Towards a greater understanding of multiliteracies: A multimodal methodology for capturing and analysing young people's out-of-school computer game playing.

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Abstract
Today’s young people experience a very different world from that in which current theories about learning and literacy were developed. Many school-aged young people spend considerable periods of their out-of-school time playing computer games and there are potentially positive learning and literacy experiences to be gained from their playing, regardless of the game genre. Such experiences generate, and require, new understandings about learning and literacy. This paper proposes a methodology for exploring questions about the kinds of multiliteracies that are exhibited by young people playing computer games in out-of-school settings. It describes a multimodal methodology for capturing and analysing the on-screen game-playing practices, and the players’ accounts of their practices. Drawing on the prior work of Gee (2003) and Bangert-Drowns and Pyke (2001), an initial protocol for recognising multiliteracies in the game-playing data is presented. To provide further nuanced explanations of the players’ understanding of their multiliterate experiences, a discourse analysis methodology is conceptualised that combines membership categorisation analysis and critical discourse analysis.
Introduction

Given the differences between the world of today’s young people and that in which most of the current learning theories were developed, Gee (2003) asks: “Is it a wonder, then, that by high school, very often both good students and bad ones, rich ones and poor ones, don’t much like school?” (p.7). He suggests that: “we can learn a lot from those young people who play [video] games, if only we take them and their games seriously” (p.10). Gee proposes that the “theory of learning in good video games fits better with the modern, high-tech global world today's' children and teenagers live in than do the theories (and practices) of learning that they see in school” (p.7). Lankshear and Knobel (2003) make similar claims with respect to the need for “new literacy” in an ontological sense as dictated by “changes in technology, institutions, media, the economy and rapid movement to global scale in manufacture, finance, communications and so on” (p.16). With Gee (2003) and Lankshear and Knobel (2003), we contend that there are potentially positive learning experiences to be gained from young people’s computer game playing in out-of-school settings regardless of the game genre and that such experiences generate, and require, new understandings about literacy.

School aged young people spend considerable periods of their out-of-school time playing computer games, with research indicating that by the time they reach the work force they will have spent over ten thousand hours playing these games (Prensky, 2001, p. 38). The public perception of young people playing computer games is ambivalent. Recent research (Durkin & Aisbett, 1999; Squire, 2002; Walsh, 2002) indicates that computer game playing has spawned a series of “moral panics” about the games encouraging racism and violence, short attention spans, hyper competitiveness, warped sexual values, and poor literacy skills. Paradoxically, computer game playing by young people has also been credited with a range of positive outcomes such as increased IQ, enhanced strategising ability and comprehension skill, and affective outcomes such as persistence, motivation and enjoyment (Blumberg, 1999; Mayer, Schustack & Blanton, 1999). Squire (2002) suggests that the contentious and politicized nature of this cultural debate arises from the lack of disciplined study of gaming, and in particular he notes the “pedagogical potential of games and social contexts of gaming have been woefully unexamined” (p.2).

Research on the educational value of computer games has tended to focus on the playing of specially selected games designated as “educational” within school settings (Beavis, 1997 & 1999; Squire, 2002). Studies of game playing in out-of-school settings have explored connections between multiplayer gaming and issues of representation, identity, and community, and the changing nature of literacy (Beavis, 2002). Somekh et al. (2002) investigated the general use of information and communication technology (ICT), including gaming, in the home and compared it with ICT use in schools.

Lankshear and Knoble (2003) challenge the "entire epistemological base on which school approaches to knowledge and learning are founded" (p.155). They propose that school literacies are "made obsolete by the intense digitization of daily life" (p.155). Bangert-Drowns and Pyke (2001) suggest likewise that past notions of literacy may be less appropriate for a generation of digitally informed young people used to a
multiliterate, technologically enhanced environment. Since the publication of *A pedagogy of multiliteracies: Designing social futures* (New London Group, 1996) the concept of “multiliteracies” has received widespread recognition and sparked considerable debate (Cope & Kalantzis, 2000; Rassool, 1999; Unsworth, 2000). The concept of multiliteracies is predicated on the emergence of a multiplicity of communication channels (enabled by ICTs) that support multiple modes of meaning, and on the increasing salience of cultural and linguistic diversity (p.63). This notion of multiliteracies supplements traditional literacy pedagogy but focuses on modes of representation much broader than language alone, and on the interactive nature of these multiple modalities.

The concept of multiliteracies has been adopted by a range of academic fields outside of the traditional language and literacies domain, including technology, arts and drama education, and cultural studies. In the process, variations on the term such as ‘multiple literacies’, ‘multi-literacies’ and ‘multi-modality’ have arisen that all give particular emphasis to the concept of multiliteracies including social, cultural and community literacies (Rassool, 1999); visual, curriculum, cyber and critical literacies (Unsworth, 2000); media, technology and computer literacies (Kenway & Nixon, 1999). While multiliteracies have received sufficient recognition that they are now ensconced in official educational pedagogy (for example Department of Education, Queensland, 2000) there is little understanding of the multiliterate practices already encoded in computer game playing. From the standpoint of contemporary literary theory that acknowledges the role of the reader in the meaning making process, we posit that multiliteracies are generated from the transaction between the players and the multimodal computer games. Further, the different perspectives (textual, psychological, social, experiential and cultural) as outlined by Beach (1993), that the player brings to the game impact on the kind of leaning experience.

This paper proposes a methodology for exploring questions about the kinds of multiliteracies that are exhibited by young people playing computer games in out-of-school settings. It describes a multimodal methodology for capturing and analysing the on-screen game-playing practices, and the players’ accounts of their practices. Drawing on the prior work of Gee (2003) and Bangert-Drowns and Pyke (2001), an initial protocol for recognising multiliteracies in the game-playing data is presented. This project builds on research findings, such as those indicated above, while contributing to more nuanced understandings of multiliteracies exhibited by young people playing computer games in out-of-school settings. The paper proceeds through conceptualisation and explanation of the methods involved in capturing the game playing data, analysing the computer game playing data, and analysing the computer game-players’ accounts of their playing.

**Capturing game playing data**

The methodologies for capturing and analysing young people’s game playing practices aim to enhance recognition of multiliteracies exhibited during the game playing process. Potential participants, from schools that presently conduct alliances with the researchers’ university, will be invited to join the project and a small group (6-8) of participants will be selected using the following criteria: self proclaimed medium-to-high level ability in computer game playing, motivation to not only play but also talk about their game playing practices: diversity of gender, ethnicity, socio-
economic background and age characteristics. From the participants’ suggestions of their favourite games across the range of genres (e.g., strategy, action, role play) a selection will be purchased. To ensure consistency and quality of data, a computer games research laboratory will be set up at the researchers’ university with these games and the necessary equipment for play and data capture. Once the capturing equipment is set up and trialled, the game playing of the participants will be captured and form the basis of the interview aspect of the project.

After exploring several options, an affordable hardware solution has presented as optimal for the capture and playback of gaming footage. Current video cards, required for gaming, frequently include a TV Out connection that can connect to a standard video recorder or digital movie camera. Audio from the computer and/or microphone can be recorded also, giving a complete representation of events during the recording. A digital movie camera is first choice for recording device, offering options for higher resolution recording and more versatility in post-production of data. A general schema for the technical arrangement of the data capture is shown in Figure 1.

![Figure 1](image_url)  
**Figure 1.** A general schema for the technical arrangement of the data capture

The individual participants will play the game uninterrupted for a set period of time (30 minutes) but observed by a member of the research team who will be trained to recognise “critical incidents” (Tripp, 1993) indicating different aspects of multiliteracies. Following the game-playing session, the researcher will replay the capture data to stimulate (Mead & McMeniman, 1992) the players’ accounts of their practices. The player will be encouraged to identify what they consider to be the “critical incidents” in the play but where the player selects different “critical
incidents” for discussion from those noted by the researcher, the researcher may prompt for player’ explanation of their playing. Both the game playing and the players’ accounts of will be videoed.

**Analysing computer game playing data**

After the game playing data capture and the subsequent stimulus reflection interview data transcription, a further more detailed analysis of this data will be undertaken using content analysis methods thus adding replicability and validity to the analytic process (Krippendorf, 1980). The methodology of content analysis is based on counting the frequency of certain interactive elements in a clearly defined sample such as video clips, and then analysing those frequencies. Although this method has been used traditionally with printed data and then more recently with visual data (Rose, 2001) we will transfer aspects to the analysis of video and interactive data. Accordingly, in keeping with our aim to explicate our understanding of multiliteracies exhibited during game playing, we will follow three processes that are well recognised as content analysis methods.

- **Sampling** - The interactive sequences in the playing will be sampled according to those critical incidents identified by the game playing participants or the researcher, and discussed in the stimulus reflection interviews that follow the game playing sessions.

- **Using and refining categories and coding** – Of the ways of describing interactions with the computer, two that would seem to be profitable for exploring questions about multiliteracies are Bangert-Drowns and Pyke’s (2001) seven “levels of student engagement” and Gee's (2003) “principles of learning” that are built into good computer games. Bangert-Drowns and Pyke’s (2001) taxonomy incorporates a range of levels of engagement that include cognitive, affective and motivational strategies. Extrapolating from an exploration of literate thinking with electronic text, they provide a taxonomy of student engagement with educational software that include level descriptions for: literate thinking; critical engagement; self-regulated interest; structure dependent interest; and frustrated engagement. Gee (2003) describes and identifies 36 “learning principles” including active, critical learning; design; semiotic; identity; self-knowledge; on-going learning; achievement; practice; regime of competence; situated meaning; text; intertextual; and multimodal principles (p.221). These frameworks will be used to describe the multiliteracies and for the subsequent coding process in this project.

- **Analysing the results** - Analysis will occur on two levels: (a) the use of frequency codes will establish the relative importance of particular levels of engagement; and (b) the systematic plotting of activities that are bound to each of the established categories will aid the recognition of the multiliteracies exhibited. As the overarching aim of this project is to explore questions about the kinds of multiliteracies that are exhibited by young people playing computer games, combining selected aspects of Bangert-Drowns and Pyke’s levels of engagement with Gees’ learning principles will provide a framework for systematic recognition of multiliteracies and an indicator of importance attached to these multiliteracies by the players. It is envisaged such a protocol would take a form similar to that shown in Table 1. To employ a 36 x 7 matrix - as would be required if all 36 of Gee’s principles of learning with all seven of Bangert-Drowns
and Pyke levels of engagement were included - is thought to be impractical, so a subset has been identified that would appear to provide the best opportunity for exploring the multiliteracies in the play. These may be supplemented or adjusted as the analysis proceeds.

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Table 1: A protocol for recognising multiliteracies in young people’s game playing (adapted from Bangert-Drowns and Pyke (2001) and Gee (2003))

Analyzing computer game-players’ accounts of their playing

To provide a more nuanced understanding of the multiliteracies exhibited by the players, and to counter-balance the “top down” approach generated through the use of a protocol based on prior research for recognising multiliteracies, a combination of discourse analysis methodologies will be applied to the players’ accounts of their playing. Specifically, two methodologies, namely membership categorisation analysis and critical discourse analysis, will be used as explained below:

Membership Categorisation Analysis (MCA)
Membership categorisation analysis (henceforth MCA) as originated by Sacks (1992) looks very closely at what the participants are saying in the context of the interview, turn by turn. More specifically, we will locate evidence in the interview talk about how the game-playing participants describe certain game playing activities with the researchers. In analysing the interviews using MCA the analysts will attend to the players’ accounts data in three steps (Baker, 1997) as follows:

1. Locate the central categories that underpin the talk surrounding the participants as particular kinds of game players (e.g. Player: “I am a shoot em up kind of player”);
2. Revisit interview data, looking for further evidence of participants’ description of their game playing activities and strategies that are bound to the located categories to work through the 'activities' and attributes associated with the categories. It is expected that activities talked about could include, to some extent, the levels of engagement found in the prior analysis of the game.
capture video data (e.g. Player: *I like to move quickly back and forth across the split screens ... with lots of pictures and things to read*);

3. Re-examine the established categories and the category-bound activities so as to determine how the accounting work done in steps 1 & 2 can be (mis) aligned with the multiliteracies as described in the protocol (e.g. Researcher/Analyst: *this participant exhibits a capacity for reading multilinear, multimodal text*). At the end of this stage of the analysis we will have located sections of the data (accounts) that further support our claims that particular players are exhibiting certain kinds of multiliteracies.

The findings produced from the MCA analysis of the participants’ accounts will form the basis of a critical discourse analysis. Baker (2000) provides an initial rationale for linking the two analytic methods when she argues that “categories and categorisation work lock discourses into place, and are therefore ready for opening to critical examination” (p.99). She argues further that critical textual examination means recognising “the ideological order that the … text pre-supposes” (Baker, 2000, p. 106). The potential for bridging the analytical tools of MCA and CDA has been trialled extensively by Johnson (2001, 2002 a & b) using visual-verbal data sources.

**Critical Discourse Analysis (CDA)**

Critical discourse analysis (henceforth CDA) is a means of explicating the exhibited multiliteracies further through a reconsideration of the established categories and category bound activities (as in MCA above) as related (and unrelated) to Discourses circulating in the fields of literacy. Gee, (2000/01) distinguishes between what he calls little “d” discourse and capital “D” Discourse, the former he defines as “connected stretches of talk or writing” and the latter as “ways of being certain kinds of [multiliterate] people” (p.110). Whereas MCA works by building up an explanation of the data from the bottom-up, CDA will work here in the reverse by superimposing or matching the gameplayers’ categories and activities with known forms of literacies (Gee, 2003). The researchers define the discourses that are available in the field through descriptions that are gleaned from a rigorous review of the literature (e.g. *the participant activities exemplified fits within the parameters of a Discourse of digitization*). It is possible that we will find that some of the categories may not match existing discourses of (multi)literacy. The results from the MCA will be used to demonstrate how the categories and associated activities that are extrapolated from the players' data fit within and expand the existing discursive framework of multiliteracies that operates in the world of formal education.

**Concluding Comments**

This paper outlines a multi-modal methodology for capturing and analysing young people’s computer game playing in out-of-school settings, and their accounts of their game playing. The methodology is intended to illuminate questions about the kinds of multiliteracies exhibited by young people playing computer games, regardless of the genre of game. The research is premised on the notion, articulated by Gee (2003), Lankshear and Knobel (2003) and others (Prensky, 2001; Selber, 2004), that today’s young people experience a very different world from that in which current theories about learning and literacy were developed, and that study of young people’s out-of-school computer game playing could provide insights to in-school pedagogies that are more relevant to today’s young people.
The methodology described in this paper involves digital data capture of real-time computer game playing and video data of players’ accounts of their playing. It is proposed that a technique founded in content analysis methodology be employed that would facilitate sampling, using and refining categories and coding, and analysing the results. Combining Bangert-Drowns and Pyke’s (2003) levels of engagement and Gee’s (2003) learning principles, a protocol for recognising multiliteracies in computer-game playing is suggested. To counter-balance the “top down” approach of the design of the protocol based on prior research for recognising multiliteracies, and the quasi-quantitative content analysis methodology, a discourse analysis methodology is conceptualised for the further analysis of the players’ accounts. This methodology will combine membership categorisation analysis and critical discourse analysis to provide nuanced explanations of the players’ understanding of their multiliterate experiences.

The methodology described in this paper could inform wider research to develop nuanced understanding of multiliteracies exhibited by a wide range of young people playing computer games in out-of-school settings.

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**References**


