MIND THE GAP(S): discourse and discontinuity in digital literacies

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Abstract
Meaning making in new media is rapidly presenting new opportunities and new challenges for those working in formal and informal educational contexts. This paper will provide an overview of current theory, thinking and commentary (such as the work of Gee, 2004; Kress, 2003; and Lankshear and Knobel, 2003) in order to map the field of new digital literacies and identify key questions for research and policy development. I will reflect on the discontinuities or gaps that exist between teachers, their students, their homes and their schools, and the academic researchers that work with them and what technology can now deliver. In particular I will address the following questions

- What do we mean by digital literacies, who has access to these practices, and in what sense do they differ from models of traditional literacy?
- What are the limits to the incorporation of these digital literacy practices into the curriculum?
- How do new everyday digital practices translate into cultural and social capital, and how can we theorise social participation through new literacy practices?
- How can we provide new spaces in educational settings that allow for exploration of the liminal worlds between work and play; formality and informality; social networking and learning?
Introduction
Attempts to map the changing landscape of new communications technology and to chart routes through it for educationalists have prompted a flurry of activity. Armed with an intimidating array of terminology and a complexity of models we have waded into the deep water of digital media with something approaching revolutionary zeal. Some of the most influential theorizing has resulted in a rather arbitrary construction of binaries. For example, a new generation of video-gamers emerge as being more sophisticated and better purposed for late capitalism than those who are traditionally schooled (Gee, 2004a; 2004b); those with access to new technology are separated from an emerging underclass of those who haven’t (Tapscott, 1998); the digital world itself is split between ‘natives’ and incoming ‘migrants’ (Prensky, 2004). Even literacy, our field of study, mutates into something like ‘new literacy studies’ (Street, 1997) or ‘new literacies’ (Lankshear and Knobel, 2003), distancing itself from the study of traditional print literacies.

When children and teachers set foot on this landscape we might well ask ourselves how useful our maps are, and how helpful it is to speak in terms of binaries or even compelling futures. Looking at how local teachers and children engage with the sorts of experience in virtual worlds provided by AWEDU’, I have been struck by the discontinuities or gaps that exist between teachers, their students, their homes and their schools, the academic researchers that work with them and what technology can now deliver. In doing this, with the sort of wisdom that retrospection affords, I have become aware of how my own work could be seen as a sequence of bridging exercises through which I have attempted to see what meanings and uses colleagues and teachers make of digital literacies in their classrooms (for example Merchant 2001; Merchant, 2004; Merchant, 2005).

In this paper, I want to identify some of these gaps, to suggest how they might be bridged or closed, and even to suggest how some of them may be recognised as valid spaces in their own right. The paper falls into three sections. I begin by looking at the conceptual gaps – the gaps of definition and understanding that occur in debates around digital literacy, and this will, by necessity, involve a fairly thorough exploration of what digital literacy is and what it is not. I then want to try to piece together what happens when teachers and their students enter into this field of digital literacy, by looking at what can happen when we begin to incorporate these new literacy practices – what can happen and what gaps appear.

In the second section, drawing on Bourdieu’s notion of capital, the paper then turns to a consideration of what I shall call ‘digital capital’. I will ask under what circumstances can digital literacies be seen as cultural capital, and what patterns of social or civic participation are beginning to emerge. This will help to identify further gaps in our thinking about digital literacy and social change, which have a direct relevance to the role that schools could and indeed should play in preparing their students for a digital world.

Discontinuities between everyday practices and literacy as it is presented in school settings are well documented. I conclude this paper with a brief look at
the gaps in our thinking here. I will suggest that in a world in which there is much talk about the blurring of boundaries we should begin to think in more creative ways about defining new spaces in and out of educational settings that allow for exploration of popular digital literacies in the belief that this is where the most powerful learning occurs and where, as it happens, digital practices seem to flourish.

Figure 1: Interactive texts would be great here cos we could analyse them and use them in literacy.

1. Digital literacy –competing discourses
Recent revisions to the framework for teaching that guides literacy instruction in England and Wales, not unlike those in other English-speaking countries, will place a greater emphasis than earlier versions on the use of new technology. In what could be seen as a minor victory for the advocates of digital literacy, the Primary National Strategy (PNS) will present opportunities for more creative and purposeful uses of new technology in our classrooms.

The political drive to return to basics, currently framed in terms of the ‘simple model of reading’, works against this turn to new technology as PNS documents focus on things like recognising ‘words on the page’ and ‘print experience’ (Primary National Strategy, 2006). This renewed narrowing of conceptions of literacy and the widespread inability to accommodate texts such as those produced in a virtual world (see Figure 1) leads to the
misconception voiced here by the teacher avatar ('Interactive texts would be
great here cos we could analyse them and use them in literacy.'). The
assumption being that digital literacy, such as the written conversation itself
and the in-world interactive text only become educational once they are
deployed in the pedagogical routine called 'literacy'. It seems then, that at this
point in time, a clearer sense of the place of literacy in the world of new
communications is needed in order to re-align our curriculum with wide-
reaching changes in social relationships, patterns of employment and the
knowledge economy.

It is in relation to this that I want to assert the central importance of literacy –
and by this I mean what Kress (2003) refers to as 'lettered representation' - in
an educational world that is increasingly pre-occupied with new technology
and new media. But also I want to argue that we need to pay serious attention
to the ways in which we might help children and young people to develop a
fluency in digital literacy in the wider context of digital communication. This is
built on the recognition that what may be called digital literacy is, in many
aspects, quite different in character to print literacy (although, as Lankshear
and Knobel, 2003 point out, new technology can be and often is used to
reproduce traditional practices of print literacy, particularly in educational
contexts).

The work of Lankshear and Knobel (2003) has in fact been instrumental in
identifying the emergence of new post-typographic literacies, - a ‘newness'
that is associated with the:

   ' …changing ways of producing, distributing, exchanging and receiving
texts by electronic means.'

   (Lankshear and Knobel, 2003:16)

Being more specific about what these changes look like, having a clearer
understanding of what is meant by digital literacy and perhaps more
ambitiously, an informed view of the future of writing, will I believe help us to
avoid some of the pitfalls that research, curriculum innovation and policy have
stumbled into. Amongst these are the idea that literacy skills should first be
learnt in a more or less traditional fashion and then applied to digital texts, that
digital literacy is simply another option and that we freely choose between
page or screen to present our ideas, or that new ways of making meaning
somehow make old ones redundant. Leu (2000) argues that electronic
communication leads to a ‘deictic shift' in the ways in which literacy is used –
a change of paradigm that invites new methods of description and requires
new pedagogies. From this point of view, it is imperative that we begin to
address some of the curriculum issues raised by digital literacy in more depth.
However, before this work is undertaken, more clarity about what is meant by
digital literacy is needed. The concept of digital literacy like that of media
literacy (Buckingham, 2003) is problematic in a number of ways. What follows
is an exploration of some of these problems.
Barton (1994) in his seminal text on literacy draws attention to the changing uses of the word literacy itself—a word, let us not forget, that only relatively recently replaced ‘English’ and ‘language’ as the curriculum area that addresses reading and writing. In developing his discussion, Barton identifies the growth of metaphorical uses of the word literacy such as, for example, the concept of ‘emotional literacy’ (derived from the work of Goleman, 1995). Emotional literacy is not, of course, concerned with the joy and frustration of learning to read and write rather it uses the idea of literacy, in a metaphorical sense, as a desirable and educable competence or intelligence. In a similar way, some uses of the term ‘digital literacy’ are the progeny of the concept of ‘computer literacy’ which seeks to embrace the whole range of complex and densely interwoven communicative forms that are digitally mediated as well as the mechanical and navigational competence that are pre-requisites to working on screen (see for example Gilster, 1997). To be computer literate is often synonymous with a rather hazily defined level of confidence and experience in use. I want to argue that this view is problematic in a number of ways.

Firstly, in educational discourse, metaphorical uses of the term literacy are potentially misleading. If we are to settle, at least for the time being, on ‘literacy’ as a way of describing a curriculum area, we need to preserve some sort of clarity about its focus. This is not to say that we should turn into evangelical linguistic purists and attempt to change popular and sometimes helpful metaphorical uses, merely to assert the need for a reasonably precise set of professional terms that will serve as the tools of the trade. A clear idea of what literacy is helps us to design learning environments and teaching strategies to develop it. It is for this reason that Kress argues that:

“…literacy is the term to use when we make messages using letters as the means of recording that message. “

(Kress, 2003:23)

In educational contexts when we refer to literacy, I think we should be clear that we are talking about the communication of meaning through lettered representation. After all, understanding and learning how to use the system and forms of written representation is a central function of literacy education. This is not the same thing as privileging print literacy, in fact it can help to situate literacy pedagogy in a wider understanding of communication.

Secondly, the broad conception of digital literacy sketched above is actually ambiguous. If it is not being used in a metaphorical sense it can be used in a way that conflates ideas of literacy with the more general area of communication. Digital music and digital photography are important and powerful communicative tools, and they have their place in the curriculum, but they are not primarily concerned with lettered representation. Nevertheless it seems quite appropriate to refer to these and other digital artefacts as texts and to borrow the term ‘reading’ to describe how we construct meanings from them. Other modes of linguistic and non-linguistic communication, most notably speech and visual image are vitally important in many literacy
practices, and must not be ignored (Bearne, 2003) - but they are not in themselves literacy.

Thirdly, a broad definition of digital literacy may actually serve to obscure some important aspects of how verbal communication is produced, presented and interpreted on screens and divert our attention from the emergence of new genres, some of which are significant in the ways that writing is changing - ways which may well fashion the future of writing, as well as writing pedagogy. In an educational landscape which is already littered with jargon there is little room for unhelpful or ambiguous new concepts. On the other hand, a clearly articulated sense of what digital literacy is will help us to focus our attention on a key area in the development of new literacies.

Early research on computers and writing, focused almost exclusively on investigating the possible motivating effects of writing on screen (for example, see Kamil et al, 2000). It was predicated on the assumption that first one learnt to read and write and then these skills could be transferred to keyboard and screen. To ask if using computers can improve writing is a notoriously difficult research question to answer and one that only really makes sense in a context in which there is real choice and genuine scope for comparison. Over the last ten years we have moved to a position in which a literacy curriculum that ignores on-screen writing is an impoverished one, so rapid has been the pace of change. But we still have a long way to go in investigating the specific detail – what, for example does early emergent writing look like when it is screen based; when and how should children be shown how to refine internet searches and to question the significance of ranked search results; how do we introduce the world of synchronous communication; what sorts of criticality should be introduced and when - are amongst a long list of important questions to be addressed. They are, in fact, questions that require far more than a simple model in which literacy is applied to screen-based texts and it is here that the concept of digital literacy is most useful.

Figure 2: Digital literacy as a discipline of the body.
If digital literacy can be defined as the study of lettered representation that is mediated by new technology, its prime concern is with the production and consumption of verbal texts that are screen-based, and this is what signals the initial point of departure with print literacy. The specific textual and social affordances of digital literacy are a product of the technological means of its production and consumption. Now the most obvious shortcoming of this definition is that it seems to deny the complex and often very visual nature of many digital texts. As Kress (1997; 2000; and 2003) has repeatedly pointed out, the move from page to screen has resulted in a turn to the visual, and the development of multi-media technologies allow for new possibilities of combination in the creation of multi-modal texts. Whilst there is no doubting the truth of this we cannot afford to overlook the fact that written information has a central part to play in many screen-based forms and that some of the most popular of these (such as email and texting) are conducted almost entirely through writing. At the same time it is important to acknowledge that one of the characteristics of digital literacy is the way in which it readily combines with other modes of communication. Context is of central importance in any practice of literacy and the multi-modal nature of many screen-based texts highlights the importance of combining our reading of visual and other modes with digital writing as we make meanings through these new texts.

The central concern of digital literacy, however, is reading with and writing with new technologies - technologies which involve the semiotic of lettered representation, regardless of whether or how they combine with other forms of representation. In this sense digital literacy extends out of print literacy despite the fact that the processes, surfaces and spaces of production and consumption are different. The common ground is writing and this I believe, is helpful and important, particularly to educational and developmental debates (see Appendix 1).

It is easy to overlook some of the most basic features of digital writing. These have to do with the materiality of the technology. When we write with a pen or pencil there is a direct relationship between the hand and the letters that are formed. We create patterns from our memory of the alphabetic shapes of our writing system, whereas when we use a keyboard or the buttons on a mobile phone, we select from a palette of letters, numbers and related graphic symbols. Our writing appears on a screen (or the screens of others) with relatively little effort on our part, looking deceptively like print on paper. These and other features of digital texts, as Mackey (2003) has observed, radically alter our physical relationship with the text, the direction of the gaze and even our body position (see Figure 2).

In educational establishments new tools for writing and reading continue to have a profound impact on the physical geography of classrooms. Computer labs often break with the long tradition of requiring pupils to ‘face the front’ and, like internet cafes, often adopt the idea of the private booth which draw the learner’s gaze to the screen rather than into eye contact with the teacher, the board or the text flat on a desk (Holloway and Valentine, 2002). As machines become more portable and networking more common place, new
possibilities arise. At the extreme these developments question the need for pupils and teachers to be in the same place at the same time - an idea that is more familiar in the area of adult distance learning. Contrast this with popular uses of interactive whiteboards which re-instate the traditional 'face the front' classroom geography.

However, when we consider the forms and functions of writing on-screen and the texts and contexts in which digital literacy is located there are much larger shifts of emphasis. The most salient of these shifts and characteristics are:

1. A move from the fixed to the fluid: the text is no longer contained between the covers or by the limits of the page.
2. Texts become interwoven in more complex ways through the use of hyperlinks.
3. Texts can easily be revised, updated, added to and appended (and often archived).
4. Genres borrow freely, hybridize and mutate.
5. Texts can become collaborative and multivocal with replies, links, posted comments and borrowing.
6. Reading and writing paths are often non-linear.
7. Texts become more densely multimodal (as multimedia allows for a rich interplay of modes).
8. Roles of readers and writers overlap.
9. The communicative space is shared and location diminishes in significance as the local fuses with the global.
10. The impression of co-presence and synchronous engagement increases.
11. Boundaries begin to blur (work/leisure; public/private; serious/frivolous)

So the transformation is in terms of new possibilities for texts, easier combinations of semiotic systems and new communicative relationships as well as the effects of more general features such as the ease and speed of communication and the largely unregulated nature of publication and audience. But we should be able to ask, without the danger of being branded as a conservative, how far we could get with new literacies - or to be more specific technoliteracies – without alphabetic literacy?

A narrower and more specific definition of digital literacy raises complex questions. Advances in understanding about how meaning is constructed in multi-modal texts, suggests that we make sense of something like a webpage by drawing on both visual and verbal elements. Although this sort of meaning-making practice draws from distinct semiotic systems, it may be important to ask how and why it may be helpful to separate these out for pedagogical purposes and at what stage(s) their interaction and combination should be considered - for the last thing we would want is for digital literacy to be reduced to a set of skills for working with print on screen.

Competing discourses in digital literacy adopt different stances and definitions of the topic area, and this contributes to a major gap in understanding. I have argued for a principled focus on the digitally-mediated written word, but am
well aware that this is a contentious point of view. In order to have the informed debate with teaching colleagues and policy makers that we now need have, some of these gaps in understanding need to be bridged. If the teacher I referenced earlier continues to subscribe to the belief that literacy only happens when it is approached in a traditional way, and if the policy documents that inform her practice re-inforce this view, change is going to take a long time.

**Teachers, students and digital literacies**

It is not surprising that when teachers think about literacy, they think about it primarily in terms of the school curriculum and pedagogic routines. There is an abundance of research evidence that looks at the differences between children’s encounters with literacy in the home and in the school (Hannon, 1994) most of it pointing to the existence of a particular repertoire of practices that might be described as ‘schooled literacy’. This is perhaps not surprising when we consider the essentially practical nature of most teaching, concerned as it is, with questions of ‘how to do literacy instruction’ with classes of 30 or more children with diverse understanding, skills and dispositions – a situation which is exacerbated by curricula that are based on a linear (and singular) model of literacy, policed by high stakes testing and other accountability measures. When this system is faced with fundamental changes in what actually constitutes literacy it may well have a destabilising effect. In the UK, as elsewhere, the tendency to look at new technology in terms of its capacity to enhance the learning of traditional literacy skills is well documented (Burnett, Dickinson, Merchant and Myers, 2006; Larson and Marsh, 2005; and Lankshear and Knobel, 2003). In classrooms this is manifest in some uses of Interactive Whiteboards; in the research community in a narrow view of what is at stake. So for example, the EPPI review, which was set up in 2001, attempted to address the question ‘What is the impact of ICT on literacy learning in English, 5-16’. (Andrews, 2004). A sub-review looked at the effectiveness of ICT in improving young people’s literacy based on a review and analysis of randomised control trials. It concluded there was no evidence to support the claim that ICT-based literacy instruction and resources were any more effective than non-ICT approaches (English Review Group, 2004). Leaving aside the decidedly narrow definition of what counts as research evidence, it is significant that the research question itself constructs ICT as distinct from literacy - as a way to become literate rather than as a site for literacy in its own right.

**Closing the gap.**

Over the last 20 years, national governments and local administrators, often in partnership with entrepreneurs, have invested large sums of money in purchasing hardware and software for schools and classrooms. According to Torgerson and Zhu (2004), over £1billion has been spent by the UK government in the last 5 years alone, whereas it is estimated that Australian Governments have invested half a billion dollars a year since, 2003; and this pattern is repeated elsewhere. Unfortunately, as critics have pointed out, this investment in new equipment has not always been matched by a similar investment in professional development (Torgerson and Zhu, 2004). Teachers’ confidence in their personal use of ICT is generally quite low.
Research commissioned by the Scottish Office (Williams et al., 1998) suggests that teachers ‘are still in the early stages of ICT development’. A similar pattern emerges from the NCES report on teacher quality in the U.S. (NCES, 1999), and a more recent review on barriers to the uptake of ICT by teachers suggests that confidence, along with time and access, are crucial determining factors (Becta, 2004). Partly as a result of this, the development of innovative classroom practice has largely been the province of enthusiasts. Nevertheless, any meaningful exploration of digital writing in the school system is, of necessity dependent upon technology, and so the resource issue certainly warrants close attention.

In considering the resource dimension of digital literacy, it is useful to separate out some distinct, yet inter-related elements (see Holloway and Valentine, 2002, for a useful exploration of these issues). So, for example, there are issues of provision - what hardware and software is provided and how it is updated; location - where this equipment is situated in schools or classrooms; access - how and when teachers and pupils can get to the hardware and software; and use - the actual practices that are promoted in, and outside of, the formal curriculum. There is growing recognition that these factors work together to constitute educational practices, and that changes in ICT policy need to take account of their interplay (Holloway and Valentine, 2002; Becta, 2004). Future research that focuses on school, district or system-level innovation in ICT will need a design and research tools that are sufficiently robust to cope with this complexity.

2. Thinking about digital capital

Moving on from these difficulties of definition, I now want to explore the growing power of digital literacy in everyday life. This discussion will be informed by Bourdieu’s (1977) notion of cultural capital as I illustrate through example how knowledge of the ways in which new systems of communication work can allow for greater levels of social and civic participation. I argue that those who have access to new technology and knowledge of its potential wield the power of the new force of digital capital. This digital capital is increasingly significant in advanced education and employment in late capitalism (Gee, 2004b). However, inequities in digital wealth may well map on to existing social inequalities and so, I shall argue, a more systematic approach in education should be an entitlement for all students.

Bourdieu suggests that schools favour particular linguistic patterns and practices and specific kinds of knowledge and behaviour, and by so doing draw unevenly on the social and cultural resources that children and young people bring with them from home (Bourdieu, 1977; 1992). For some social groups, these social and cultural resources are recognised and readily converted into ‘cultural capital’; other social groups may not be so fortunate. Although critiques of Bourdieu’s position suggest that he fails to account for individual autonomy, social mobility and the changing nature of social life (for example, Giroux, 1983), the concept is still useful in looking at how resources become capital in different ‘markets’, particularly with respect to digital literacy.
Research in the ethnographic tradition which has looked at the relationship between home and school literacies from Heath (1982) through to Gregory and Williams (2000) has provided a wealth of evidence that shows how pre-school practices are, or are not, converted into capital on transfer to school. These studies suggest that the differences run deeper than broad social groupings, and relate more directly to the specific detail of community values and practices. Brooker’s (2002) case studies provide vivid examples of how children from the same social class, who have rich but diverse home literacy experiences, are set upon different educational trajectories in the early stages of compulsory schooling. From this it seems likely that the same will apply to the use and application of new technology. In short, the match or mismatch between children’s and students’ everyday experiences of digital literacy may or may not translate into capital in educational contexts.

To explore the notion of digital capital and market value I will, for the time being, turn attention away from the area of education and look at an example of the use of digital literacy in an everyday setting, showing how the fluid social networks of new technology can actually achieve a level of social participation and action. It is perhaps worth observing in passing that this example also illustrates the shortcomings of any attempt to separate life online and offline (see Leander and McKim, 2003) and, as a result raises further issues for educational settings.

The case of the community street piano
In the summer of 2005, a group of undergraduate students and their friends who lived in the Sharrow area of Sheffield were moving house. Shifting belongings in a van from one place to another they found that they could not find space for their piano in the new accommodation and so, after some deliberation, they decided that the best course of action would be to donate the instrument to their local community. And so, in due course, the piano was placed against a brick wall on a busy by-road and covered with blue tarpaulin to protect it from the English weather. Notices on the piano introduced the ‘Sharrow Street Piano’ and invited passers-by to play - within the specified ‘opening hours’. The group then set up its own website with a view to communicating with a wider audience about the street piano (www.streetpianos.org). Here they described how:

‘On top of the instrument clearly spelt out in black marker pen on the remains of an old cardboard box, was a sign which simply read:

“STREET PIANO – feel free to play anytime between 9am and 9pm.”

(Streetpianos, 2006: Hugh’s Story:1)

The full story, which includes local media coverage following the theft of the piano and its eventual replacement (resulting from postings on the discussion forum on the streetpianos website) is chronicled on their web pages, but the most interesting recent episode concerns the local authority’s attempt to have the piano removed.
In July, 2006 an order for the removal of the street piano was issued by the local council. Now by this time the piano had attracted the attention of the local Flickr photosharing community who began to document the appearance of notices taped to the piano pledging support and registering opposition to the council’s intentions. The campaign then spread through a network of blogs (eg: mollsmusings, 2006) to local and national media. This resulted in a peak-time interview on national radio news in which a spokesperson for the local council capitulated, later issuing the following statement:

‘The piano seems to have gained cult status…These issues are not always black and white and we are not above having a bit of fun. We have received no complaints….we are prepared to let it stay where it is.’

(Streetpianos, 2006: press release 4/7/06)

An independent film company has recently made a documentary about the Street Piano and this was broadcast on national television in early October 2006.

The story of the Street Piano is of interest from a number of points of view. It provides a clear example of how new technology provides possibilities for new kinds of social participation. At the same time it shows how digital writing, in this case on the website, the discussion forum, blogs and photosharing sites can be interwoven with more traditional forms of communication to create...
affinity groups with a shared purpose (Gee, 2004b). Whilst the issue at stake may seem relatively trivial, it serves as a clear example of how civic participation and political mobilisation can be achieved through digital literacy. The Street Piano story also highlights some important characteristics of the use of digital writing. Firstly, it is the essential ingredient in a web of communication that runs across different platforms; secondly it shows the intersection of the personal and the public (with its wide reach across geographical space) and thirdly the seamless blending of online and offline worlds. In the case of the Street Piano, the campaining group had access to the cultural resources of new technology and were able to translate these into an influential form of digital capital. If the arena of local politics and pressure groups can indeed be described as a ‘market’ (following Bourdieu, 1997) then digital capital can be seen as a potent force.

In a similar way, and on a wider scale, there is plenty to point to the ways in which people are learning to harness the power of digital literacy. This is particularly the case in the world of blogging. The influential status of political and journalistic blogs has attracted considerable attention – particularly in the US (see Lankshear and Knobel, 2006; Bruns and Jacobs, 2006). It could be argued that we are rapidly approaching the point at which communication through digital literacy is not simply a way of maintaining our social networks but a key to new forms of social and civic participation. A central question for educators is how schools and other institutions can translate the everyday experiences of children and young people into this sort of digital capital.

Digital capital in schools.
Large-scale surveys on both sides of the Atlantic have documented substantial changes in children’s engagement with new technology and charted the impact of new media on their everyday lives. (Livingstone and Bovill 1999; Roberts et al., 1999; Roberts et al., 2005; Livingstone et al., 2005). But research also seems to show that the digital skills that children and young people bring to school are often under-valued. UK-based studies of children in the early years (Marsh, 2004; Merchant, 2005), through early schooling (Facer et al, 2003) and into the teenage years (Holloway and Valentine, 2002) provide ample evidence of this. It appears then, that a whole range of cultural resources fail to be translated into cultural capital in the school system.

As was observed earlier, innovation in the use of ICT in schools has tended to be resource-driven and relatively little work has been done to close the gap between real-world uses of technology and ICT in the classroom (Burnett et al, 2006). Ethnographic studies of literacy practices in home and school, whilst focusing almost exclusively on print literacy, have highlighted how children’s differences in experience readily translate into assets or deficits (Brooker, 2002). In order to avoid replicating this pattern in our use of digital literacies more work needs to be done to understand the everyday digital practices of children and young people in order to build school experiences that draw on their cultural resources rather than ignore them. Furthermore, school curricula in literacy and ICT need to address the question of how well they equip all pupils with those powerful and marketable skills and
understandings that underpin new forms of social participation and working practice.

3. Spaces and places
Digital media are now central to the everyday lives of children and young people in the social milieu of affluent economies. These media are intimately bound up with entertainment and leisure, with play, with social interaction and even with acts of resistance. Whilst it seems only right to re-design our formal education so that it recognises and builds on children’s cultural resources - as I have argued above - the extent to which we do this is nothing if not contentious. Within the literature on popular culture (see for example: Marsh and Millard, 2000; and Buckingham, 2003) concerns about education ‘colonising’ or ‘appropriating’ out-of-school pleasures and practices are a recurrent theme. This view can be summarised in the following way:

‘One of the pleasures of popular culture, after all, is that it usually has nothing to do with school and the more formal elements of children’s lives; indeed, it provides an escape route from their restrictive discourses. In this case, there is a danger that appropriating children’s cultural interests for educational ends could take away the gratification gained from out-of-school activities.’

(Marsh and Millard, 2000:185)

Now Marsh and Millard go on to argue that, given the breadth and diversity of popular culture, it is unlikely that schools will exhaust or even appropriate that much of it - but more importantly that they could do better in recognising and building on children’s experiences of popular culture. This seems a perfectly justifiable position, particularly when placed alongside the need to convert social and cultural resources into capital, as argued above. However, in a world in which formal education continues to extend its reach deeper (and earlier) into children’s lives, even to the extent of re-defining childhood itself, there is also an important case to be made for valuing engagement with digital literacy in informal contexts. Indeed, current knowledge suggests that some kinds of digital literacy such as MySpace, Ringo and Beebo provide opportunities for children and young people to develop skills and to find a voice which may not be entirely appropriate in educational settings (see Davies, 2006) or even consistent with broad educational goals. In short, some digital literacy practices - practices which thrive in out-of-school contexts - may well be serving an important purpose which could be undermined by their inclusion in school routines and their subsequent repurposing for educational ends.

Mitchell and Reid-Walsh’s (2002) research into girls’ homepages, which describes these web-based textual practices in terms of the Foucauldian notion of heterotopias, provides an important perspective on this debate. Part of the dynamism of this sort of practice is that it provides a space in between the official world of school and life at home. My own work on e-communication between children across school sites raises related issues. I
have shown how children perform identity and develop a personal voice through engaging in digital writing which is not under the direct gaze of the teacher (Merchant, 2006). These written conversations and shared images not only demonstrate their participation in popular culture (see Figure 5) but also their explorations of gender, race and class. So for example the email exchanges between 2 children (Ivy and Pixie are their aliases), illustrate this:

Ivy:

[....] Are you a boy or a girl?  
Why did you call yourself Pixie?  
What flavour Pizza do you like? [....]

Pixie:

I am 10 years old  
I am a girl  
I called my self pixie because its wiard  
My favourite flavoured pizza is cheese tomato and ham.

Ivy:

Hi pixie  
I love having my hair down because I have long hair  
I really like wearing flared jeans.  
I am 8 and ready to pounce on 9

Pixie:

Hi Ivy  
As you can see on the picture I like jewellery (look carefully at the teddy bear!!!). Cinderella is my favourite book. when I was younger. I love my ps1. I believe that dreams can come true.

Within this sequence of communication, there is an interesting development. Once a shared gender identity has been negotiated, Pixie responds to a message in which Ivy has written about her interests (hair and clothes). Pixie builds on this theme with her reference to jewellery, and in doing so, participates in an exchange which is underpinned by the discourse of appearance - a discourse from the shared, culturally-constructed world of gender identity. Now we could quite legitimately argue that this sort of conversation is rehearsed in many forms, in children’s bedrooms, in playgrounds, and in more public spaces. And from this perspective online environments simply provide an extended or additional space for this sort of interaction. Alternatively we could argue that it is important to examine and critique discourses that relate to wider social issues, power relationships, prejudices or inequities, and indeed that it is part of the function of educational institutions to engage in this sort of work.

In debates over the place of popular culture in school curricula, a similar position has been articulated. There is a powerful argument to suggest that an education system has a responsibility to provide the young with the tools and
understandings necessary for interpreting the constructed nature of popular culture, and to provide a critical view. Developing the idea of what critical digital literacy might look like may be important here, in following the ideas of Giroux:

‘Central to the notion of critical pedagogy is the need to rewrite the dynamics of cultural and pedagogical production as part of a broader vision that extends the principles and practices of human dignity, liberty and social justice’

(Giroux, 1994:63)

This is new territory in the debate over digital literacy, but it is time that we turned our attention to the important issue of developing criticality. Although it seems that there is a need to nurture and preserve the new spaces that exist in those liminal zones between, home and school, work and play, or study and leisure, there is also an important case to be made for schools to provide all students with opportunities to critique the digital media they encounter. Of course the two perspectives of respecting the liminal spaces of some digital practices and promoting the development of a critical digital literacy as an educational aim are not mutually exclusive. It might then be useful to think in terms of a common entitlement with respect to critical digital literacy – an entitlement based upon some basic rights. These could include:
• the right to access and use up-to-date new technologies building on everyday (or out-of-school) practices
• the right to an education that supports and develops the skills, knowledge and dispositions needed for the effective use of digital media, but also provides opportunities for critical digital literacy practice
• the right to explore and experiment with one’s own digital space
• the right to critique and resist dominant or dominating discourses in digital domains

Moving between spaces
Another important aspect of networked technology is the way in which it has helped re-evaluate and re-define understandings of social space as a dimension of communicative practice. Sophisticated collaboration between geographically dispersed groups is now common both in the world of work and the world of leisure (for example in MMPOGs). The move from co-location and co-presence to distributed work-groups (Gee, 2004a) is replicated in the move from place-based close-knit social groups to glocalised communities (Wellman, 2002). These emerging patterns of social organisation are dependent on developments in human communications technology. Figure 5, which is adapted from the work of Johansen (1991), shows the kinds of communicative options that are now possible. Since communication is central to the business of education some consideration of how these innovations may impact on classroom learning and curriculum design are becoming more important.

<table>
<thead>
<tr>
<th>same time</th>
<th>different time</th>
</tr>
</thead>
<tbody>
<tr>
<td>synchronous; co-present</td>
<td>asynchronous; co-located</td>
</tr>
<tr>
<td>• whiteboards</td>
<td>• print texts</td>
</tr>
<tr>
<td>• flipcharts</td>
<td>• bulletin boards</td>
</tr>
<tr>
<td>• data projectors</td>
<td>• blogs and wikis</td>
</tr>
<tr>
<td>as used in classrooms, labs etc.</td>
<td>as used in libraries, and VLEs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>different place</th>
</tr>
</thead>
<tbody>
<tr>
<td>synchronous; dispersed</td>
</tr>
<tr>
<td>• video-conferencing</td>
</tr>
<tr>
<td>• instant-messaging</td>
</tr>
<tr>
<td>• chat</td>
</tr>
<tr>
<td>connectivity and appropriate device</td>
</tr>
</tbody>
</table>

Figure 5: Conceptualising new modes of communication (after Johansen, 1991)
Furthermore, evolving practices such as the use of folksonomies in social networking sites and the growing popularity of wikis suggest that the diversity of practices that constitute digital literacy is more than a re-structuring of communication – it is a challenge to the ways in which knowledge is built, how expertise is shared and how the sorts of interactions that make good learning are transacted.

**Writing the future**

Nothing could be more obvious than the ways in which writing is changing. We only have to look around us at the ubiquity of text-messaging, the increasing dependence on email as a form of communication and the reach of web-based information and entertainment. I have argued here, that the future of writing is closely interwoven with the future of digital technology. Looking at current trends, four tendencies seem to be emerging. These are convergence, portability, pervasiveness and transparency. Convergence refers to the capacity to integrate technological functions in a single device. So the mobile phone doubles up as camera, MP3 player and so on - or the home media system deals with music, TV, telephonics and email. The general direction of convergence is to allow for access to multiple media from one source. Convergence pairs up with portability, because as devices become more compact and wireless connection becomes more affordable and more ubiquitous the possibilities of being able to use all media, more or less at any time or place increase. Pervasiveness suggests that digital technologies will feature in more and more areas of everyday life, becoming closely interwoven with the way we get things done. As this pervasiveness increases it is also likely that technological innovation will focus on making devices and their interfaces more transparent in ways that touch screens, and desktop icons begin to suggest.

If convergence, portability, pervasiveness and transparency represent future trends, they suggest that the devices that we use to communicate with may well take on new forms and incorporate new functions. Yet although the ability to combine and access media is likely to become much easier (and much faster) there is little to indicate major changes in the role of written communication. In fact it seems likely that digital literacy will become more significant and that the current tendency for it to develop distinct registers (such as those used in discussion board posts; instant messaging; txting and so on) will continue. Building a flexible and intelligent educational response to digital literacy becomes important both from the point of view of valuing children’s digital experience and in terms of preparing them for the future. With this in mind it seems that the need to examine the discourses and discontinuities that inform our study of digital literacy are particularly significant.

In this paper I have explored these discourses and discontinuities and focused particularly on how they are played out in educational contexts. I have suggested that competing discourses in digital literacy are underpinned by the different stances and definitions of the topic area and can lead to important gaps in understanding. These gaps are problematic when attention
is turned to curriculum and pedagogy. A clearer sense of what is involved in
digital literacy would result in teachers and pupils being better prepared for
digital futures. Gaps between real-world uses of technology and ICT in the
classroom continue to be a cause for concern (Burnett et al, 2006). At the
heart of this concern is the sense that a whole range of cultural resources fail
to be translated into cultural capital by the school system. Furthermore the
gaps between discourses and uses of digital literacy in educational settings
seem to reflect gaps between everyday uses and pedagogical practices.

Gaps between what is appropriate in school spaces and what could, should or
should not be appropriated from out-of-school spaces are important for us to
consider. Here I have suggested that we should seek to define new spaces in
educational settings and investigate the implications of new forms of social
networking, knowledge sharing and knowledge building. And finally, because
of the pervasive nature of digital technology, the commercial interest that is
invested in it and the largely unregulated content of internet-based sources, I
have also argued that we need to begin to sketch out what a critical digital
literacy might look like. There is plenty to be done if we are to prepare
children and young people to play an active and critical part in the digital
future.

References


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i AWEDU stands for Active Worlds Education, who provide resources for educational 3D virtual world play.

ii Gilster defines digital literacy as ‘the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers.’ (Gilster, 1997:1)


Appendix 1

<table>
<thead>
<tr>
<th>Learning area</th>
<th>Focus</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational and navigational skills</td>
<td>Interfaces</td>
<td>Place, weight and duration of touch; operation of pointing devices (mouse, touch pad etc); using menus; toggling, scrolling; searching</td>
</tr>
<tr>
<td>Form and function of genres</td>
<td>Texts</td>
<td>Email; text message; instant message; blog; wiki; virtual world; discussion board; website</td>
</tr>
<tr>
<td>Meaning-making and knowledge-building strategies</td>
<td>Communication</td>
<td>Evaluating and synthesising information; assessing ranking and reputation; using folksonomies and category tags; reading paths, multimodality and hypertext</td>
</tr>
<tr>
<td>Development of critical skills</td>
<td>Criticality</td>
<td>Assessing authority, authorship, ownership and power; identifying information and misinformation; presentation of self and the representation of others; corporate influence in online environments</td>
</tr>
<tr>
<td>Screen design</td>
<td>Coding</td>
<td>Affordance and control in software design; the construction of transparency; designing the page; html and other coding languages; constructing hyperlinks; multimodality</td>
</tr>
</tbody>
</table>

Aspects of digital literacy