation to technology' (Dovey & Kennedy 2006, p. 114). Their thesis is that computer game play becomes invested with social values derived from the differing ways that people make sense of the activity and variations in the authority with which they do so. To explore this idea, they interview several game designers and find that the way they understand computer games constitutes a dominant or hegemonic technicity. The interviewees share a homogeneous view on what makes a good game and on the things that, for them, define a game player worthy of esteem and respect. More than 90 per cent of industry creatives are male and as bearers of authority within the field, these men forge a dominant identity in connection with computer games and in so doing they constitute a particular kind of masculinity:

The strands in what we have identified as a 'dominant technicity' are deeply gendered, offering a particular masculine identity a valuable cultural space in which to create imaginary, controllable worlds.

(Dovey & Kennedy 2006, pp. 75–76)

This analysis highlights the fact that social authority, conferred especially by economic success, enables a relatively small group of people to define what is

to be esteemed in connection with computer gaming as a cultural practice. The main effect of this is not to exclude women from developing a love of computer games but rather to make any involvement they do have (which might, of course, be conceived in terms very different from the ones we are used to of intense competitive play with an orientation towards winning and so on) to become invisible.²⁴

This point highlights the gender political significance of the lack of clear information about women who currently play games. According to Royce *et al.* (2007), women who play vary significantly in their gaming habits. The most significant variation is between 'power gamers' and more casual players, with the former playing for longer and exhibiting greater confidence about the reasons for playing and having fewer anxieties or inhibitions concerning the validity of the practice, or its consistency with their ideas of themselves as feminine. Perhaps the most interesting finding of this study concerned the responses of women who said they did not play computer games. The most commonly cited reason for not doing so was not a negative perception of the phenomenon as such, although on Royce *et al.*'s interpretation this was implicit, but the belief that they have more important things to do with their time. Respondents identified housework and family related tasks as the main factor taking up their time and preventing them from playing games, although it is clear that they also meant to disparage the possibility that gaming was an activity with any intrinsic value; they did not express any sense of regret that they did not play. These findings indicate that for women who do not play the mediation of computer games in public discourse is a key factor, while for those who do, there was a degree of ambivalence concerning the significance of the activity and its implications for their identity as women.²⁵

For Bourdieu, the formation of distinctions between cultural practices is not a superficial 'after the fact' matter of naming. Description is not a passive process of reflecting what is out there in the real but an active one that is constitutive of the objects it represents. For this reason, discussion of cultural practices always involves comparisons because the meaning of those practices is only formed through the very process of distinguishing them from other activities. The process of drawing distinctions is an exercise of social power and there is no evaluation of a cultural practice that is not also a deployment of power in this sense. It is therefore significant that branches of computer game scholarship should favour a formal, abstract definition of games and 'gameness' (Juul 2006), while esteeming 'smart' play. These, predominantly male, scholars contribute to a culture of computer game production and consumption that makes the contribution of people who do not fit the model of technology-savvy competitiveness marginal to everyone's perception of the field. However, Dovey and Kennedy's designation of games as 'cybernetic circuits' does not break with this, indeed it is not obviously subversive of it at all. In choosing this description, they seek to align their critique with that of cyborg theorists like

Haraway (2000) and Hayles (1995). For the latter, cyborg mergers with technology include an embodied process of incorporation, in which we conform to the demands of machines, but this is accompanied by inscription. Inscription consists in enlightened, poetic interventions that take on the potential to alter the significance of cultural-technical practice. However, the designation of games as dance is intended to introduce a further distinction *within* incorporation. Games and digital media more widely solicit embodied responses that sculpt space and sensation in ways that are not (pre)mediated by sense meaning or discourse. These spaces are appealing precisely because they are spaces of gender ambiguity, where delicacy and refinement are integral to boldness and confrontation, where exploring is inflected with curiosity.

The limitation of Dovey and Kennedy's approach is that it moves too quickly to associate habitus with representation. This precludes analysis of the video game habitus as an autonomous element in the process with capacities that are not exhausted by the meaning content or intelligibility of the effects to which it gives rise. These latent generative powers could be highly significant for the ties that link gender, technology and strategies of change and resistance in connection with contemporary technology beyond the computer game. Indeed, an important question to be addressed by computer game analysts and designers alike concerns the relation between bodily movements and the intelligibility of the gaming experience in terms of a culturally dominant master narrative. Why should these movements make sense? Can they be engaged in for their own sake? What is their relation to meaning and which circuits or economies of meaning do they participate in? In answering these questions, I find it useful to draw on dance, not to understand the computer games of the future or those that specifically invoke a dance metaphor, but all play with computer games. Moreover, the aesthetic value of dance as an inherent component in this activity raises a challenge to Bourdieusian approaches. For all that technicity or technical capital may be a useful concept, resistance to it involves recognition of the aesthetic as a distance that disrupts hegemonic unities and subverts the possibility spaces of cultural creation.

6. Conclusion: aesthetics and resistance

Approaching computer games as a form of popular dance enables us to free our interpretation of gaming from the idea that the experience is ordered under and takes its sense from the visual narrative element. Computer games are not to be understood in a context formed by discourse because their core structures invoke a different kind of power, namely, dressage. When we position individual games in contemporary cultural politics, we must take their algorithmic routines, their rhythms and sensations into account and not attempt to read off their 'meaning' from their textual components. Viewed in this way, it is clear that video games

are, in important ways, discontinuous with modern entertainment media or paradigms of reception associated with them. The body and especially the hands, have changed in relation to space. We have prostheses that enhance cognition (Thrift 2008, p. 102) and the video game controller in all of its various permutations illustrates this principle. The player who navigates game space does so not by committing to a visual space on-screen, but by working to produce it at the intersection of the intimate space of the hands and body with the multiple planes of the game interface. There are new, complex intersections of proximal, bodily space and the space of illusions traversed by the eye. The paradigm of a viewing eye and mobile visual field combined with a stationary body yields to one in which intimate spaces are formed by active hands that become information-bearing and mobile. Finally, in the new time-spaces thus constituted, the kaleidoscopic nature of this game space, which has no stable location on either side of the screen, becomes a locus of form in popular experience.

Interpreting computer games as dance has consequences for our understanding of their implication in gender. If technology has been viewed as masculine, it is well understood that dance is gendered as a feminine practice and it too remains entangled in contemporary understandings of gender performance. The great modernist ballerina of the early twentieth century, Isadora Duncan is often seen as paradigmatic in connection with the politics of this. According to Franko (1995), Duncan's dancing technique involved a novel degree of reflexivity that enabled her to take dance to a new level, a reflexivity that derives from aesthetic modernism. Dance had been understood in terms of 'expression theory'; the idea being that music creates an impression on the dancer (affect) which is associated with a sensation (feeling), which in turn explains, causally, the movement (gesture) of the dance. This expressive conception of dance aligned it with the traditional female properties of natural turbulence, excessive emotionalism, and a tendency to display. Duncan's dancing superseded this natural-expressive model, substituting instead a concern with dramatic effect, produced by the ordering of surfaces in a display. This display involved fabrics and light as well as Duncan's overtly female body.²⁶ Her dance repositions the body as a site of undischarged feeling and of ordered presentation, which produces a feeling response in the audience by making them aware of tensions internal to the dancer. As Franko (1995) puts it, 'the dancing self hosts a non-expressive communication between outer and inner' (p. 8). This is not a rejection of the feminine but an attempt to stage it on equal terms to the public activities of men:

Consider that affectivity was traditionally sequestered with family and sexuality in the private sphere. In view of this, Duncan's containment of affectivity within what I have called sensation can also be interpreted politically. That is, Duncan's rejection of an overtly delineated affectivity . . . is likewise

a refusal to credit the inner/outer or male/female binary by occupying, literally dancing on, its boundary. Neither within nor without, Duncan critiques such boundaries.

(Franko 1995, p. 16)

Through the interventions of Duncan and others, dance established itself as both a credible and serious aesthetic medium and it asserts the equivalence of the female with intelligence and self-control – a challenge to various kinds of misogyny. Feminist theory needs to take account of the presence of dance-like elements in contemporary culture, associated with the diffusion of digital technologies and controllers. Dance theory serves as an archive (Thrift 2008) for contemporary social theory and we need to use it in order to explore as yet unplumbed depths of experience relevant to the constitution of gender differences and the reproduction of social inequalities based on them.

Describing games as a form of dance is partly an intervention in the economy of technical capital associated with computer games; it is an attempt to encourage a particular position taken. But the fact that such a claim has any meaning at all is in some ways a challenge to Bourdieusian theory. The disposition to play a computer game is illustrative of the core elements of habitus as conceived by Bourdieu. To incorporate a game controller one has to be prepared by past training in the use of hand held devices that involve buttons, knobs and levers. Controllers resemble early learning toys in this respect and it is fair to say that these designs facilitate their insertion into the phenomenal world of the child. The most important habits that constitute the embodied learning of habitus are acquired in childhood and we can see that computer game controllers form part of a culture of hand use that has been established over the last two decades, since game consoles became part of the furniture in most domestic environments in the rich countries. For the majority, the young adult habitus has been formed through engagement with computer game controllers and involves internalization of norms of correspondence between hand actions and a responsive, dynamic environment full of colours, cartoon imagery and distinctive sounds. As well as defining a body that is equipped to receive and understand certain kinds of experience, habitus is also generative. Here too we can see that the term encompasses the creative dispositions of players. Players do not have to learn the basics of controller use, for example, each time they come to a new game. They have been culturally equipped for playing pretty much any game and the process of learning new moves, executed through complex series of actions with the controller is one that presupposes an embodied disposition. Only beings with the correct habitus can successfully engage with computer games and derive any benefit from the experience.

But as Beverley Skeggs (Adkins & Skeggs 2004) has argued in another context, the tendency to assume that habitus meshes seamlessly with the world that has formed it and which it helps to reproduce is deeply

conservative.²⁷ The circular causality that Bourdieu calls hysteresis, or reverse causation, conceals a number of breaks and slippages that have the potential to disrupt dominant meanings and to subvert common sense definitions. The computer game is a clear illustration of this since each new game can be critically assessed precisely in terms of how it stretches, extends and differentiates the *hexis* of the player. The better a game is, the more it complexifies this kind of computer game space. This critical standard for video game criticism is essentially identical with Galloway's (2006) call for more complex and original algorithms, which will make for more *avant garde* games. Such continuous differentiation is located at the level of habitus but constitutes an open challenge to the concept insofar as it entails stasis and continuity. The fact that a field of cultural practice can be marked by complex and changing embodied activity that nonetheless assumes a degree of habituation is problematic for social theory. That it seems to be enjoyed for its own sake and promotes conflict over its 'correct' description that runs for more than a decade is highly suggestive. It hints at the presence of a cultural field that won't settle down, indeed, of an area of cultural life that has a problem with designations like 'culture' and 'art' and raises questions about the very idea of 'distinction', as opposed to a democracy of taste.²⁸ Theory has a part to play in determining what kinds of values get invested and which interests served in the emerging field of distinctions that is digital technicity.

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Notes

- 1 Leading Sherry Turkle (1995) to speculate that Bill Gates might be the 'masculine ideal' for our times because his reputed geekiness is now associated with success.
- 2 Mark Poster, for example, writes that, 'With representational machines such as the computer the question of the interface becomes especially salient because each side of the human/machine divide now begins to claim its own reality: on one side of the screen is Newtonian space, on the other, cyberspace. Interfaces of high quality allow seamless

- crossings between the two worlds, thereby facilitating the disappearance of the difference between them and thereby, as well, altering the type of linkage between the two. Interfaces are the sensitive boundary between the human and the machinic as well as the pivot of an emerging set of human/machine relations' (Poster 1995, p. 21).
- 3 I have developed this argument elsewhere, see Kirkpatrick (2009).
 - 4 According to the curators of the Game On exhibition (Game On 2002), Lara was originally designed to appear as a normally shaped young woman but in the course of a series of game design meetings her breasts grew and her form became so hyper-feminized that, were she real, she would be unable to stand up for any length of time.
 - 5 Domestic environments and practices do feature in many games, from *the Sims* to cooking simulations in games like *Cooking Mama*, or the cookie making sequences in *Pokemon* games for the Nintendo DS.
 - 6 Aarseth (1997) tells us play is a risky enterprise involving commitment to a struggle, while Johann Huizinga writes that the etymology of play traces back to the Old German 'pflegan', which meant to 'vouchsafe' or guarantee. Huizinga (1950) writes of an 'inner hardness' that is essential to play. These views are consistent with Bourdieu's (1990) comments on the masculine nature of play and games as places where men square up to one another.
 - 7 Unit operations are chunks of code that define a programmed object and at the same time specify a set of meaningful actions for a human agent. They form the basis of Bogost's project for developing a comparative critical framework that encompasses computer games and other cultural media (Bogost 2006).
 - 8 I would relate this Juul's (2006) observation that the meaning horizon on gameplay recedes when we are caught up in its activities (p. 135).
 - 9 This characterization of the feminine as the duplicitous front with a mechanistic interior has a long history in philosophy, for example (Lloyd 1993).
 - 10 There is little consensus concerning the extent to which women play computer games and estimates of the proportion of gamers who are female vary widely. One industry body claimed 40 per cent of console game sales were to women (ESA 2009), but this figure has been treated with skepticism, with some pointing out that female consumers bought games for male partners and sons. There is evidence in this report and elsewhere of variation according to the kind of games played. Taylor (2006), for instance, suggests that women players may be proportionately more numerous in MMPGs than other kinds of game, while Kerr (2006, p. 107) suggests women may be more inclined to PC gaming than to consoles.

- 11 Viewed in this way, making computer games that appeal to women may be a kind of pyrrhic victory, on the same terrain Bourdieu (2001) situates many of the gains of the feminist movement, that is, they have not touched the underlying reality.
- 12 The thesis of extra-discursive dressage applied especially to female bodies and a key dimension to female oppression was elaborated first by Lefebvre (2004).
- 13 I have borrowed this term from the dance theory, where it denotes energy contained and deployed in the body to produce effect shapes (Adshead 1988).
- 14 Dominique Arsenault has provided a detailed analysis of the discrepancies between using the guitar hero controller and playing a real guitar (Arsenault 2008).
- 15 Dragonforce are a power metal band who specialize in very long, fast guitar solos. Their songs are available for *Guitar Hero* and well known for being particularly difficult.
- 16 For Immanuel Kant, aesthetic objects involve 'purposeful purposelessness' and present us with a 'finality without ends' (Kant 1960).
- 17 Programmed objects of the kind that prescribe unit operations are, of course, mathematical structures implemented in a computer.
- 18 They argue it is necessary to introduce this idea 'for our consideration of embodied gameplay' (Dovey & Kennedy 2006, p. 107) but do not explain why or what the ultimate purpose of their analysis is.
- 19 Similarly, King and Krzywinska (2006) suggest that players engage in repetitive play in pursuit of a pay-off in the form of 'visual pleasure' (p. 130). The nature of this pleasure is not clarified.
- 20 In contrast, Thrift also maintains that contemporary artefacts present as 'specialized feedback processes' but emphasizes that human beings do not encounter them as 'finished', but rather as 'opportunities to interfere in the flow' (Thrift 2008, p. 98). His approach is also tainted with a post-humanism that means he cannot explain what motivates such actions.
- 21 As Crogan (2010) points out, this does not change with the introduction of the *Wii*-mote, which still has a button control pad to be used by fingers and thumbs.
- 22 This aspect of game design, which involves the choreography of hands and inner sensations is the focus of Swink's (2009) pioneering work in the field of game design.
- 23 It also assumes that the male habitus of boys only includes one kind of distinctively male spatial experience when in fact the more self-enclosed space of the computer geek was previously that of the comic book collector, train spotter or home radio enthusiast (see Jones 2004). I am grateful to an anonymous reviewer for highlighting this issue.

- 24 A similar point is made by Taylor (2006) who argues that women play in the games she studies but do not secure recognition on equal terms with men.
- 25 According to Royce *et al.*, many women claimed they had less time than men for such trivial pursuits, but this perception is not born out by other studies of gender and time use (Gershuny 2000).
- 26 Ranciere (2007, pp. 97–98) discusses Loie Fuller in similar terms.
- 27 Writing in the same volume, Steph Lawlor notes that Bourdieu's views can seem to alternate between determinism and pessimism.
- 28 Bourdieu (1993, p. 60) notes that new works can revive old normative standards within a given field. Computer games issue a call to eighteenth-century ideas about the aesthetic form in just this way.

References

- Aarseth, E. (1997) *Cybertext: Perspectives on Ergodic Literature*, Johns Hopkins University Press, Baltimore, MD.
- Aarseth, E. (2004) 'Genre trouble: narrativism and the art of simulation', in *First Person: New Media as Story, Performance and Game*, eds N. Wardip-Fruin & P. Harrigan, MIT Press, London, pp. 45–55.
- Adkins, L. & Skeggs, B. (2004) *Feminism after Bourdieu*, Blackwell, Oxford.
- Adshead, J. (1988) *Dance Analysis: Theory and Practice*, Dance Books, London.
- Arsenault, D. (2008) 'Guitar hero: not like playing guitar at all?' *Loading...*, vol. 2, no. 2.
- Atkins, B. (2003) *More Than a Game: The Computer Game as Fictional Form*, Manchester University Press, Manchester.
- Badiou, A. (2005) *Handbook of Inaesthetics*, Stanford University Press, Stanford, CA.
- Bogost, I. (2006) *Unit Operations: An Approach to Videogame Criticism*, MIT Press, London.
- Bolter, J. D. & Grusin, R. (2000) *Remediation*, MIT Press, London.
- Bourdieu, P. (1990) *The Logic of Practice*, Polity Press, Cambridge.
- Bourdieu, P. (1993) *The Field of Cultural Production*, Polity Press, Cambridge.
- Bourdieu, P. (2001) *Masculine Domination*, Polity Press, Cambridge.
- Crogan, P. (2010) 'The Nintendo *Wii*, virtualisation and gestural analogics', *Culture Machine*, vol. 11, pp. 82–101.
- Dovey, J. & Kennedy, H. (2006) *Game Cultures: Computer Games as New Media*, McGraw-Hill, Berkshire.
- Dunagan, C. (2005) 'Dance, knowledge and power', *Topoi*, vol. 24, no. 1, pp. 29–41.
- ESA (2009) *Essential Facts about the Computer and Video Game Industry*, from Entertainment Software Association [Online] Available at: http://www.theesa.com/facts/pdfs/ESA_EF_2009.pdf (May 2010).

- Fortunati, L. (2002) 'Italy: stereotypes true and false', in *Perpetual Contact: Mobile Communication: Private Talk, Public Performance*, eds J. Katz & M. Aakhus, CUP, Cambridge, pp. 42–61.
- Franko, M. (1995) *Dancing Modernism/Performing Politics*, Indiana University Press, Bloomington, IN.
- Galloway, A. (2006) *Gaming: Essays in Algorithmic Culture*, University of Minnesota Press, Minneapolis.
- Game On (2002) 'Exhibition on the history of the computer game at the Barbican Centre London', *Summer*.
- Gershuny, J. (2000) *Changing Times: Work and Leisure in Post-industrial Society*, Oxford University Press, Oxford.
- Glyn, A. (2006) *Capitalism Unleashed: Finance, Globalisation, and Welfare*, Oxford University Press, Oxford.
- Hall, S. (2000) 'Paths to Anelphis: 1: dimorphic violence and the pseudo-pacification process', *Parallax*, vol. 6, no. 2, pp. 36–53.
- Hall, S. (2002) 'Daubing the drudges of fury: men, violence and the piety of the "hegemonic masculinity" thesis', *Theoretical Criminology*, vol. 6, no. 1, pp. 35–61.
- Haraway, D. (2000) 'A Cyborg Manifesto: science, technology and feminism in the twenty first century', in *The Cybercultures Reader*, eds D. Bell & B. Kennedy, Routledge, London, pp. 291–324.
- Hayles, N. K. (1995) *How We Became Post-human: Virtual Bodies in Cybernetics, Literature and Informatics*, Chicago University Press, Chicago.
- Huizinga, J. (1950) *Homo Ludens: A Study of the Play Element in Culture*, Beacon Press, Boston.
- Jameson, F. (1975) *Marxism and Form*, Princeton University Press, New Jersey, NJ.
- Jenkins, H. (2000) "'Complete freedom of movement": video games as gendered play spaces', in *From Barbie to Mortal Kombat: Gender and Computer Games*, eds J. Cassell & H. Jenkins, MIT Press, London, pp. 262–269.
- Jones, G. (2004) *Men of Tomorrow: Geeks, Gangsters and the Birth of the Comic Book*, Basic Books, New York.
- Juul, J. (2006) *Half Real: Video Games Between Real Rules and Fictional Worlds*, MIT Press, London.
- Kant, I. (1960) *Critique of Judgement*, Clarendon Press, Oxford.
- Kennedy, H. (2002) 'Lara Croft: feminist icon or cyberbimbo?', *Computer Game Studies*, vol. 2, no. 2.
- Kerr, A. (2006) *The Business and Culture of Digital Games*, Sage, London.
- King, G. & Krzywinska, T. (eds) (2002) *Screenplay: Cinema/Videogames/Interface*, Wallflower Press, London.
- King, G. & Krzywinska, T. (2006) *Tomb Raiders and Space Invaders*, IB Tauris, London.
- Kirkpatrick, G. (2008) *Technology and Social Power*, Palgrave, Basingstoke.
- Kirkpatrick, G. (2009) 'Controller, hand, screen: aesthetic form in the computer game', *Games and Culture*, vol. 4, no. 2, pp. 127–143.

- Kline, S., Dyer-Witheford, N. & De Peuter, G. (2003) *Digital Play: The Interaction of Technology, Culture and Marketing*, McGill-Queens University Press, Montreal and Kingston.
- Laclau, E. & Mouffe, C. (1985) *Hegemony and Socialist Strategy*, Verso, London.
- Laurel, B. (1995) *Computers as Theatre*, Addison-Wesley, Reading, MA.
- Lefebvre, H. (2004) *Rhythmanalysis*, Continuum, London.
- Lloyd, G. (1993) *The Man of Reason: Male and Female in Western Philosophy*, Routledge, London.
- Mulvey, L. (1996) *Fetishism and Curiosity*, BFI, London.
- Nordmann, C. (2006) *Bourdieu/Ranciere: La politique entre sociologie et philosophie*, Editions Amsterdam, Paris.
- Poster, M. (1995) *The Second Media Age*, Polity Press, Cambridge.
- Ranciere, J. (2007) *The Future of the Image*, Verso, London.
- Ranciere, J. (2009) *Aesthetics and its Discontents*, Polity, Cambridge.
- Royse, P., Lee, J., Undrahbuyan, B., Hopson, M. & Consalvo, M. (2007) 'Women and games: technologies of the gendered self', *New Media and Society*, vol. 9, no. 4, pp. 555–576.
- Swink, S. (2009) *Game Feel: A Game Designer's Guide to Virtual Sensation*, Morgan Kaufmann, Amsterdam.
- Taylor, T. L. (2006) *Play Between Worlds*, MIT Press, London.
- Thrift, N. (2008) *Non-Representational Theory*, Routledge, London.
- Turkle, S. (1995) *Life on the Screen*, Simon & Schuster, New York.
- Wajcman, J. (2004) *Technofeminism*, Polity, Cambridge.
- Wajcman, J. (2006) 'The feminization of work in the information age', in *Women, Gender and Technology*, eds M. Fox, D. Johnson & S. Rosser, University of Illinois Press, Illinois, IL.
- Ward, M. (2000) 'Being Lara Croft or we are all sci fi', *Pop Matters*, [Online] Available at <http://popmatters.com/features/000114-ward.html> (July 2010).

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