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Author

Apperley, Tom, Beavis, Catherine

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A Model for Critical Games Literacy

TOM APPERLEY

University of Melbourne, Australia

CATHERINE BEAVIS

Griffith University, Australia

ABSTRACT This article outlines a model for teaching both computer games and videogames in the classroom for teachers. The model illustrates the connections between in-game actions and youth gaming culture. The article explains how the out-of-school knowledge building, creation and collaboration that occurs in gaming and gaming culture has an impact on students' understanding of their own lifeworlds. The authors demonstrate how the development of curricula around and with games and gaming cultures can incorporate and capitalise on approaches to learning and collaboration, design and identity that students have developed in their own gaming practices.

The centrality of new media and digitally mediated communication in young people's lives is an increasingly important concern for teaching practitioners in English and literacy education. Previous research into young people's out-of-school digital engagements and literacy practices highlights the role of digital texts as multimodal forms of meaning making, and the role of digital culture in formations of values, identity and community (e.g. Jewett, 2008). The scholarly research that has endorsed the importance of digital texts has been accompanied by a more general recognition of the centrality of digital technological competence to economic and social wellbeing at both individual and national levels (OECD/CERI, 2009; Westbrook, 2011). Consequently, media literacy education has been embraced in many jurisdictions, including the USA, where media literacy was highlighted as one of three '21st century competencies' in the US National Education Technology Plan (Office of Educational Technology, 2010, p. 13). This recognition underlines the need for English and literacy curricula and pedagogies to actively incorporate the use and analysis of digital texts, knowledge and practices in the classroom.

Donna Alvermann poses the question at the heart of much research and practice bringing together young people in and out of school literacies: 'why bother theorizing adolescents' online literacies for classroom practice and research?' (Alvermann, 2008). While 'maintaining a healthy skepticism that theorizing adolescents' online literacies, alone, is sufficient to the task of improving learning in subject matter classrooms' (p. 17), she called for 'a pedagogy of critical literacies as a starting point for analyzing both online and offline texts' (p. 17). In this article, we present a model for exploring digital literacies and games in the classroom context. Developed in the course of a nationally funded three-year research project working with English teachers in the Australian state of Victoria (see Beavis et al, 2009), the model provides both a map for observing and analyzing games and gameplay, and a template for curriculum planning and pedagogy concerned with critical games literacy, digital games and multimodal twenty-first-century literacies.

Why Digital Games and Literacy?

The premise of this focus of media – particularly digital – literacies is the need to prepare students to be active, literate participants in the rapidly changing world beyond school. Understanding the

literacy practices involved in playing digital games and reconceptualising curricula to support the learning affordances offered by digital games have great potential to build strong bridges between students' out-of-school life-worlds and twenty-first-century curricula. This article presents a model for use in developing English and literacy curricula with digital games that will allow teachers and practitioners to capitalise on this connection. This article focuses on *gaming literacy* – the literacies required to analyse, design, and play digital games. Previous research has solidly established this connection between digital games and digital literacy (Buckingham & Burn, 2007; Salen, 2007, 2008; Zimmerman, 2009; Gee & Hayes, 2010; Hayes & Gee 2010; Hsu & Wang, 2010), particularly how they 'recruit important literacy practices', through both play and participation in online gaming communities (Steinkuehler, 2010, p. 63).

While in many respects the literacy practices developed through digital games are similar to those required for any other digital media, we argue that digital games are different because they are *enacted* by the player. Thus, we define gaming literacy to include:

1. 'textual' literacy – the 'new literacies' associated with digital iterations of 'reading' (or playing) and 'writing' (or producing) in combination and in multimodal forms (e.g. New London Group, 1996); and
2. 'literacies' specifically linked to the *action*-based processes of digital gameplay (e.g. Atkins, 2006; Galloway, 2006).

The model of game literacy we present in this article draws on the insight of games scholars and literacy theorists to both emphasise the distinctiveness of digital games as cultural phenomena and situate this uniqueness against contemporary understandings of literacy and multimodal literacy practices.

This definition of gaming literacy underscores how digital games – including games played on computers, consoles, and mobile and handheld devices – present a complex challenge for researchers and practitioners of education. Digital games deserve a central place in an expanded repertoire of texts brought into the curriculum for study, but *they cannot be understood simply on textual terms* – successfully capitalising on digital games in the classroom requires an understanding of students' out-of-school gaming practices on their own terms. While the 'meanings' of digital games are negotiated and produced in the interaction between 'text' and reader (as is the case with any text), we believe it is important that the model also demonstrates how digital games are enacted and instantiated through *action* (Apperley & Beavis, 2011).

This is why the model is presented as two interlocking layers: games-as-action (Figure 1) and games-as-text (Figure 2). The games-as-action layer is presented first; it addresses the experience of gameplay by examining the virtual worlds of digital games and the dynamic interplay between game and player. This layer looks inwards to the virtual world of the game in order to focus on and understand gameplay on its own terms, and uncover the constellation of literacy practices involved in digital gameplay. Second, the games-as-text layer is outlined; this layer examines the connection between the digital game and the lifeworld of the player, where the game play is embedded, enacted and given meaning. By looking outwards to the experience of the player, this layer provides scope for connecting gameplay to literacy outcomes, and events in the world more generally. Finally, we discuss how these two layers can be fruitfully combined (Figure 3). The boundary between the layers is permeable and overlapping, and this section endeavours to mark useful segues between games-as-action and games-as-text layers to demonstrate how the model operates holistically.

Games as Action

The notion of 'ergodic' (Aarseth, 1997, p. 1) is the crucial concept from game studies that marks the importance of understanding digital games as action. The term emphasises the physical actions ('labour') of the player in the configuration of the final game 'text'. The notion conceptualises the relationship between the final text – or output – of a digital game and the process of textual production – the interactions between the digital game software, the hardware and the player - that produces the text (see Bogost, 2007; Wardrup-Fruin, 2009; Walsh, 2010). Three crucial factors inform the ergodic process: *action*; *design*; and *situation*; alone and in combination, these factors constitute the games-as-action layer of the model (Figure 1).

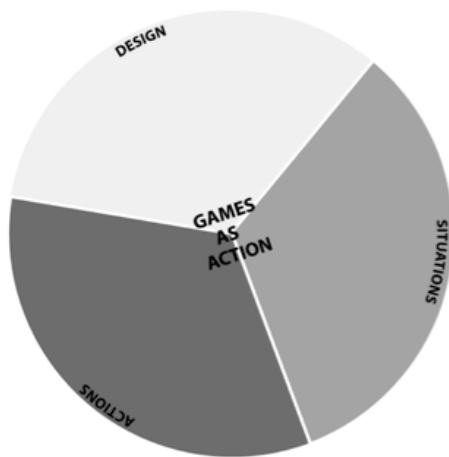


Figure 1. Games as action

Actions

Digital games are enacted on two levels: by the players, and by the console or computer that enacts the games' software. Actions refer to *interactions* – the reciprocal configuration and re-configuration of the game software – performed both by the player and by the hardware (Galloway, 2006). This distinction allows practitioners to understand distinctive actions within what might otherwise be perceived – based on purely visual observations – as an amorphous, homogeneous, and unspecific session of game play.

Action underscores the complex, contradictory relationship between the player and the digital game. Players will often – even within the same game – alternate between playing *against* and playing *with* the digital game. The game software takes on an ambiguous position as an opponent, referee and arbiter, who sometime provides the conflict, but always determines and enforces its outcome. In many cases the game software is responsible for the actions of all opponents and hazards, which will act only according to their designed remit. In such cases the players' actions are often informed by how well they observe and understand the actions that the software undertakes as their opponent. In multiplayer games this challenge is provided by other players, making the strategies involved considerably more complex. In these cases the software arbitrates the interactions between the parties, and the physics of the virtual world. Software and players also play cooperatively in single-player digital games centred on building and management. For example, in the *SimCity* series (Maxis, 1990-), the player and software cooperate to build/design a virtual city, the player makes the decisions and the software runs the simulation according to set rules, whilst notifying the player of areas needing particular attention (deforestation, pollution etc.).

Digital games are defined by action. Actions determine *how* players will use their avatars, the virtual game space(s), and the objects in it; as Gee (2008b, p. 259) points out: 'in a game, the virtual character's powers and limitations mesh with the way in which the virtual world is designed in quite specific ways'. Players must deploy their knowledge – from previous gaming experience, or from some other intertextual signal – in order to recognise actions available to an avatar. *Assassin's Creed II* (Ubisoft Montreal, 2009) illustrates this point; the fact that Ezio can climb makes Florence a different kind of city to explore. Of course, this is revealed right away in the game's tutorial, along with other basic actions, but *Assassin's Creed II* constantly introduces new techniques as the player proceeds through the game. These are explained when Ezio comes to a new area or must perform a new challenge in order to proceed in the game. It is the introduction of the action by the game and its mastery by the player that allows the game to proceed.

Designs

The concept distinguishes between two crucial forms of action: those that follow the rules of the game, and those that shape the rules of the game. It is necessary to understand design in these two closely related – and sometimes virtually indistinct – ways. First, design includes the element of production within digital games that players encounter and with which they interact during the course of play. For example, in the Nintendo DS game *Lock's Quest* (5th Cell, 2008), to successfully play the game the player must design and upkeep protective fortifications. Second, previous research suggests that literacies are also developed through participation in online communities (Steinkuehler, 2010), by the re-presenting and recontextualising of information from digital games in the creation of paratexts (Walsh & Apperley, 2008, 2009; Gutierrez & Beavis, 2010), and the process of designing and redesigning games (Buckingham & Burn, 2007; Peppler & Kafai, 2007; Salen, 2007; Hayes & Games, 2008; Zimmerman, 2009). The first form of design literacy is connected to action, while the second emphasises multimodal meaning-making and design.

Many recent and contemporary digital games allow players a degree of control over elements of design. Control takes place on two levels: the appearance of the game, and the game system. Aesthetic design choices – for example, the lengthy and detailed avatar design found in recent digital games like *Fallout: New Vegas* (Obsidian Entertainment, 2010) and *Mass Effect 2* (BioWare, 2010) – have no impact on the rules of the game or how the game is played. Even in games like *Grand Theft Auto IV* (Rockstar North, 2008), in which players have no choice over their avatars, forms of player customisation of the avatar are possible because of the availability of clothing and accessory stores. *Grand Theft Auto: San Andreas* (Rockstar North, 2004), with barbershops, gyms, and junk food, is exemplary of this form of player customisation.

Other design decisions act on the game system, and thus may have an impact on the processes and outcomes of digital game play. This is apparent in games – for example, *Grand Theft Auto IV* (Rockstar North, 2008), *Heavy Rain* (Quantic Dream, 2010), *Star Wars: Knights of the Old Republic* (BioWare, 2003) – that are designed to have different narrative outcomes that are based on the actions of the player. For example, in *Dragon Age: Origins* (BioWare, 2009) particular choices taken during the avatar design phase – specifically, the selection of the avatar's race and class, rather than the size of the avatar's chin and nose, which does not change the game system – unlock different subplots within the overarching narrative.

Many digital games allow players to customise areas of the game-world. While activity is central to some popular digital games, like *Minecraft* (Mojang, 2010), *The Sims* (Maxis, 2000-) series, and *WarioWare D.I.Y.* (Intelligent Systems/Nintendo, 2010), it is more commonly included as an optional feature. Often design parameters are limited on consoles (and hand-held devices) in comparison with computers because digital rights are more strictly controlled. Usually, this results in the console game exerting strong and inflexible control over the games' design features (see Sotamaa, 2010b). For example, the Wii game *Boom Blox* (Amblin Entertainment, 2008) allows players to design and distribute maps, but only through the Wii, to other players that also own *Boom Blox*. Computers offer more opportunities for thorough engagement with game design, using software like *Game Star Mechanic* and *Game Maker* (Games & Squire, 2008; Richards & O'Mara, 2012), although similar software, *Microsoft XNA*, is also available on the Xbox live service. Game design is informally learnt/taught through these platforms through a combination of trial and error, the use of paratexts, and the unofficial 'mentorship' of online interest groups.

Situations

The situation of play refers primarily to its context. While emphasis is often given to the virtual elements of play, it is also important to conceptualise the spaces in which digital games are embedded and enacted (Flynn 2003; Taylor, 2006; Stevens et al, 2008). Examining the situation of game play foregrounds the learning and sociality that take place, and how digital gaming is connected with – and a part of – other mundane daily activities (Pargman & Jakobsson, 2008; Pelletier, 2008; Apperley, 2010; Gosling & Crawford, 2011). The concept provides scope for practitioners to focus on how pupils' out-of-school literacies are developed through digital gaming without excluding other environmental factors.

When digital games are played, people and technologies are aggregated in many different ways (Apperley, 2010; Steinkuehler, 2006; Taylor, 2009). Accounting for people in this aggregation is not as simple as it seems; while some people are clearly playing, other people are often also – directly or indirectly – involved. Other players may be playing from different locations over a network, as is common with Massive Multiplayer Online Games like *World of Warcraft* (Blizzard Software, 2004); or in the same room, as is more common with console-based multiplayer games like *Mario Kart Wii* (Nintendo, 2008). In other cases a group of people will play, with players taking turns to play and watch the others play while they wait – the *Mario Party* (Nintendo, 1998) series, for example, encourages this type of play (see Newman, 2004).

While many multiplayer games have a strong competitive focus, there is also considerable cooperation between players that can be understood only in the context of the situation. For example, in multiplayer games knowledge and information is shared between players in the process of play through observation – and experience – of new tactics. Similar information can be ‘researched’ using digital game paratexts and online communities. This knowledge exchange may be facilitated by cooperation, one player looking up instructions on an online FAQ, while giving instructions to another who manipulates the controller; or it may involve a more direct mentorship, as a more experienced player leads another through a difficult part of the game. The process by which players learn from one another is described as the exchange of ‘gaming capital’ (Consalvo, 2007; Walsh & Apperley, 2008, 2009; Sotamaa, 2010a).

It is from the situated perspective that the ergodic (games-as-action) and textual (games-as-text) modes of engagement intertwine and feedback into each other. The three dimensions – action, design and situation – that organise the games-as-action layer of the model intersect with, overlap, and mutually constitute each other.

Games-as-Text

Bringing a textual approach to bear provides a mode of connecting digital games, and the actions players take within them, to the wider world. Hayes and Gee (2010, p. 67, emphasis added) observe, ‘Game literacy is itself multiple, embedded in different practices and fully *socioculturally situated*. Game literacy does not have one effect, but gives rise to different skills, values, and attitudes in different contexts.’ The role of the games-as-text layer of the model is to situate digital games in wider contexts: the classroom, students’ out-of-school experiences, even world events. The games-as-text layer also fleshes out a spectrum of literacy and learning outcomes that are intimately related to context. Steinkuehler (2006, 2007, 2010) for example, demonstrates how in-game play in massively multiplayer online games develops and relies on a ‘constellation’ of literacy practices. However, a quite different constellation is required in playing first-person shooter games like *Counter-strike* (Valve, 2000) in an Internet café (Beavis & Charles, 2007) or fantasy sports games such as *AFL Supercoach* (Gutierrez & Beavis, 2010) or fantasy baseball (Halverson & Halverson, 2008). Furthermore, following the New Literacies Studies tradition (e.g. Coiro et al, 2008), this layer of the model explores the role of the multi-modal meaning-making taking place in the digital game text in the formation of values, identity and community.

In order to connect new literacies frameworks for understanding digital and out-of-school literacies with conventional iterations of literacy as presented in state and national curriculum documents, the games-as-text layer maps four foci for study in relation to the model of game play outlined in the games-as-action layer. The games-as-text layer also calls upon and presupposes a ‘3D’ view of literacy (Green, 1999; Durrant & Green, 2000) which ‘thinks together’ literacy and technology (Green 1999, pp. 42-43) and requires attention to ‘cultural’, ‘critical’ and ‘operational’ dimensions of language use (Green, 1999, p. 43-44) in relation to digital games and game play. The four foci addressed in this layer are:

- Knowledge about games
- The world around the game
- ‘Me’ as a game player
- Learning through games.

Each focus traces a trajectory from the immediacy of game play to the world outside the game, providing teachers and practitioners with different segues between the unofficial knowledges of

out-of-school literacy practices and the demands of the literacy curriculum. The four foci act as lenses or vectors that reciprocally illuminate – and are illuminated by – the model of game play presented in the games-as-action layer. The active experience of play, described in the games-as-action layer, is in the model's centre.

Knowledge about Games

While attending to and historicising narrative and aesthetic aspects of digital game play, the key role of the 'knowledge about games' focus is to bring critical literacy perspectives to bear on digital games and game play; to consider digital games as cultural artefacts, and to also consider the aesthetic and technological forms that have emerged. This requires a balanced approach that recognises that digital games are not simply 'remediated' versions of related forms – film, literature or television – while still acknowledging the 'family resemblances' between digital games and previous media forms. Crucially, digital games draw on intertextual knowledge to build narratives across forms and platforms; not simply a matter of branding, digital games also pioneered transmedia storytelling – using more than one medium to deliver a narrative – as in, for example, *The Matrix* film series and the *Enter the Matrix* (Shiny Entertainment, 2003) digital game (see Jenkins, 2006).

For example, a curriculum that focused on a digital game's narrative structures and features might trace the relation between the game and narratives from other 'texts'; for example, the narrative of the novel *Lord of the Rings* could be compared with the narrative presented in the film trilogy, or in the series of games that accompanied the films *The Fellowship of the Ring*, *The Two Towers*, and *Return of the King*. Using digital games in curriculum in this manner calls on and develops students' multimodal understanding of the characteristics and features of the relevant genre – in this case, fantasy – by examining at how those generic features are used, and to what effect across different mediums. Burn (2005), for example, describes how the 'same' scene from the Harry Potter book, film and digital game – Harry's encounter with the giant spider Aragog – changes across genres, and he discusses children's commentary on the differences they found. He explores such questions as how a particular image or narrative moment 'translates' across different media, what 'character' means in the context of a game, and how the 'verb' differs in the interactive medium of the digital game.

'Me' as Game Player

This focus encourages reflexivity about oneself as a games player, and includes attention to issues of value, ideology and identity, and how players are positioned by the game. Bradford (2010, p. 54) notes, 'When young people play video games they do so as embodied subjects whose identities are shaped by the cultures in which they are situated, the circumstances of their lived experience, and the particularities of their dispositions, abilities and interests.' This focus centres exploration on students' own involvement with digital games as players, creators and 'readers', with the goal of critical reflection about practices of play. This consideration of play with known and unknown others can springboard into an examination of representations of self and others, of how these representations are constructed and interpreted, through visual means but also through values, voice and competencies as revealed through play.

Topics for exploration include analysis of how the player is positioned by the game, the ways texts seek to draw players into implied subject positions, and how they take up or resist that positioning. Curriculum dealing with this focus asks students to think through how they are positioned in digital games: how do games like the *Sid Meier's Civilization* (Microprose Software/Frixais Games, 1990-) series position expansion and development? How is race and gender represented in the game? How are relations with other players framed by the ways that the game allows them to interact? Bradford (2010), for example, describes a ambiguous relationship with her avatar in *World of Warcraft*, characterised by a mix of identification - invited through the second-person form of address with which she is greeted - and pragmatism - given her novice status and relative lack of skill within the game - with which she views her avatar.

The World around the Game

The primary concern of this focus is with the broader local and global contexts where game play takes place, and how the world around the game influences play. Areas for study include the exploration of a range of contexts for play, including physical and virtual spaces; public and private settings; settings shared with others or experienced alone; differences in geographic locations and time zones in online gaming; and how context shapes relationships, interactions and play. This focus also underscores contexts and influences such as marketing and globalisation; the place and effect of advertising; and convergence and participatory culture (Jenkins, 2006). Debates with students about media panics – addiction, ‘mind change’ (see Metherall, 2011), violence – can be undertaken within this focus, allowing the exploration of the terms and assumptions underlying much reportage and an evaluation of the basis and evidence for these claims.

Paratexts have a particular bearing in this focus, and may provide practitioners with a useful starting point for curriculum development. Consalvo’s (2007; see also Newman, 2008) account of how the players’ use of paratexts shapes game play, and how the paratexts designed – or otherwise contributed to – by players themselves reciprocally contribute to other players’ experience of the game. Paratexts demonstrate the collaborative processes that take place in game play, and by cataloguing the routes, combinations and tactics available to the players, the complexity and detail of the digital game ‘text’.

Learning through Games

Studies in this focus are qualitatively different from those in the other three foci, although like all four foci, this focus overlaps with others, with curriculum and pedagogy likely to be spread across a number of areas. This focus is particularly concerned with the capacity of games to teach or impart information through what Bogost (2007) describes as ‘procedural rhetoric’. It includes game-supported learning in curriculum areas, both through digital games specifically designed for education, and through the use of commercial, off-the-shelf digital games. Attention here is both on the specific curricular knowledge and understandings fostered through particular games, and on developing players’ increased awareness of meta-cognitive strategies and processes. An important dimension here is the development of critical perspectives on both games and the social issues and problems they illuminate. Much of the ‘serious games’ literature and research addresses this area, raising questions about the nature of curricular knowledge; the design features of games that enable specific kinds of understandings; the role of the teacher and the place of reflection in the spaces around games; constructions of learning and the learner; and the learners’ relationship with the game.

Curriculum addressing this focus might trace rhetorical strategies across a number of digital games; first, with serious games that put forward a specific agenda, then – building on the recognition that digital games can have agendas – examine the ideological assumptions of commercial off-the-self digital games. Teachers and practitioners could also highlight the different knowledges that quasi-educational games like the *Sid Meier’s Civilization* series allow players to engage with. On one level the games provide basic encyclopedia/Wikipedia style entries on various aspects of history from aqueducts to Leonardo’s Workshop. However, this is not the only literacy practice being developed, because the game also requires that the players develop a through understanding of the operation of its algorithm. It is in the latter area that teachers and practitioners can make the most useful intervention, as the utility of these literacies is not readily apparent to students, unlike the encyclopedia entries, which can be more readily accommodated into official forms of knowledge, yet are peripheral to the literacies involved in playing –and succeeding in – *Sid Meier’s Civilization* series.

The Model in Combination

In thinking together games and literacy in the way we propose, it is clear that significant commonalities, links and overlaps exist between the two layers of the model. However, each layer also works individually: in both layers the constituent elements or foci are integrally related to each other, so that both within and between the layers the categories we introduce need to be conceived as mutually influential. In any given iteration of the model, foci within and across both layers will interact in varying ways.

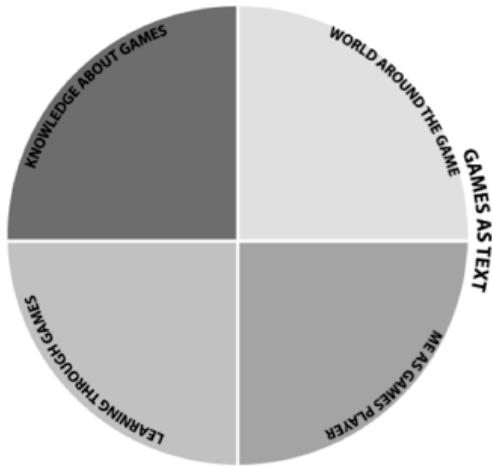


Figure 2. Games as text.

The model is intended to provide a framework for planning games-based curriculum and pedagogy, and arises from a mapping of characteristic features of digital games and game play. A number of elements are held in common. Key concepts across both layers are context, situatedness, and design. The importance of *context* and purpose in language learning and the role of context in shaping the construction of meaning have long been central tenets of English and literacy curriculum theory, with the view of literacy as socially situated practice well established in New Literacies scholarship, both with respect to older forms of literacy – reading, speaking, listening and writing – and in new media and digital culture, including digital games (Gee 2003; Lankshear & Knobel, 2007).

Situatedness also bridges the layers. Gee (2008a) notes that game play, like literacy itself, is primarily a *situated* form of knowledge. When developing literacy practices, students respond to the variance and demands of the particular situation, and situated factors such as their peer group, access to equipment, classroom, and teacher will shape the experience of learning as much as the material which is being learnt. Digital gaming parallels this: the virtual experience of game play is always enacted in a physically situated location that may be characterised by affordances just as much as it is by constraints.

Design is a familiar term in the theorisation of multimodal literacy (New London Group, 1996; Kress, 2003). In the proposed model, design embraces several crucial and related meanings and bridges across both levels, related to digital games conceived primarily both in terms of text, and in terms of action. The synthesis provided by Gee (2003, p. 49) between literacy and digital games foregrounds the centrality of design in both fields: '[in playing games,] learning about and coming to appreciate design and design principles is core to the learning experience'. As a term, 'design' is both noun and verb; it describes the relationship between meaning making elements on a screen or page, and action – the process of designing as a creative activity, with multimodal literacy reconceptualised as 'design'.

Yet there are important differences too. Key amongst them is the recognition, in layer one, of those aspects outside a player's control and the active role that is played by the machine, the algorithms and other elements of game play. The games-as-action layer maps the interrelationships

in how digital games are played. This guide for developing curriculum mirrors students' out-of-school experiences of game play: the games-as-action layer insists strongly that digital games should not be conceived in primarily textual ways; the games-as-text layer differs in its text-based take on digital games, and acts as a template for curriculum planning and pedagogy with digital games within contemporary curriculum guidelines.

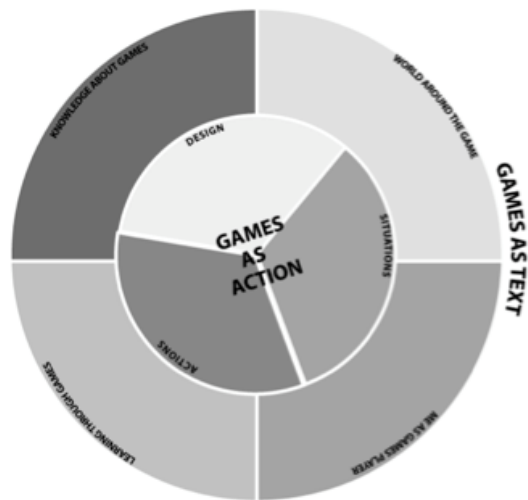


Figure 3. The model in combination.

It is our view that both layers are essential, and that they speak to each other in multiple ways. Different contexts, classrooms, students and curriculum mandates will result in the model being used to produce classroom activities that both respect those parameters and reflect young people's out-of-school experiences of digital games and game play.

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References

- Aarseth, E. (1997) *Cybertext: perspectives in ergodic literature*. Baltimore, MD: Johns Hopkins University Press.
- Alvermann, D. (2008) Why Bother Theorising Adolescents' Online literacies for Classroom Practice and Research?, *Journal of Adolescent and Adult Literacy*, 52(1), 8-19. <http://dx.doi.org/10.1598/JAAL.52.1.2>
- Apperley, T. (2010) *Gaming Rhythms: play and counterplay from the situated to the global*. Amsterdam: Institute of Network Cultures.
- Apperley, T. & Beavis, C. (2011) Literacy into Action: digital games as action and text in the English and literacy classroom, *Pedagogies*, 5(2), 130-143.
- Atkins, B. (2006) What are We Really Looking at? The Future-orientation of Video Game Play, *Games and Culture*, 1(2), 127-140. <http://dx.doi.org/10.1177/1555412006286687>
- Beavis, C., Apperley, T., Bradford, C., O'Mara, J. & Walsh, C. (2009) Literacy in the Digital Age: learning from computer games, *English in Education*, 43(2), 162-175. <http://dx.doi.org/10.1111/j.1754-8845.2009.01035.x>

- Beavis, C. & Charles, C. (2007) Would the 'Real' Girl Gamer Please Stand up? Gender, LAN Cafes and the Reformulation of the 'Girl' Gamer, *Gender and Education*, 19(6), 691-705. <http://dx.doi.org/10.1080/09540250701650615>
- Bogost, I. (2007) *Persuasive Games: the expressive power of videogames*. Cambridge, MA: MIT Press.
- Bradford, C. (2010) Looking for My Corpse: video games and player positioning, *Australian Journal of Language and Literacy*, 33(1), 54-64.
- Buckingham, D. & Burn, A. (2007) Game Literacy in Theory and Practice, *Journal of Educational Multimedia and Hypermedia*, 18(3), 323-349.
- Burn, A. (2005) Potter-literacy – from Book to Game and Back Again: literature, film, game and cross-media literacy, *Papers: explorations into children's literature*, 14(3), 5-17.
- Centre for Educational Research and Innovation (CERI) & Directorate for Education, Organisation for Economic Co-operation and Development (OECD) (2009) *The New Millennium Learners: main findings*. Paris: CERI/OECD.
- Consalvo, M. (2007) *Cheating: gaining advantage in videogames*. Cambridge, MA: MIT Press.
- Coiro, J., Knobel, M., Lankshear, C. & Leu, D.J. (2008) Central Issues in New Literacies and New Literacies Research, in J. Coiro, M. Knobel, C. Lankshear & D.J. Leu (Eds) *Handbook Of New Literacies Research*, pp. 1-22. New York: Lawrence Erlbaum Associates.
- Durrant, C. & Green, B. (2000) Literacy and the New Technologies in School Education: meeting the l(it)eracy challenge? *Australian Journal of Language and Literacy*, 23(2), 89-108.
- Flynn, B. (2003) Geographies of the Digital Hearth, *Information, Communication and Society*, 6(4), 551-576. <http://dx.doi.org/10.1080/1369118032000163259>
- Galloway, A. (2006) *Gaming: essays in algorithmic culture*. Minneapolis: University of Minnesota Press.
- Games, I. & Squire, K. (2008) Design Thinking in Gamestar Mechanic: the role of gamer experience on the appropriation of the discourse practices of game designers, *Proceedings of the 8th International Conference for the Learning Sciences*, 257-264. Utrecht: International Society of the Learning Sciences.
- Gee, J.P. (2003) *What Video Games Have to Teach Us about Learning and Literacy*. New York: Palgrave Macmillan.
- Gee, J.P. (2008a) Learning and Games, in K. Salen (Ed.) *The Ecology of Games: reconnecting youth, games and learning*, pp. 21-40. Cambridge, MA: MIT Press.
- Gee, J.P. (2008b) Video Games and Embodiment, *Games and Culture*, 3(3-4), 253-263.
- Gee, J.P. & Hayes, E.R. (2010) *Women and Gaming: the Sims and 21st century learning*. New York: Palgrave Macmillan. <http://dx.doi.org/10.1057/9780230106734>
- Green, B. (1999) The New Literacy Challenge? *Literacy Learning: secondary thoughts*, 7(1), 36-46.
- Gosling, V.K. & Crawford, G. (2011) Game Scenes: theorizing digital game audiences, *Games and Culture*, 6(2), 135-154. <http://dx.doi.org/10.1177/1555412010364979>
- Gutierrez, A. & Beavis, C. (2010) 'Experts on the Field': redefining literacy boundaries, in D. Alvermann (Ed.) *Adolescents' Online Literacies: connecting classrooms, digital media and popular culture*, pp. 145-162. New York: Peter Lang.
- Halverson, E. & Halverson, R. (2008) Fantasy Baseball: the case for competitive fandom, *Games and Culture*, 3(3-4), 286-308.
- Hayes, E. & Games, I. (2008) Making Computer Games and Design Thinking, *Games and Culture*, 3(3-4), 309-322.
- Hayes, E. & Gee, J.P. (2010) No Selling the Genie Lamp: a game-literacy practice in the Sims, *E-Learning and Digital Media*, 7(1), 67-78. <http://dx.doi.org/10.2304/elea.2010.7.1.67>
- Hsu, H. & Wang, S. (2010) Using Gaming Literacies to Cultivate New Literacies, *Simulation & Gaming*, 41(3), 400-417. <http://dx.doi.org/10.1177/1046878109355361>
- Jenkins, H. (2006) *Convergence Culture: where old and new media collide*. New York: New York University Press.
- Jewett, C. (2008) Multimodality and Literacy in School Classrooms, *Review of Research in Education*, 32(1), 241-267. <http://dx.doi.org/10.3102/0091732X07310586>
- Kress, G. (2003) *Literacy in the New Media Age*. London: Routledge. <http://dx.doi.org/10.4324/9780203164754>
- Lankshear, C. & Knobel, M. (2007) *A New Literacies Sampler*. New York: Peter Lang.
- Metherall, M. (2011) Web Weaves Its Effect on Young Brains, *The Age*, 14 July. <http://www.theage.com.au/technology/technology-news/web-weaves-its-effect-on-young-brains-20110713-1hdx9.html> (accessed 14 July 2011).

- New London Group (1996) A Pedagogy of Multiliteracies: designing social futures, *Harvard Educational Review*, 66(1).
http://wwwstatic.kern.org/filer/blogWrite44ManilaWebsite/paul/articles/A_Pedagogy_of_Multiliteracies_Designing_Social_Futures.htm (accessed 25 May 2011).
- Newman, J. (2004) *Videogames*. London: Routledge.
- Newman, J. (2008) *Playing with Videogames*. London: Routledge.
- Office of Educational Technology (2010) *Transforming American Education: learning powered by technology*. Washington, DC: US Department of Education.
- Pargman, D. & Jakobsson, P. (2008) Do You Believe in Magic? Computer Games in Everyday Life, *European Journal of Cultural Studies*, 11(2), 225-244. <http://dx.doi.org/10.1177/1367549407088335>
- Pelletier, C. (2008) Gaming in Context: how young people construct their gendered identities in playing and making games, in Y.B. Kafai, C. Heeter, J. Denner & J.Y. Sun (Eds) *Beyond Barbie and Mortal Kombat: new perspectives on gender and gaming*, pp. 145-159. Cambridge, MA: MIT Press.
- Peppler, K. & Kafai, Y.B. (2007) What Video Game Making Can Teach Us about Learning and Literacy: alternative pathways into participatory culture, in A. Baba (Ed.) *Situated Play: proceedings of the Third International Conference of the Digital Games Research Association*, pp. 369-376. Tokyo: University of Tokyo.
- Richards, J. & O'Mara, J. (2012) A Blank Slate: using game maker to create computer games, in C. Beavis, L. McNeice & J. O'Mara (Eds) *Digital Games: literacy in action*, pp. 57-64. Adelaide: Wakefield Press.
- Salen, K. (2007) Gaming Literacies: a game design study in action, *Journal of Educational Multimedia and Hypermedia*, 16(3), 301-322.
- Salen, K. (2008) Towards an Ecology of Gaming, in K. Salen (Ed.) *The Ecology of Games: reconnecting youth, games and learning*, pp. 1-17. Cambridge, MA: MIT Press.
- Sotamaa, O. (2010a) Achievement Unlocked: rethinking gaming capital, in O. Sotamaa & T. Karppi (Eds) *Gaming as Services: final report*, pp. 73-81. Tampere: University of Tampere.
- Sotamaa, O. (2010b) Play, Create, Share? Console Gaming, Player Production and Agency, *Fibreculture Journal*, 16. <http://sixteen.fibreculturejournal.org/Play-Create-Share-Console-Gaming-Player-Production-And-agency/> (accessed 2 August 2011).
- Steinkuehler, C. (2006) The Mangle of Play, *Games and Culture*, 1(3), 199-213.
<http://dx.doi.org/10.1177/1555412006290440>
- Steinkuehler, C. (2007) Massive Multiplayer Online Gaming as a Constellation of Literacy Practices, *eLearning*, 4(3), 297-318. <http://dx.doi.org/10.2304/elea.2007.4.3.297>
- Steinkuehler, C. (2010) Video Games and Digital Literacies. *Journal of Adolescent & Adult Literacy*, 54(1), 61-63.
<http://dx.doi.org/10.1598/JAAL.54.1.7>
- Stevens, R., Satwicz, T. & McCarthy, L. (2008) In-game, In-room, In-world: reconnecting videogames to the rest of kids' lives, in K. Salen (Ed.) *The Ecology of Games: reconnecting youth, games and learning*, pp. 41-66. Cambridge, MA: MIT Press.
- Taylor, T.L. (2006) *Play Between Worlds: exploring online game culture*. Cambridge, MA: MIT Press.
- Taylor, T.L. (2009) The Assemblage of Play, *Games and Culture*, 4(4), 331-339.
<http://dx.doi.org/10.1177/1555412009343576>
- Walsh, C.S. (2010) Systems-based Literacy Practices: digital games research, gameplay and design, *Australian Journal of Language and Literacy*, 33(1), 24-40.
- Walsh, C. & Apperley, T. (2008) Researching Digital Game Players: gameplay and gaming capital, in Y. Xiao & E. Ten Thij (Eds) *Proceedings of IADIS International Conference Gaming 2008: design for engaging experience and social interaction*, pp. 99-102. Amsterdam: IADIS.
- Walsh, C. & Apperley, T. (2009) Gaming Capital: rethinking literacy, in P. Jeffrey (Ed.) *Changing Climates: education for sustainable futures. Proceedings of the 2008 AARE*. Coldstream, Victoria: Australian Association for Research in Education (AARE).
- Wardrup-Fruin, N. (2009) *Expressive Processing: digital fictions, computer games, and software studies*. Cambridge, MA: MIT Press.
- Westbrook, N. (2011) Media Literacy Pedagogy: critical and new/ twenty-first-century literacies instruction, *e-Learning and Digital Media*, 8(2), 154-164.
- Zimmerman, E. (2009) Gaming Literacy: game design as a model for literacy in the 21st century, in B. Perron & M.J.P. Wolf (Eds) *The Video Game Theory Reader 2*, pp. 23-31. New York: Routledge.

TOM APPERLEY* is a researcher of digital media technologies. His previous writing has covered digital games, mobile phones, digital literacies and pedagogies, and the digital divide. Dr Apperley is currently a research fellow at the University of Melbourne, Australia. He is the editor of the peer-reviewed journal *Digital Culture and Education*; his book *Gaming Rhythms: play and counterplay from the situated to the global* was published by the Institute of Network Cultures in 2010. *Correspondence:* thomas.apperley@gmail.com

CATHERINE BEAVIS is Professor of Education at Griffith University. Catherine's research expertise centres on the changing nature of text and the implications for literacy, education and schooling of young people's engagement with digital culture and the online world. She researches in the areas of English curriculum, pedagogy and assessment; digital culture and computer games; digital literacy and new literacies and games-based learning. *Correspondence:* c.beavis@griffith.edu.au

*Contact author