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Cultural Geography and Videogames

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Abstract

While videogames have been a popular form of entertainment practice for a number of decades, it is only recently that they have been paid much attention by academics. Although there is a burgeoning body of scholarship that deals with videogames in new media and games studies, human geography is only just beginning to offer its own take on the medium and the practices associated with it. This essay outlines ways in which scholars (both within geography and beyond) have traced out the geographies in videogames (in terms of the representations and politics within videogames), the geographies of videogames (in terms of the production and consumption of videogames) and videogames as a cultural geographical practice (in terms of the technocultural practices through which videogames and videogamers are produced). We argue that approaching videogaming as a (techno)cultural practice can enrich the cultural geographies in and of videogames.

Introduction

Videogames are an important, and increasingly prevalent, feature of popular culture in everyday life. Despite this, they remain under-represented in studies of the geographies of popular culture. While cultural geographers have often attended to other media – in particular, film (for example, Aitken and Zonn 1994; Carter and McCormack 2006; Clarke 1997; Dixon and Cresswell 2002; Doel and Clarke 2005, 2007), music (for example, Anderson 2004; Connell and Gibson 2003; Gibson 1998; Halfacree and Kitchin 1996; Horton 2010; Kong 1996) and even comics (for example, Dittmer 2007, 2010; Dunnett 2009) – videogames have received surprisingly little attention. In this paper, we will explore the cultural geographies of videogames and videogaming. Our aim is to chart a space in-between debates in geography surrounding videogames and broader literatures in games, media and cultural studies. We argue that exploring the relationship between these literatures opens a new set of questions with which to investigate the diverse technologies and practices of videogaming, particularly with regards to issues of materiality, practice and control.

With this aim in mind, the paper is split into four main sections. We begin by thinking about what videogames are and the debates surrounding the problem of defining them. In the following sections, we consider the relationship between geography and videogames in three ways. First, we explore the geographies in videogames. That is, we discuss literature relating to spatial representation in videogames and debates about the politics and effects of these representations. We then turn to the geographies of videogames. Here we look at literatures that deal with the diverse spaces in which videogames are produced and consumed. Finally, we turn to explore videogames as a form geographical practice. That is, work that approaches videogames as powerful technologies implicated in broader processes of governing what bodies are and can do. We discuss how concepts of materiality, practice and embodiment can be used to understand videogames. In conclusion, we argue that approaching videogaming as a (techno)cultural practice can enrich and feed back into debates regarding the cultural geographies in and of videogames.

Videogames

Videogames have occupied popular consciousness for at least 30 years. They can be played on a range of media from home computers, to arcade cabinets, to videogame consoles, to smart phones. Alongside the variety of technical apparatuses for accessing videogames, a broad range of videogame genres exist – including, racing games, First Person Shooting (FPS) games and Role-Playing games – each of which makes use of different graphical styles, spatial conventions and so forth. As such, the term 'videogame' refers less to a single, identifiable object and more to a plethora of technologies, genres and materialities.

Early work in what is referred to as the specialist field of 'game studies' was often preoccupied with the challenge of defining videogames. Scholars attempted to develop a formal 'ontology, typology and classification' (Bogost 2006, xii) which would allow them to demonstrate the ways in which videogames are different from, or similar to, other media (very often film, see King and Krzywinska 2002; Kirkland 2008). In this way, scholars were able to justify the existence of their field and gain some legitimacy for that field in relation to more established forms of media. This mirrors other appeals for the respectability of a particular medium by linking it to the conventions of a more established form. For example, early photographic work was compared to painterly composition (Barthes 1977), and early cinema was compared to the theatre and the literary forms of the novel and poetry (Gunning 1981). In contemporary scholarship, comics have been compared to cinematic film (film studies is now a well-established field of inquiry) in much the same way as videogames (see, for example, Dittmer 2010). Comparisons of this type can be appealing as they allow scholars to make use of well-established theoretical vocabularies, but they necessarily downplay the material specificity of individual media, as well as the differences between individual videogames.

Many forms of screened media can be reasonably straightforwardly (if reductively) defined in terms of the technological apparatuses through which they are constituted. For example, a cinematic film may be produced using different cameras or techniques. Nonetheless, to experience the film as cinema, audiences will sit in front of a screen where they are exposed to a display of twenty-four images every second produced by a projector. This technical apparatus creates the experiences of the moving image in cinema (Doane 2002). The experience of sound in the audio–visual experience of cinema is produced through a technical apparatus of amplifiers and speakers. Viewers experiencing the same film as video or television will experience it through different technical apparatuses through which a film is constituted as video or television (see Marks 2002 on some of the aspects that contribute to the embodied experiences of viewing video).

In contrast, videogames are constituted via more diverse technical apparatuses. While the contemporary standard for videogaming may still involve equipment which uses the thumbs and fingers to perform actions on a hand-held control pad which is connected to a console, they can be controlled in a growing number of different ways. Every aspect of a videogame – from programming, to graphics, to sound – is conditioned by the specific computational platform on which that game exists (see Wolf 1997 for an attempt to formally classify the various elements from which videogames are composed). Different videogaming platforms offer radically different input and output devices. For example, videogame arcade cabinets traditionally contain a screen, speakers, a joystick and some buttons which provides users with everything they need to play the game, while the Nintendo DS is a hinged, hand-held gaming system which presents the videogame user with two screens (the lower of which has

touch-screen functionality), some buttons dispersed around the unit, and speakers. The technical apparatuses of individual videogaming platforms require and produce very different forms of bodily practice, which makes direct comparison between videogames on different platforms difficult. As Newman explains:

> [T]he dissimilarities between a beatmania game in which the player is required to physically input dance steps on a pressure sensitive playmat/dancefloor and a word puzzle game played on a mobile phone seem far more obvious than the similarities. (2004, 9)

In much the same way, there can be great differences between individual videogames that are played upon a single videogaming platform depending upon the conventions expected within a particular genre, as well as the particular aims of the designers. It is, therefore, difficult to provide an absolute and universal definition of videogames. For example, some types of games follow what Jesper Juul (2002) describes as a 'progression' structure in which game designers control the sequence of pre-determined challenges and events that users experience as the game story. Although players are usually given some freedom to roam within the game environment, playing 'progression' games often 'leads to the infamous experience of playing a game 'on a rail', i.e. where the work of the player is simply to perform the correct pre-defined moves in order to advance the game' (p. 323). Adventure and role playing games (RPGs), such as Final Fantasy XII, often follow this kind of structure, as do the 'story modes' of FPS games like Call of Duty 4. Juul also identifies another type of game structure: emergence. These type of games offers a small number of rules, from which a wide variety of game situations and events can occur. This structure is found in all strategy games – including turn-based strategy games like Civilisation and real-time strategy (RTS) games like Dune II – and also in the multiplayer modes of FPS games like Call of Duty 4 (see Ash 2010a on how the contingency of events within the multiplayer mode of FPS games is shaped by designers). Juul (2002) explains that massively multiplayer online role-playing games (MMORPGs) like Everquest combine elements of progression and emergence, such that they offer an open world experience to a large number of players (an emergence structure) but with built-in quests (progression structures).

Attempts to produce a typology of videogames have often focused either on the ways in which different videogames convey narrative (a so-called 'narratological' perspective, for example, Murray 1998; Poole 2004) or on the rules and other aspects of gameplay in videogames (a so-called 'ludological' perspective, which links videogames to broader understandings of games and play in human culture, for example, Aarseth 1997; Juul 2005). An example of a narratological approach to videogames is Janet Murray's argument for an understanding of games as stories or 'cyberdrama'. As she writes, 'game-story here means the story-rich new gaming formats that are proliferating in digital formats: the hero driven videogame, the atmospheric shooter, the genre focused RPG, the character focused simulation' (Murray 2004, 2). From a narratological perspective, videogames generate new forms of narrative derived from the procedural nature of computer code and software. The action of playing the game produces a narrative, which is generated around a 'collaborative improvisation, partly generated by the authors coding and partly triggered by the actions the interactor takes in the mechanical world' (Murray 2004, 5). This form of narrative is different from television, for example, because the ways in which the narrative unfolds is shaped by the contingency of the players' action in the game world.

Ludologists argue that narratological theories are insufficient for understanding videogames because they are a 'configurative' rather than an 'interpretive' practice (like film or

literature) (see Aarseth 1997; Eskelinen 2001; Ryan 2001). As such, ludologists want to concentrate on the game mechanisms in videogames, and the ways in which users interact with them. Thomas Malaby (2007) explains that much of this work is heavily influenced by cultural theorists such as Johan Huizinga (1955) and Roger Callois (2001) in its attempts to build upon 'a set of theoretical tools that would be for gaming what narratology was for narrative' (Frasca 2003, 93). Jesper Juul (2005) argues that videogames are composed of 'real rules and fictional worlds' and explains that the interactions between the two are 'one of the most important features of videogames' (p. 1). Juul (2002) does concede that it is 'an obvious point' (p. 328) that the rules of a game will influence how it is played, but he argues that the value of a ludological perspective in the study of videogames lies in explaining quite how this happens. He, therefore, argues that the following questions should be integral to the study of videogames:

> What does it take for something to be a video game, and when is a video game enjoyable? How do rules in games work, and how do they provide enjoyment for players? How and why does the player imagine the world of the game? (Juul 2009, viii)

However, the debates surrounding narratology and ludology are based on something of a false dichotomy, as 'videogames just do encompass more than one characteristic mode of engagement' (Travinor 2008). In other words, when playing a game many users experience the game as a story with a narrative as well as a complex rule-based system. Indeed, it is now widely acknowledged within Game Studies that the issue is more of 'a debate that never took place' than a real division within the field (Frasca 2003, 92). With this in mind, the term 'videogame' is more usefully conceived as a discursive trope, rather than a precise definition that can act as an umbrella under which every individual game can sit. As Bogost suggests:

> [W]hen I speak of videogames I refer to all the varieties of digital artefacts created and played on arcade machines, personal computers and home consoles … When I speak of videogames I am generally content to let the reader understand the term in its 'loose and popular sense'. (2006, xiii)

In concentrating on what videogames are – by attempting to develop a set of formal definition and typology of videogames – games scholars often ignore why people actually play videogames. They risk missing the experience of playing actual videogames and the practices employed by individual players. As Reeves and colleagues explain:

> [T]here are few studies of how games themselves are played. Video games involve skill with sophisticated software, often in complex virtual environments … there is less documentation and investigation of the intricacies of deft gameplay – that is, the very thing that attracts players. (2009, 206)

Yet, it is not only in attempts to define videogaming that the experiences of practices of videogaming recede into the background of academic accounts. The practices and experiences of videogamers (as they play videogames) are often overlooked when scholars concentrate on the representational qualities of videogame images or the identities of users within communities of videogamers. In the remainder of the paper, we explore the ways in which scholars have approached the geographies in videogames (in terms of the representations and politics within videogames) and the geographies of videogames (in terms of the production and consumption of videogames). After doing so, we think about the ways in which videogaming can itself be understood as a geographic practice.

The Geographies in Videogames: Representations and Politics

Much of the literature on videogames within cultural geography has attended to the ways in which videogames represent people, places and concepts. For example, geographers have explored the ways in which nature is represented in videogames (Longan 2008; Wills 2002) and also the ways in which the graphics engines of videogames can be utilised to simulate particular landscapes (Ash et al. 2009). Yet, studies which unpick the geographies in videogames do not simply attempt to describe the ways in which particular groups or landscapes are represented in videogames; they often incorporate an element of judgement about the consequences of portraying people and places in particular ways. As Michael Longan (2008) explains: 'video games not only incorporate representations of landscape, they are themselves a form of landscape representation that communicates ideas about how the world is and how it should be' (p. 23).

In this way, cultural geographers (and others) have been very concerned with the politics embedded within videogame representations. One particular aspect of this type of work has attended to the portrayal of gender in various different videogames. For example, the essays in Cassell and Jenkins (2000) have explored parental and societal fears about the misogynist nature of many videogames and the effects that they have on the young boys and girls who play them. Other researchers share these concerns and have explored the gendered, and often hyper-sexualised, portrayal of characters in games (for example, Jansz and Martis 2007; Leonard 2009; Shaw and Warf 2009) and on videogame packaging (Burgess and Burgess 2007). Similarly, scholars have been interested in the ways in which videogames reinforce heteronormativity through their portrayal of other sexualities or, indeed, the invisibility of gay, lesbian, bi-sexual and transgender characters in many games (Shaw 2009). In this sense, videogames act to 'remediate' (Bolter and Grusin 2000) earlier tropes from other media, such as television and cinema, within a new context, but can also work to legitimate these tropes through the production of intertextual relations between themselves and other media.

In a similar manner, scholars have explored the racialised landscapes within videogames and examined the ways in which videogames reinforce existing racial stereotypes (for example, Everett and Watkins 2007; Higgin 2008; Newman and Molloy 2003). In a post-9/11 geopolitical context, many studies have been particularly concerned with the Orientalist representation of Arabs in videogames (for example, Šisler 2008; Witheford and Peuter 2009). Ian Shaw and Barney Warf argue that the portrayal of Arab enemies in videogames like Call of Duty 4: Modern Warfare problematically reinforce pre-existing ideas of 'otherness' and, thus, produce potentially racist landscapes:

> Equally concerning is that video game worlds remain steeped in racialised representations (Jansz and Martis 2007), including the near universal portrayal of white video game protagonists. This privileging of the white normative user is still widely prevalent in new forms of media and cyberspace (Lovink 2005), creating highly racialised (and often racist) virtual topographies. (2009, 1337)

That is not to say that all videogames draw upon or promote negative images of Arabs. Helga Souri (2007) has carried out a study of 'pro-Arab' videogames which are popular among young Palestinians. As a medium, videogames complicate simple relationships between players' identities and the representations of various ethnicities, and nation states depicted on screen. For example, the game Medal of Honor was recently criticised in the media because the team element of the multiplayer mode assigned some players to fight as

the Taliban (Yin-Poole 2010a). In response to these criticisms, the designers simply changed the name of the Taliban team to 'OPFOR', a generic term used by various special forces around the world to signify an 'opposing force' (Yin-Poole 2010b). The graphical models of the Taliban fighters and their battle cries remained identical within the game, but the controversy died down. For videogamers playing FPS games like Medal of Honor or Call of Duty 4, the question of identity becomes much more complex, ephemeral and fluid because users do not necessarily share the belief system and values of the avatars represented on the screen.

Nonetheless, these videogames are never politically neutral. Marcus Power has argued that military-themed videogames work to shape popular understandings of geopolitics and contribute to what he calls the 'militarisation' of everyday life. As he explains: 'Digital war games put a friendly, hospitable face on the military, manufacturing consent and complicity among consumers for military programmes, missions and weapons' (Power 2007, 278). Through the example of America's Army – the official US military videogame – Power explains that videogames work to legitimise and produce consent for state policy (in this case, US foreign and domestic policy), which is based on a culture of perpetual war. Similarly, David Leonard (2009) has explored the role of hegemonic ideologies of race in the Grand Theft Auto series of videogames. Leonard argues that the racialised landscape produced in these videogames produces supports for policies of (non-military) state violence towards non-white communities in the USA.

The Geographies of Videogames: Production and Consumption

While videogames may be said to contain all manner of problematic representations – and to produce variously raced, gendered and sexualised landscapes – videogamers do not necessarily or straightforwardly accept these representations. Leigh Schwartz has carried out a study of the cultural practices of videogamers in online communities. She argues that videogame users actively interrogate and contest the portrayal of black characters in the Suikoden series of Japanese RPGs in their online discussions:

> [T]hrough participatory consumption, players expand upon their relationship to an interactive environment that can be explored at will, a geographic experience. Fan practices complicate this geographic experience so that Suikoden becomes more than simply a one-way communication from Konami [the publishers of the game] toward its countless end users; it is a collaborative representation created through interaction between players and designers. (Schwartz 2009, 272)

Schwartz argues that (English-speaking) online forum members actively question the presence or absence of black characters in the game, and analyse this from both their own (largely western) cultural understanding as well as the cultural assumptions of Suikoden's Japanese producers. These users are sensitised to the multiple geographies and geographical assumptions that are mobilised in the Suikoden videogame series as it passes through a variety of cultural lenses from producer to consumer. In this way, they can be said to act as 'pop cosmopolitans' in so far as they are aware of the problems of cross-cultural interpretation within globalised consumer cultures (see Jenkins 2004). In this way, the geographies in videogames are never entirely fixed, nor are they deterministic; they are realised in different ways in different times and places, and among different communities of users. Accordingly, the geographies in videogames are more meaningfully understood in relation to the geographies of videogames (which encompass aspects of production and consumption).

Developing Jackson et al.'s (2000; Jackson 2010) understanding of how commodities are diversely consumed, Shove et al. (2007) have investigated the relationship between processes of designing objects and their consumption and use. James Ash (2010a) has explored the ways in which videogame designers seek to assert control over the interactions between videogame users and videogames by shaping contingency through processes of testing prior to release. Although the testing process is a small part of the overall process of commissioning, designing, publishing, distributing and playing videogames, Ash argues that it is crucial to shaping the users final experience with the game and, thus, its commercial success. More broadly, Jennifer Johns (2006) has attempted to trace out the economic geography of the global networks through which videogames are produced and made available to consumers. Edward Castranova (2006, 2007) has explored the networks through which immersive 'virtual worlds' in videogames are produced and consumed in terms of their cultural effects and significance.

The production and consumption of videogames is caught up with wider issues about uneven access to information and communication technologies (ICTS) and the kinds of social exclusion that result from this (see, for example, Valentine et al. 2002). Videogames are often viewed as aspects of children and young people's cultural worlds more than those of older people. This is caught up with characterisations of children and young people as a 'digital' or 'net' generation (Dixon and Weber 2007; Tapscott 1998; Valentine and Holloway 2002). Adults often worry about children and young people's safety in their online activities, which often involve playing videogames (Chisholm 2006; Fleming et al. 2006; Valentine and Holloway 2001). However, videogames are not simply made for and played by children and young people; people of all ages play videogames (see Quandt et al. 2009 for a discussion of 'the grey haired gaming generation'). While the so-called 'digital divide' may not be straightforwardly generational, the cultural geographies of videogames are affected by disparities of race, class and gender which affect access to necessary technologies and equipment (on the uneven geographies of ICT, see Warf 2001).

The cultural geographies of videogaming might be situated within broader trajectories of the 'virtual' geographies of cyberspace (see Crang et al. 1999; Dodge and Kitchin 2000; Graham 1998) and the coded spaces of software (Dodge et al. 2009). There have been various studies that have investigated how cultural identities and social networks are formed in the synthetic and virtual worlds of online videogames – in what are often referred to as MMOGs (massively multiplayer online games) or MMORPGs. For example, videogame scholars have explored the development of social spaces and communities in a range of online games and virtual worlds, including World of Warcraft (Krzywinska 2006), Everquest (Taylor 2006), Second Life (Boellstorff 2010; Meadows 2007), Whyville (Kafai et al. 2010) and Club Penguin (Marsh 2010), among others. The immersive, synthetic environments in MMORPG games can have an extremely positive effect in terms of building communities and unique cultures, but there are also negative consequences, which can include cyberbullying and serious addiction (see Kelly 2004). Online cultures can also build up around videogames that are not themselves played online (see, for example, Duncan and Gee 2008 on fan cultures and The Legend of Zelda series of videogames).

Yet, while videogames may be said to produce 'virtual' worlds, they are always, inevitably, played in the 'real' world. Like earlier forms of ICT, videogames have very real effects on the organisation of the social and cultural spaces in which they are played (see Silverstone and Hirsch 1994). For example, Sonia Livingstone argues these technologies can lead to 'living-room wars' in which adults and children contest and negotiate access to technologies

(1994 in Silverstone and Hirsch 1994), or their use can serve to reinforce a 'bedroom culture' among children and young people (Livingstone 2007). Bernadette Flynn explains that videogames can only be understood as part of a broader geography of the settings in which they are played. As many videogames are played within the home, she argues that videogames constitute a new 'digital hearth' around which activities in the home are organised:

> [A] machine located in the living room that receives and responds to interactive entertainment and information does appear to shift more traditional geographic categories in the home. These changes can be summarised as: shifts in spatial patterns of room organization; changing forms of social relations between householders; and the temporal reorganization of space. (Flynn 2003, 574)

In this way, videogames not only affect what people think and feel about the world; they tangibly and demonstrably affect the material and social environments in which they are played (see Miller 2001, 2009 on material culture and consumption). Similarly, Jeremy Aber (2008) has studied the activities of a community of arcade collectors. While the social experiences of videogaming in arcades are no longer widespread among videogamers (at least in the USA and Western Europe), dedicated collectors find and restore cabinets so as to recreate the experience in their own homes and at local and national events. Aber's photo-essay explores this cultural geographies that result from these practices of collecting arcade cabinets. Understanding the cultural geographies of games in these ways is important because it reminds us not to assume that everyone who plays videogames will experience them in the same way. By attending to the multiple ways in which videogames are interpreted and used in different times and spaces we can consider the ways audiences actively interpret and appropriate various games rather than passively receive them in a uniform manner.

Videogames as Cultural Geographies

In many of the accounts discussed above, videogame and computer-generated spaces are often conceived of as 'virtual'. This 'virtual' space is often opposed to the 'actual' space of 'real' everyday life. For example, Tomas (1991) argues that the 'cyberspace' of the internet exists in parallel to the 'real' world: 'cyberspace is a post-industrial work environment predicated on a new hardwired communications interface that provides direct and total access to a parallel world' (p. 35). However, this distinction is not enormously useful in studying videogames. Indeed, the account is somewhat teleological: it artificially creates a realm called 'the virtual', which is understood as separate from 'the actual' or 'the real', and then uses this distinction to explain the differences between 'virtual' and 'real' environments. 'Virtual' worlds do not sit alongside the 'real' world; they are themselves 'real' worlds, which are brought into being through material practices and technologies. Seth Giddings explains the ways in which the virtual and the actual are intertwined through the example of two boys playing Lego Racers 2 (see also Woodyer 2008 for a geographical analysis of children's play with this game):

> Through play, these boys shifted across these two spaces with ease, their play adapting to the different environments, environmental resources, and the capabilities and possibilities they afforded. The virtual space in this event of gameplay does not transcend the everyday and embodied, it is a real space to be explored and in which the player can act, and be acted on. The virtual and the actual are both real, and in this event were each contained within the other, intertwining, each inflected by the other. Neither preexist the play-event itself though, rather they are reciprocally

generated, produced in and through play events.' (Giddings 2009, 151; see also Giddings 2007)

In a similar way, James Ash (2009) has argued that videogame images produce both an existential and ecological form of space that result in an experience of 'world' for their users. The sense of 'world' here is not of some stable and neutral thing which pre-exists users' interaction with it. Rather, the sense is of a processual world that actively emerges from the practices of users. This is the sense of world at work in what have come to be referred to as 'nonrepresentational' theories in cultural geography. As Ben Anderson and Paul Harrison explain:

> [T]he term 'world' does not refer to an extant thing but rather the context or background against which particular things show up and take on significance: a mobile but more or less stable ensemble of practices, involvements, relations, capacities, tendencies and affordances … In this sense 'worlds' are not formed in the mind before they are lived in, rather we come to know and enact a world from inhabiting it, from becoming attuned to its differences, positions and juxtapositions, from a training of our senses, dispositions and expectations and from being able to initiate, imitate and elaborate skilled lines of action. (2010, 8–9)

For Nigel Thrift, nonrepresentational theory is about studying the world as a series of performances and practices in which it is never fully constituted or finished. As he explains: 'the world is made up of billions of happy or unhappy encounters which describe a mindful connected physicalism consisting of multiple paths which intersect … In this wiry … space-time of encounters and paths … there are no complete orders, only tentative and fractional orderings' (Thrift 1998, 302). In Thrift's account, all manner of entities – from thoughts, to bodies, to buildings – are never stable lumps of matter (however much they may appear to be), but have to be brought and held together continually. As a result, they can be reorganised and changed through practices.

Thrift (2003, 2004) understands the practices of videogaming as part of broader processes through which new forms of technology reorganise thought and action. He terms this a reorganisation of the 'technical unconsious'. He explains this in relation to the videogame The Legend of Zelda: The Ocarina of Time:

> Think about the ten-year-olds who willingly immerse themselves in Zelda's world. For them the struggle for mastery of the system doesn't feel like a struggle. They've been decoding the landscape on the screen, guessing at causal relations between actions and results, building working hypotheses about the system's under-lying rules since before they learned how to read … They are more tolerant at being out of control, more tolerant of that exploratory phase where the rules don't all make sense, and where few goals have been clearly defined. In other words, they are uniquely equipped to embrace the more oblique control system of emergent software. (Thrift 2004, 186–187)

What is clear in this example is that the experience of playing the game, the code used to produce the game, the materiality of the interface, the rules that govern the game, and so on, cannot be meaningfully distilled into discrete categories. Rather, these elements work together to reorganise and change users' practices of thought and action (see also, Bogost 2007).

James Paul Gee argues that videogamers have to match up skills to events in the videogame world. This includes skills attributed to the characters within the game, and also their own

skills as videogamers. Through the examples of Metal Gear Solid 4 and Sonic the Hedgehog, he explains:

> So that's what good gamers do: match skills to the environment to create affordances for accomplishing goals. That's what they do when they play Sonic or Snake. So Snake and I both got a lesson from Raiden, Otocon, and Mr. Kojima on the whole theory. Get some skills and match them to the environment to accomplish goals. That's gaming (later I'll tell you that that's life, too). (Gee 2009, 273)

Videogame scholars have explored the specific skills that videogamers must develop in order to play a wide variety of videogames (see, for example, Sirak 2009; Wilson 2008). Building upon these ideas, James Ash (2010b) has argued that videogames might be understood as teleplastic. That is, scholars can attend to the ways in which videogames shape the capacities of their users. Not all games will affect users in the same way; exactly how videogames shape users' capacities depends upon the specificities of the games themselves. Through the examples of Burnout Revenge and the Lego Star Wars series of games, Ash argues that videogames shape users' abilities to sense space and time. Different videogames produce different forms of spatiality and different spatial experiences for users. For example, RTS games such as Starcraft 3 use a third person isometric view and offer a detached perspective on the environment, while FPS games such as Half Life 2 offer a first person viewpoint as if the player is looking through the 'eyes' of the character they control. This first person perspective creates a sense of urgency, presence and immersion as enemies can rush towards the user, while the third person perspective offered in Starcraft 3 creates a sense being a kind of military general overlooking a battlefield and controlling remote units from afar. Other scholars have explored the experience of space and time in other videogames (for example, see Sherlock 2008; Siabra-Fraile 2008; Wilson 2008 on the The Legend of Zelda series of videogames). In his account of the processes of testing videogames, Ash (2010a) notes that games designers are able to shape the spatial and temporal experiences of videogamers and their practices by manipulating the rules of videogames (albeit imperfectly). In this way, he argues that videogaming can be understood as a geographic practice.

Yet, the teleplastic capacities of videogames do not simply derive from the images displayed on the screen (or the sound played through the speakers); they actively emerge from the relations between users and the game, which are mediated through the technological apparatuses of particular videogaming systems. Videogamers interact with these technological apparatuses in multisensory ways. Computer and videogame consoles often utilise a range of haptic devices that engage users with 'force feedback' and reproduce a sense of touch as users interact with the audio–visual images in videogames (Paterson 2006; see also Lahti 2003). Some games and console systems require some kind of kinaesthetic input from users in order to play games. Jesper Juul (2009) refers to these apparatuses as 'mimetic interfaces' because they require users to perform physical activities which mimic the activity undertaken in the game. For example, the videogame Dance Dance Revolution requires users to move their feet to different parts of a 'dance stage' controller (which contains pressure sensors) in line with the directional instructions on screen (see Behrenshausen 2007). The Nintendo Wii console system includes remote controllers equipped with motion sensor technologies. Through these controllers, Wii users are able to manipulate the images on screen in various ways by moving their limbs. This technology has resulted in the development of a whole family of so-called 'exergames' for the Wii, which encourage users to move their entire bodies (Millington 2009). Most recently in 2010, Microsoft released the 'Kinect' interface for the Xbox 360 games console that allows users to interact and control games without any kind of mediating control pad or interface. By

utilising motion-sensitive cameras, users control the game through gestures performed by their bodies, which raises further questions about the relationship between bodies and screens. Yet, the multisensory experiences of videogaming are not limited to the kinds of videogames and videogaming systems which overtly and explicitly demand embodied responses and inputs. James Paul Gee (2008) argues that videogaming generally can illustrate the ways in which human thinking and problem solving are always situated and embodied activities.

Attending to the ways in which users interact with the rules of videogames and the technological apparatuses of individual videogaming systems allows geographers to unpick some of the ways in which space and time are re-engineered as a result of ongoing changes in visual culture (see Doel and Clarke 2005 for a discussion of similar processes in relation to film). Ash (2010b) argues that the ability of videogame users to sense space and time is a function of their phenomenal field. He explains that, by designing videogames and manipulating the rules of those games, videogame designers are able to indirectly shape the phenomenal field of those who use their games. As a result, the practices of playing videogames can produce different forms of spatio-temporally oriented subjects. Similarly, Brad Millington explores the governmental functions of the Nintendo Wii. He argues that through the technical apparatus of various 'exergames', the Wii performs as 'an active and autonomous quasi-object risk expert, able to diagnose 'problematic' tendencies and prescribe basic behavioural remedies' (Millington 2009, 621). In this way, Wii games explicitly set out to shape the bodily capacities (and bodily shapes) of their users.

This kind of argument develops what has been called a 'phenomenological' apprehension of practice (see, Romanillos 2008; Rose and Wylie 2006; Simpson 2008, 2009; Wylie 2006). Broadly speaking, phenomenology 'aims to describe the character of consciousness in the most clear and systematic way, and which concerns itself only with that which presents itself to consciousness' (James 2006, 71). Phenomenology attempts to understand how different forms of materiality shape and inform consciousness and other embodied processes (such as, gestures and proprioception (the sense of internal movement of one's body that generates an experience of spatial situatedness). This perspective does not assume that experience begins with a preconstituted subject; it unpacks how conscious subjects are produced in encounters between material bodies.

This kind of approach is also associated with attempts to rethink matter and materials within cultural geography and more widely (see, Anderson and Harrison 2010; Anderson and Wylie 2009; Bissel 2010). Rather than conceiving of matter as a collection of solid lumps or as inert substances, new imaginings point to its vital and lively character. For example, Jane Bennett (2010) argues that objects have a 'thing power' that exceeds any of the relations that humans enter into with them. This means that objects have capacities to affect (human) bodies in the same way that human bodies can work upon and affect objects. This kind of approach is useful in thinking through the technocultural assemblages at work in videogaming. Seth Giddings understands videogame play as an 'event' which emerges from the practices of both human and nonhuman participants. He explains: 'video game players are acted on as much as they act, that they must work out what the machine wants them to do (or what it will allow them to do) as well as engage with it imaginatively' (Giddings 2009, 151). Giddings tasks videogame scholars with the challenge of explaining the material events which are produced by 'various bodies and agents – part(icipant)s both human and nonhuman, hard and soft' (Giddings 2009, 155).

In his study of 'active' videogames, Brad Millington's (2009) draws upon Latourian ideas to explore the ways in which the Wii purposefully folds technologies into the bodies of its users and produces 'new articulations of technology-mediated control' in the process (p. 628). He turns towards Foucauldian notions of governmentality as 'the conduct of conduct' to argue that '[t]he body-machine continuum that is constructed in one's engagement with the Wii can be seen as enabling a disciplinary force to be exerted over the body' (Brad Millington 2009, 629). For example, in Wii Fit, users' gestures and movements are measured by the Wii controller (in combination with the balance board peripheral) and used to asses and score their efforts in each activity. This form of measurement generates a sense of self-surveillance over the normalcy of the users' own body-type as well as providing an external benchmark against which to measure their progress. In this way, videogaming can be understood as contributing to a (micro)politics of practice in which technologies structure the ways in which people make sense of their own bodies, particularly in relation to societally sensitive issues of weight, size and obesity (for a more general discussion of issues surrounding body size in geography, see Colls and Evans 2010; Evans 2006; Evans and Colls 2009; Herrick 2007).

By attending to the materiality of videogames, scholars can produce what Seth Giddings (2009, following Hayles 1999) terms a 'microethnographic' or 'microethological' approach to the cultural geographies of videogames. Streek and Mehus (2004) explain that microethnography refers to the 'microscopic analysis of naturally occurring human activities and interactions' (p. 381), which can be usefully facilitated through the use of video (see also Smith and Geoffrey 1968 and Erickson 1995 on the origins of microethnography). Earlier in this paper, we discussed Marcus Power's argument about the ways in which military-themed videogames shape popular understandings of geopolitics and contribute to process of militarisation in everyday life. A microethnological approach can allow scholars to study the technocultural assemblages implicated in videogaming practice through which (for example) military-themed videogames are able to manufacture consent for state policy among many videogamers in the USA. Tracing out the embodied experiences of firing weapons in popular military-themed videogames (such as Call of Duty: Modern Warfare 2 and BattleField Bad Company 2) can help us to understand the geographic practices of videogaming as part of a broader 'resonance machine' (Connolly 2005), which mediates and produces popular geopolitical understandings and attitudes towards real-world conflicts.

Conclusion

To conclude, this review has identified three geographical strands of work on videogames: the cultural geographies in videogames, the cultural geography of videogames and videogames as a cultural geographic practice. The complex interrelations between these three strands are important as they point to the ways in which particular experiences of videogaming are filtered and emerge through a variety of cultural, spatial and political processes that may be missed in a single approach. Attending to the technocultural aspects of videogaming as a geographic practice is useful because it offers insights into how videogames come to have particular effects in the world. By attending to videogaming as a thoroughly embodied and material practice scholars can further illuminate the cultural geographies in and of videogames.

In the remainder of the paper we would like to suggest some potential avenues for future work on the cultural geographies in, of and as videogames, which combine aspects of the three approaches discussed above. There is a need to carry out further, detailed

investigations into the materiality of the different interface devices that allow users to engage with particular videogames and videogaming platforms. Emerging debates regarding the conceptualisation of matter (such as Anderson and Wylie 2009; Bennett 2010; Harman 2009) could productively be used to investigate the ways in which interface devices in videogames reorganise and re-assemble relations between the properties of different materialities. For example, it would be useful to investigate how using a Wii remote alters users' sense of solidity and force as they swipe the remote through the air in order to cause a hammer to hit an object on screen, but only receive force feedback from the motors in the remote rather than the force of the object they supposedly hit. In this way, the cultural geographies of videogames can enrich debates about embodiment and governmentality in wider society.

Cultural geographers could also explore the topologies and textures of emerging forms of online community that come together around multiplayer games on the Xbox Live, Playstation Network or on the PC. It would be useful to investigate how these forms of community are constrained and enabled by the technologies through which they communicate with one another and in turn how this feeds back into the kinds of community that are made possible by these technologies. For example, scholars might investigate how the highly proscribed vocabulary available to users of Lego Universe (a measure that has been taken to protect children using the game) might forbid and enable certain types of interaction in the game and, thus, shape the types of gameplay and the communities which can emerge.

Developing work on the cultural geographies of videogames and videogaming also requires methods that can attend to the complex relations between bodies, interfaces and machines implicated in the experience of videogaming. Alongside the microethnographical approaches discussed in the previous section, recent work on nonrepresentational approaches to video (for example, Ash 2010b; Lorimer 2010; Woodyer 2008) could help elucidate how the practical activity of videogaming continually draws together and works between a variety of human and nonhuman agents. There is a need for continued methodological innovation in order to capture and document the complex interrelations between gestures, discourses, feelings, affects, among other categories and frames of sense. By developing techniques that will allow us to attend to the complex relations between the geographies in videogames, the geography of videogames, and videogames as a technocultural practice. In this way, geographers can build upon, and contribute something distinctive to, ongoing work in the study of videogames.

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