Critical Perspectives, enabling classrooms and digital games: challenges for teachers and researchers working with games-based learning

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Abstract: There is significant interest in the potential of digital games for Twenty first century pedagogy and curriculum in schools. However, developing an informed and granular understanding of the challenges facing 'everyday' teachers in introducing work with digital games in a range of schools, across diverse subject areas, age groups and system requirements, is not straightforward. This paper reports on the initial stages of a three-year research project investigating the introduction and use of games in a variety of contexts, and discusses some of the challenges entailed in introducing teacher participants to working with games in critical and productive ways.

Keywords: Games-based learning, professional learning, pedagogy, learning principles

Introduction

There is growing interest in many parts of the world in utilizing the capacities and affordances of digital games to support learning within the formal arenas of curriculum and school [1], [2]. The use of games-based pedagogies via online and mobile internet-based technologies is seen as providing much potential for innovative, effective and accessible contemporary teaching and learning. Digital games, it is argued, have the capacity to transform learning, by virtue of their inherent qualities and affordances. They may also improve engagement, it is hoped, through tapping into the orientations towards learning, the collaborative and problem solving nature of play, and the sense of pleasure and achievement experienced by many young people through their participation in the out of school world of digital games and game play.

Yet claims made about learning with digital games are sometimes hyperbolic or unfounded, or based on the experience of a small group of students with a teacher already committed to and highly competent in game play. Before games-based learning is introduced into classrooms across the board, more needs to be understood about the nature of games and game play, and more known about the ways in which teachers, learners, curriculum, pedagogy and the classroom are affected by the introduction of games, if the potential of digital games to transform learning is to be realized. In this paper, I report on the challenges facing students, teachers and researchers as they embark on a three year study of the use of games in the classroom, with a focus on using, analyzing and making games [3].

1. The promise of games

Digital games, in particular videogames, are seen as embodying the kinds of skills and literacies likely to be needed in the Twenty First Century, and as a way to help young people become tech-savvy, critical and agential – to become 'knowledge workers' [4] in a technologically saturated world. Games work as 'networked semiotic domains' where all elements are central to the experience of play [5] and the concept of design, is central – 'learning about and coming to appreciate interrelations within and across multiple sign systems as a complex system is core to the learning' [5 p.49]. Games have been described as "learning machines", in that they need to ensure that players know how to play, are challenged and engaged, and are able to draw upon previous knowledge and information presented to them through the game to become increasingly expert at increasingly demanding levels [5]. The processes and structures of computer games are ideally designed to increase players' capacity to become expert in both the concepts and the subject matter of the areas with which games deal. Games, and players' engagement with them, it is argued, provide ideal models and microcosms of how curriculum and the induction into specific subject disciplines should operate.

If games are to live up to their promise and potential, however, we need detailed and 'on the ground' studies of what it actually means to teach with games. We need to know more about how working with games in the classroom challenges existing conceptions of curriculum, and current teaching and learning practices. We need to know how games-based learning can connect with formal curriculum and assessment frameworks, more about which games, and what qualities in games, seem to most suited to supporting deep learning in discipline areas and/or in developing students' meta-knowledge – learning how to learn. We need to know more about the ways in which students have benefited, and which students, and how these achievements can be recognized – that is, what forms of assessment will render there understandings visible and articulate with formal measures of achievement centrally required. We need to know when and whether some games don't work, (or don't promote worthwhile understandings or knowledge), and what happens to students who struggle with games.

2. Context, environment and meaning: attending to learning and play

Centrally important is the recognition of the relationship between context and game play. As socially situated practice, game play is significantly affected by the context in which it is played, and assumptions about unproblematic transfer between in and out of school dispositions towards play should be challenged. For schools to fully benefit from the potential of digital games we need to take account of the influence of context on how games are understood and played, and to understand the ways in which game play is linked to players' sense of self and to issues of performance and identity [6], [7], [8], [9].

In their highly influential 2008 paper, 'Video Games and the Future of Learning' [10], Schaffer, Squire, Halverson and Gee ask 'How can we use the power of video games as a constructive force in schools, homes, and workplaces?' They argue for a view of games – and of learning – 'as activities that are most powerful when they are personally meaningful, experiential, social and epistemological all at the same time; [with]… an approach to the design of learning environments that builds on the educational properties of games but grounds them deeply within a theory of learning appropriate to an age marked by the power of new technologies.' [10 p.105].

Schaffer, Squire, Halverson and Gee make three points that are particularly pertinent, but tend to get overlooked, particularly in the design, use and marketing of some

'educational' and 'serious' games. First, they emphasize the importance of games being personally meaningful, and socially situated – that is, games have to matter to the person playing them. Games are played in a social context, both physically immediate and online, where the context in which they are played substantively influences the nature of play, and the meanings players take from them. This has obvious, but often overlooked, implications for the classroom. The classroom environment shapes the work students do, the ways in which they engage, the opportunities for evaluation, reflection and connection, and finally, what it is that students learn. Second, Shaffer, Squire, Halverson and Gee speak of learning environments rather than games – a significant distinction that points to the relational and contextual purposes or play rather than locating the 'meaning' of the game in the game itself. Third, they underline the centrality of understandings about teaching and learning – of theories of learning – to the design of learning environments such as games. Not all games, nor all games-based learning is informed by good learning theory and understandings of curriculum. If schools are to embrace the powerful capacities of games to support learning, it is essential to be sure that games, games design and the advice that accompanies them, are informed by good theories of learning and of what constitutes curriculum, and capitalize on games' capacities to promote deep insights into processes and complex interrelationships, not merely the acquisition of superficial knowledge or that which can be readily assessed. In Australia, in the incoming Australian curriculum, ICT capabilities (intended to range across all curriculum areas), categorize tasks into three types considered to provide authentic contexts for learning. These are 'investigating with ICT, Communicating with ICT and Creating with ICT [11]. While there are many frameworks for evaluating the effective use of digital games in the curriculum, good games-based pedagogy would clearly seem to embrace all three.

3. A critical approach to working in the classroom with games.

The effective use of games and their affordances in the classroom depends on shared understandings of what is valuable. While there is a great deal of enthusiasm for games-based learning in a number of quarters, it is not always posited on sound research or on fine-grained studies of children, teachers and classrooms in actual practice.

3.1 'Bad practice'

'Bad Practice' in Games-based learning and research:

- Overgeneralizes players' investment of self, levels of interest and expertise, and ignores issues of power and identity. Children are different. We need to respect that.
- Ignores differences between in and out of school contexts for play and their effects. Playing games at school is different from playing games at home, on public transport, or in an Internet café with a friend. We need to recognize this and tailor our expectations accordingly.
- Marginalizes the role of the teacher, and the need for guidance and reflection outside the game. The role of the teacher is central to learning, but we need to find out more about how best to support learning in the context of games based learning.
- Draws on narrowly conceived views of learning as instruction. Learning is an active process that happens through interaction, scaffolding, asking questions and reflecting
- Confuses content acquisition with curricular knowledge.
- Does not articulate with existing curriculum frameworks, teacher knowledge and school structures.
- Does not look at games across a range of curriculum areas.

- Does not take account of a diversity of learning styles and preferences.
- Does not take account of teacher and learner identity and the degree of the teacher's investment in curriculum change.
- Misunderstands the nature of games as both text and action.

3.2 'Good Practice'

'Good practice' in games-based learning and research, by contrast, recognizes that:

- Learning is socially situated; the context in which learning takes place is integral to what and how students learn.
- Learning needs to be active. Reflection is crucial to learning.
- Literacy, learning and identity are intimately linked.
- Deep learning involves learners feeling a strong sense of ownership and agency, as well as the ability to produce and not just passively consume knowledge.
- High-level understandings of curriculum go beyond the acquisition of content knowledge to include understandings of principles, processes and forms of inquiry in specific disciplinary areas, with high-level cognitive operations.
- Students' experience of the world is digital and this shapes their orientations towards and expectations of learning and the acquisition and production of knowledge.
- Print based curriculum, pedagogy and assessment do not reflect contemporary forms of communication and the creation and transmission of knowledge. Twenty first century schooling needs to use and reflect contemporary communicative forms and technologies to prepare students for skilled participation in society.
- Individual differences amongst learners need to be recognized, including different levels of interest in, orientation towards, and expertise with ICT.
- Teachers need to be supported in integrating technologies and new forms of communication in teaching and assessment.
- Video games are ideally suited to promote deep learning through design features such as interactivity, scope and complexity, and structures which promote and reward engagement, challenge, risk taking, the synthesis and use of complex information at increasingly demanding levels, problem solving and collaboration.

4. Serious Play: Digital Games, Learning and literacy for twenty first century schooling

The project: *Serious Play: Digital Games, Learning and Literacy for twenty first century schooling* [3] set out to explore the challenges, possibilities and experience of introducing games into the classroom across a range of schools, year levels and subjects, with teachers and students bringing varying degrees of experience and expertise as players of digital games, and as users of digital games at school. In this, it provides the opportunity to investigate diversity, and the kinds of challenges, hopes and insights faced by teachers interested in introducing games into the classroom, as they experiment with pedagogy and curriculum, and observe the ways in which their students respond. Similarly, it provides the opportunity to gather detailed and nuanced information about how students with very different levels of interest and experience in playing games take up games-related pedagogy, how they do or don't activate out-of-school approaches to playing games, and how they feel about being asked to do so. It provides the chance to see how students not highly engaged in school perhaps become more motivated – a classic argument presented by advocates of games-based learning – but also, to look at how other students find

working with games – those already highly engaged, those less interested, or actively disinterested in videogames, those more literary-minded, 'middle of the road' students and more.

The project spans two states, and includes both primary and secondary schools. Over 400 students are participating in the study in its first year, ranging in age from early primary - grade 1 (5-6 years old) through to middle secondary school - grade 9 (14-15 years old), together with thirty-two teachers from ten schools. Teachers can chose between three strands for school based work: 'Learning with games', 'Analyzing games' and 'Making games'. The curriculum areas in which they plan to teach with games, or are doing so already, range from perhaps predictable subjects such as Media Studies or Information and Communications Technology, through to English, Literacy, Mathematics, Art, Social Studies and Religion.

4.1 Learning with games

'Learning with games' addresses the use of games to support teaching in discrete disciplinary/curriculum areas, using commercial off the shelf games (COTs), free to download games, and high quality 'Serious Games' or games designed specifically to teach particular topics or concepts within traditional disciplinary areas. Issues to attend to here include the ways in which learning and curricular knowledge are conceptualized; the ways in which the 'content' of the games employed, and the conceptual understandings they promote, correspond to centrally prescribed curriculum; the ways in which learning with and through games might enable students to develop deep understandings; the kinds of pedagogy and games that support this; whether 'knowledge' itself is changed through what the games present and the ways in which they are played; how the games-based component of learning in this subject area sits alongside the use of other resources and activities, and the ways in which understandings gained through games might be made visible and assessed. A related research focus concerns which qualities or affordances of games are used, to what end, and how effectively – are the games used primarily to transmit 'facts' or for 'skill and drill' purposes, or do they facilitate more complex and challenging learning through their capacity to foreground process and relationships, provide experiential learning, and lead players through the areas under study through processes of 'procedural rhetoric' [12] or processes of becoming [9]? Do the games chosen provide those opportunities for risk-taking, problem-solving, collaboration and developing expertise within the world of the game described by Gee [5] and others, where all elements speak to each other and games function as 'networked semiotic domains' [5].

4.2 Analyzing games

'Analyzing games' refers to the critical and creative analysis of games primarily within English, Literacy and Media, though other subjects such as Art or Drama may well benefit too. Activities within this strand ask students to explore what are generally high quality popular commercial games in similar ways to those through which they might explore other narrative or aesthetic texts. In doing so, however, while the focus is on the design of the game, the ways in which meaning is constructed, the ways the viewer/player is positioned, the role of the reader/player, the use of generic elements and knowledge and so on, care must be taken not to simply import filmic or literary frames of reference unproblematically. Drawing on the antecedent project, *Literacy in the Digital World of the twenty first century: learning from computer games* [13], teaching approaches and curriculum here utilize perspectives on games conceived as both text and action [14]. Work here might entail reflecting on how games 'work' as 'hybrid products, which

incorporate narrative and game elements while engaging players in energetic action and … interpersonal and social processes' [15 p.54]. Work from this perspective treats games as emergent cultural forms, exploring such matters as how narratives are created or unfold, the role of the player in constructing any given narrative, the ways in which the player is positioned by the game, the multiple threads within any given framework and the interrelation of semiotic elements that constitute design. It might, alternately, entail tracing the ways the 'same' narrative moves across multiple platforms - for example, the book, the film, the game - or the relation between the game 'itself' and the paratexts [16] [17] that surround it. While the focus here may be more 'literary' than in other areas, it is essential that classroom work should also attend to the active and situated nature of play, and the central role of design.

4.3 Making Games

'Making games' is the strand that most actively engages students in the creative and technical aspects entailed in the production of games. Depending on the age and grade level of the students, various forms of games-making software might be employed, or the Machinima options built into some games utilized for varying purposes. Active involvement is central to good learning, and in this strand students are required to be makers and do-ers as well as analysts of games. Making games requires students to develop technological and literacy and conceptual skills. They need to acquire technical know-how to make their own games. It requires that they learn the relevant technological abilities to make games, while at the same time be able to analyze what makes a game effective and ensure that their own games incorporate elements such as these. To make successful games, they need to have a strong sense of what others would enjoy in the games they create themselves, and the capability to make these. The role of the teacher is to guide and support students in this enterprise, and to provide the context for making games; providing specific help as necessary but also taking a back seat, to allow students to learn for themselves [18].

5. Managing diversity: Professional learning, enthusiasm, resources and critique

A central issue in the early stages of the project has been to recognize and respond to the wide diversity of experience amongst participating schools in working with digital games, in ways that will support the research aims. For some teachers, *Serious Play* offers the opportunity for them to build on and extend the ways in which they have previously successfully worked with games, whether as part of earlier research projects, as is the case with the Victorian schools, which were part of the *Games-based Learning Trials* run by the Department of Education and Early Childhood Development in 2011 or in *Literacy in the Digital World of the Twenty First Century*, or through their independent school-based curriculum initiatives and explorations of their own. For others, the idea of introducing games into formal pedagogy and curriculum is new. On the one hand, these teachers are interested and open to possibilities, and excited about options for integrating digital games and pedagogy into their curriculum and enhancing student engagement; on the other, many know little about games, feel under-resourced and unprepared, and do not have a strong sense of how games might transform student learning, or what constitutes good games-based pedagogy. Responding to these diverse points of departure has been a major challenge: how to affirm the potential offered by games, support the development of strong curriculum units and/or games-based pedagogy, while at the same time also fostering perspectives of critique. If the 'bad' and 'good' practice in games-based learning

and research identified above are to be addressed, critique must go hand in hand with the introduction of digital games. We are faced with the double challenge of both advocating and raising questions; of affirming existing practice and teachers' nascent ideas but also raising alarms about seemingly wrong directions and misguided ideas. We are faced with providing practical examples of games that might be used, or approaches tried, while also seeking to encourage teachers to develop their own activities and ideas streamlined to fit the needs and interests of their students and their schools, as well as their own confidence, enthusiasm and abilities. To date, we have taken the following measures to meet these complex agendas:

- Recognized, affirmed and shared participants' existing work with digital games. Teachers have been invited to present their previous work with games to each other as part of the regular Professional Learning days.
- Developed a website with shared spaces for the uploading of project information and resources and for participants to blog about their experiences. The over-riding aim of this site is to develop a sense of community and shared experience, so that it functions as an affinity space for those involved, and as a site for virtual professional learning across widely diverging physical locations, grade levels, systems and schools.
- Provided detailed 'worked' examples of the use of digital games. Examples here have ranged from snapshots of classroom units previously undertaken in Queensland and Victoria, through to extended demonstrations of the use of a popular commercial game across a range of areas, and the detailed exposition of theory and practice with respect to specific, sustained, high quality games to support learning in curriculum areas.
- Introduced a framework for planning games-based learning that requires simultaneous attention in an integrated fashion, to be paid to three dimensions – the critical, cultural and operational - entailed in curriculum planning and design, and in learning, pedagogy, and assessment – Green's 3D model for L(IT)eracy [19].
- Established teams of teachers and researchers in each school to work together in the design and documentation of games based learning within one or more of the three strands.

6. Conclusion

Developing an informed and detailed understanding of the challenges facing 'everyday' teachers in introducing work with digital games in a range of schools, across diverse subject areas, age groups and system requirements, is challenging. The research faces the double task of affirming the potential of games to enrich learning while also encouraging a disposition towards working with games that is properly critical. While complex, meeting these challenges is central to the development of good practice, good partnerships, and informed insights into how games-based learning is experienced 'on the ground' – 'the good, the bad and the ugly'. Such research is essential if we are to understand more about how, and under what circumstances, for which students, and with which pedagogies and resources, the best games have to offer might be achieved.

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