
Researching New Literacies: Web 2.0 practices and insider perspectives

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ABSTRACT This article argues that ‘new literacies’ is a useful construct for recognizing and understanding the extent to which changes in the current conjuncture are extending social practices of using codes for making and exchanging meanings in directions that warrant serious rethinking of how and why we research literacies. It provides a conceptual definition of ‘literacies’, according to which literacies can best be described as *new* when they are constituted by ‘new *technical* stuff’ and ‘new *ethos* stuff’. On the basis of this account of new literacies the article advances a framework for envisaging new literacies research agendas and briefly discusses two cases of current research that illustrate this framework.

‘Literacies’

In *New Literacies: everyday literacies and classroom learning* (Lankshear & Knobel, 2006, p. 64) we define literacies as ‘socially recognized ways of generating, communicating and negotiating meaningful content through the medium of encoded texts within contexts of participation in Discourses’. This definition is intended to emphasize three main points.

First, by ‘socially recognized ways’ we mean something close to the concept of ‘practice’ as developed by Scribner & Cole (1981) in relation to literacy. They define practices as ‘socially developed and patterned ways of using technology and knowledge to accomplish tasks’ (p. 236). When people participate in tasks that direct them ‘to socially recognized goals and make use of a shared technology and knowledge system, they are engaged in a social *practice*’ (Scribner & Cole, 1981, p. 236, our emphasis). Practices comprise technology, knowledge and skills organized in *ways* that participants recognize, follow and modify as changes emerge in tasks and purposes as well as technology and knowledge.

A distinctive feature of today’s literacy scene is the extent to which, and the pace with which, *new* socially recognized ways of pursuing familiar and novel tasks by means of exchanging and negotiating meanings via encoded artefacts are emerging and being refined. Moreover, these new ways are being developed and matured as socially recognized patterns of engagement with a good deal of creative consciousness on the part of those who are developing and refining them. Much of this conscious creation and refinement is being done by ‘tech savvy’ people, many of whom are young. In light of this we find Scribner & Cole’s account of practice more useful than a number of more recent alternatives that have been advanced within literacy studies. Scribner & Cole put technology upfront in their account of ‘practice’. Subsequently, this visibility often slipped into the background as concepts of literacy practices increasingly centred on *texts*, and their linguistic-

semiotic dimensions. We want to put the technology dimension of practices squarely back in the frame.

Second, encoding involves much more than 'letteracy'. Encoding means rendering texts in forms that allow them to be retrieved, worked with, and made available independently of the physical presence of an enunciator. The particular kinds of codes employed in literacy practices are varied and contingent. In our view, someone who 'freezes' language as a digitally encoded passage of speech and uploads it to the Internet as a podcast is engaging in literacy. So, equally, is someone who photoshops an image, whether or not it includes a written text component.

Third, social practices of literacy are *discursive*. Discourse can be seen as the underlying principle of meaning and meaningfulness. We 'do life' as individuals and as members of social and cultural groups – always as what Gee (1997) calls 'situated selves' – in and through Discourses, which can be understood as meaningful coordinations of human and non-human elements. Meaning-making draws on knowledge of Discourses and insider perspectives, which often goes beyond what is 'literally' in the sign. In other words, 'outsiders' to a Discourse will make different sense of something important within that Discourse when compared with the meaning that discourse 'insiders' can make (e.g. different groups' interpretations of religious texts). Part of the importance of defining literacies explicitly in relation to Discourses, then, is that it speaks to the meanings that insiders and outsiders to particular practices can and cannot make respectively. It reminds us that texts evoke interpretation on all kinds of levels that may only *partially* be 'tappable' or 'accessible' *linguistically*.

'New Literacies'

'New literacies' is a useful construct when understood from a *historical* rather than a *temporal* perspective. On the one hand, there is little to be gained from speaking of new literacies in merely temporal terms, such that as soon as Instant Messaging appears, email seems like an 'old' literacy. Certainly, it would not be viable to try to build a research agenda on anything as fleeting as that. On the other hand, we are clearly at an important historical conjuncture. We are witnessing a 'surpassing' – although *not* a displacement – of the mechanical age by digital electronics and other micro-technologies (e.g. in biology, in manufacturing, in communications). Far from disappearing, many mechanical devices are being accompanied and augmented by diverse electronic devices and, in many cases, 'spliced' with them, yielding transcendent technologies and processes.

The same is occurring at social, economic and cultural levels as well. The various 'posts' – like 'post-industrialism', 'postmodernism' and 'post-capitalism' – reflect attempts to theorize certain changes in material circumstances, in ways of doing things, and in ways of understanding socio-historical and cultural phenomena. Integral to the kinds of shifts being mapped in such ways is what we think of as changes in sensibilities and ethos. These simultaneously *respond* to and *help to shape* processes and outcomes of change (Castells, 2000) – including social practices and conceptions of literacies.

Accordingly, we think of new literacies having new '*technical stuff*' and new '*ethos stuff*' that are dynamically interrelated. The significance of the new technical stuff largely has to do with how it enables people to build and participate in literacy practices that involve different kinds of values, sensibilities, norms and procedures, and so on, from those that characterize conventional literacies. These values, sensibilities, etc. comprise the 'new ethos stuff' of new literacies.

New 'Technical Stuff'

Much of what is germane to 'new technical stuff' is summarized in Mary Kalantzis's idea that 'You click for "A" and you click for "red"' (Cope et al, 2005, p. 200). Basically, programmers write source code that is stored as binary code (combinations of 0s and 1s) and that drives different kinds of applications (for text, sound, image, animation, communications functions, etc.) on digital-electronic apparatuses (computers, games hardware, CD and mp3 players, etc.). Anyone with access to a fairly standard computer and Internet connection, and who has fairly elementary knowledge of basic software applications and functions, can create a diverse range of meaningful artefacts using a strictly finite set of physical operations or techniques (keying, clicking, cropping,

dragging), in a tiny space, with just one or two (albeit complex) 'tools'. They can, for example, create a multimodal text and send it to a person, a group, or an entire Internet community of global reach in next to no time and at next to no cost.

Machinima animations are a good example of what we mean here. Until recently such productions required expensive, high-end, three-dimensional graphics and animation engines that were usually the preserve of professional animators. Today, however, a laptop computer, \$30 dollar game (e.g. *The Neverwinter Nights Diamond Pack*), video and audio editing software (often part of the software bundle that comes with a new computer), and some free or low cost video recording software (e.g. Fraps) comprise ample resources for creating polished animated movies.

Red vs. Blue, created by Rooster Teeth Productions, is widely acknowledged as one of the first amateur machinima to capture sustained 'mainstream' attention (Kellend et al, 2005). This serialized science fiction soap opera, which ended in June 2007 with the completion of 100 episodes spread over five seasons, was filmed entirely within the massively-multiplayer online game, *Halo*. Each episode was created first as an audio track, using a range of friends' voices for the characters appearing in each scene (with some additional spoken lines that developed during the actual filming sometimes spliced in later). Taking the resulting audio track as their guide, and working on multiple networked computers, the producers 'puppeteered' their Halo characters, using multiplayer options within the same game in synch with the audio track. While the puppeteering was taking place, the series creators recorded or 'filmed' the action using either separate software (e.g. Fraps), or on-screen recording software built into the Halo game itself. This recorded action and audio soundtrack were then spliced together and edited using video editing software. Each five-minute movie took hours to complete and polish, but did not require expensive outlays in terms of buying computers, digital recording devices, or software.

Music remix practices are another good example of hobbyists being able to produce high-quality artefacts, this time in the form of audio files. Software that comes bundled with most computers allows users to convert music files from a CD into an editable format (e.g. *.wav), edit and splice sections of different songs together, to convert the final music files back into a highly portable format (e.g. *.mp3) and upload them to the Internet for others to access or, alternatively, use them as background soundtracks in larger do-it-yourself multimedia projects. A good example is provided by the anime music videos (AMV) created by a 17-year-old high school student, DynamiteBreakdown. His work is very well regarded and 'Konoha Memory Book' was registering over one million views on YouTube in mid-September 2007 (see youtube.com/user/maguma for DynamiteBreakdown's account, with drummerjdm's posting of this same AMV attracting the most views). This AMV won the 'popular vote' at the 2006 Anime Expo in Los Angeles. DynamiteBreakdown admits he doesn't have a sophisticated computer, doesn't own a large library of anime DVDs, and that he uses free video editing software in the form of Windows Movie Maker. His results reflect what he puts into his work in terms of time and conception, not hardware and software. His current AMV projects absorb months of time and hundreds of anime clips.

The kinds of technological trends and developments we think of as comprising new technical stuff represent a quantum shift beyond typographic means of text production as well as beyond analogue forms of sound and image production. New technical stuff can, of course, be employed to do in new ways 'the same kinds of things we have previously known and done' – and often is (Hodas, 1996; Bigum, 2003). Equally, however, this new technical stuff can be integrated into literacy practices (and other kinds of social practices) that in some significant sense represent *new* phenomena. The extent to which they are integrated into literacy practices that can be seen as being 'new' in a significant sense will reflect the extent to which these literacy practices involve different kinds of values, emphases, priorities, perspectives, orientations and sensibilities from those typifying conventional literacy practices that became established during the era of print and analogue forms of representation and, in some cases, even earlier.

New 'Ethos Stuff'

The idea that many contemporary social practices involve new '*ethos* stuff' as opposed to that which often characterized earlier ways of doing things refers to the intensely 'participatory',

'collaborative' and 'distributed' nature of many current and emerging practices within formal and non-formal spheres of everyday engagements. We understand this difference in 'ethos' between conventional and new literacies in terms of large-scale historical and social change phenomena (Lankshear & Bigum, 1999; Lankshear & Knobel, 2006, ch. 2). In economic terms these changes correspond broadly to the transition from industrialism to post-industrialism, informationalism (Castells, 2000), and the emergence of 'knowledge economies'. Technologically, they correspond with the emergence of digital-electronics, biotechnologies, and nanotechnologies that transcend, but do not displace, technologies of the earlier mechanical era. Culturally and epistemologically, the phenomena in question correspond to trends and patterns encapsulated in distinctions between the modern (or 'modernity') and the postmodern (or 'postmodernity'), as well as with that between 'structuralism' and 'post-structuralism' (cf. Lankshear & Knobel, 2006, chs 2-3).

For present purposes, much of what we regard as new 'ethos stuff' in contemporary practices is crystallized in current talk of 'Web 1.0' and 'Web 2.0' as different sets of design patterns and business models in software development, and in concrete examples of how the distinction plays out in real life cases and practices mediated by the Internet (O'Reilly, 2005).

The first generation of the Web has much in common with an 'industrial' approach to material productive activity. Companies and developers worked to produce artefacts for consumption. There was a strong divide between producer and consumer. Products were developed by finite experts whose reputed credibility and expertise underpinned the take-up of their products. *Britannica Online* stacked up the same authority and expertise – individuals reputed to be experts on their topic and recruited by the company on that basis – as the paper version of yore. Netscape browser development proceeded along similar lines to that of Microsoft, even though the browser constituted free software. Production drew on company infrastructure and labour, albeit highly dispersed rather than bound to a single physical site.

The picture is very different with Web 2.0. Part of the difference concerns *the kind of products* characteristic of Web 2.0. Unlike the 'industrial' artefactual nature of Web 1.0 products, Web 2.0 is defined by a 'post-industrial' world-view focused much more on 'services' and 'enabling' than on production and sale of material artefacts for private consumption. Production is based on 'leverage', 'collective participation', 'collaboration' and distributed expertise and intelligence, much more than on manufacture of finished commodities by designated individuals and work teams operating in official production zones and/or drawing on concentrated expertise and intelligence within a shared physical setting.

The free, collaboratively produced online encyclopaedia, Wikipedia.org, provides a good example of collaborative writing that leverages collective intelligence for knowledge production in the public domain. Whereas an 'official' encyclopaedia is produced on the principle of recognized experts being contracted to write entries on designated topics, and the collected entries being formally *published* by a company, Wikipedia entries are written by anyone who wants to contribute their knowledge and understanding and are edited by anyone else who thinks they can improve on what is already there. Wikipedia provides a short policy statement and a minimal set of guidelines to guide participants in their writing and editing. It is, then, an encyclopedia created by *participation* rather than via publishing; it 'embraces the power of the web to harness collective intelligence' (O'Reilly, 2005, n.p.) This is collaborative writing supported by the 'technical stuff' of a 'wiki' platform or some other kind of collaborative writing software like Writely.com (or similar). It builds on distributed expertise and decentres authorship. In terms of ethos it celebrates inclusion (everyone in), mass participation, distributed expertise, valid and rewardable roles for all who pitch in. It reaches out to 'all-of-the-Web', regardless of distinction (Anderson, 2006).

Many popular literacy practices – like fanfiction, fan manga and anime works, and multiplayer online gaming – reflect Wikipedia's commitment to inclusion, collaboration, and participation, while going somewhat further in explicating what counts as successful performance and providing guidelines for participants. Gee (2004) and others (e.g. Black, 2005, 2006, 2007a, b; Lankshear & Knobel, 2006, ch. 3) describe how participants in various online affinity spaces share their expertise, make as explicit as possible the norms and criteria for success in the enterprise, and actively provide online real-time support for novices and, indeed, participants at all levels of proficiency. These range from statements about how to develop plausible characters and plots in fanfiction, to elaborate walkthroughs for games produced for the sheer love of the practice and shared with all online. Practices and relationships are widely marked by generosity, reciprocity, and a sense that

the more who participate the richer the experience will be (cf. Ito, 2005). In terms of 'ethos', the ontology of practices like blogging, writing fanfiction and collaborating in Wikipedia celebrate free support and advice, building the practice, collective benefit, cooperation before competition, everyone a winner rather than a zero-sum game, and transparent rules and procedures.

'New' Literacies: a summary

To summarise, we believe that the more a literacy practice integrates new technical stuff with the kinds of qualities and values currently associated with the concept of Web 2.0 – but which are, of course, aspects of a much larger historical 'moment' that has been playing out, and will continue to play out, over decades – the more appropriate it is to regard it as a *new* literacy. The more a literacy practice that is mediated by digital encoding privileges participation over publishing, distributed expertise over centralized expertise, collective intelligence over individual possessive intelligence, collaboration over individuated authorship, dispersion over scarcity, sharing over ownership, experimentation over 'normalization', innovation and evolution over stability and fixity, creative-innovative rule breaking over generic purity and policing, relationship over information broadcast, do-it-yourself creative production over professional service delivery, and so on, the more sense we think it makes to regard it as a *new* literacy.

This means that being an 'insider' to a new literacy practice presupposes sharing the ethos values in question; identifying with them personally. Consequently, what may look on the surface like engagement in a new literacy may well turn out upon closer examination not to be. For example, simply downloading video clips from a popular participatory site like YouTube.com to accompany lectures, without otherwise engaging in any of the forms of participation that characterize engagement in a fan practice site does not, for us, rank as a new literacy practice. It is the cultural equivalent of cutting a picture out of a magazine to use as an illustration in a handwritten story or project. As we have noted elsewhere (Lankshear & Knobel, 2003, 2006), in contexts of using new technologies a lot of old wine comes in new bottles at the interfaces of literacy and new technologies.

Elements of a New Literacies Research Agenda from a Sociocultural Perspective

When taken in conjunction with 'theory' and 'research methodology' as additional variables, these ideas provide some coordinates for mapping elements of a sociocultural studies research agenda for new literacies.

Our definition of 'literacies' yields four substantial constructs toward framing up a field:

- 'recognized ways', construed in a social practice sense;
- 'meaningful content';
- 'encodification'; and
- 'discourse membership'.

These are all well-established research constructs within sociocultural research and beyond. But they can take on distinctive nuances and parameters when directed to the study of *new* literacies – as distinct from familiar literacies that have colonized digital media. There is all the difference in the world between, on the one hand, the kinds of 'recognized ways' involved in colonizing the Internet for 'doing webquests' or presenting narratives as a series of web pages and, on the other hand, 'mashing up' multiple web resources to make customized smart tools for specific affinity purposes, or 'hacking' game engines or sampling software to invent novel fan practices that negotiate and transcend linguistic and cultural differences in intricate ways. Taking these same examples, we find similar degrees of qualitative difference ranging over what constitutes 'meaningful content' and the manner of its articulation, interpretation and negotiation; as well as over the nature and processes of codification and discourse membership.

Scribner & Cole's (1981) frame of 'technology', 'knowledge', 'tasks' and 'skills' provides an overlapping (and augmenting) variation on the four previously mentioned constructs, and how inquiry might be opened up productively into identifiable literacies that integrate new technical and new ethos stuff. A viable study could be as seemingly finite and focused as investigating how particular 'new technical stuff' is recruited within the development of some particular new 'way' of

creating meanings 'collaboratively', such as within a photoshopping affinity space, or among a group of anime music video remixers, or between participants sharing photos within a community like Flickr.com. Equally, studies might focus on particular configurations of 'ethos' within boundable literacy practices.

Alternatively, a study could look at a particular 'realization' of a tool or a resource within a practice, from learning to work with it, to refining and elaborating it, to mashing it up. In this vein, the 'tool' presented at Pandoralicious (<http://pandoralicious.googlepages.com>; a mashup of Pandora, Del.icio.us and the Grazr feed aggregator), for instance, could be researched as an in-depth case study of 'leverage' or of small-scale 'innovation' or purposeful 'creativity' (Sawyer, 2006).

Adding the dimensions of theory and research methodology to the framing mix generates diverse possibilities and raises some interesting current issues. In terms of the diversity of the potential research field, it is obvious that studies focusing on, say, the development and/or appropriation of new technical stuff within the context of a particular practice might take very different turns from one another if undertaken from, say, the standpoints of activity theory, actor network theory, or a classical Vygotskian approach to cultural tools, respectively.

Of greater immediate interest, however, is the question of the extent to which investigating new literacies – notably, perhaps, those with substantial online components – might call for developing innovative theoretical and/or methodological approaches and mixes. Alternatively, a second question arises of the extent to which the emergence of new literacies creates contexts and opportunities to identify and address issues of theory and method that may have been incipient, or even evident, for some time.

Regarding the first of these questions, from the standpoint of *methodological* innovation Kevin Leander (2007) refers to the work undertaken during recent years in the 'adaptation paradigm' that problematizes 'the transfer of familiar methods to the Internet' and works toward developing new methods. A specific example here involves work being developed around problems concerning participant observation. Leander discusses initiatives in methodology that attempt to reckon with the fact that practices travel across spaces typically treated as binaries – online/offline, virtual world/real world, cyberspace/physical space – and so, therefore, must ethnography. Furthermore, he asks what form ethnography can take under conditions where it is less a matter of ethnographers physically displacing themselves than it is of displacing themselves experientially within a process of following connections. What, he asks, might be involved if ethnographers take seriously concepts like 'it takes a village to study a village'.

By contrast, Sonia Livingstone and her colleagues (2007, p. 15) observe that 'broad trends in media and communication research lean towards the elaboration of existing methods rather than their replacement with wholly new methods'. They note, however, that emerging research challenges in the field 'may require some new approaches to method' (p. 15). Examples include using link analysis to map the blogosphere, and combining random telephone surveying, observation and experiments to explore public understanding of phenomena pertaining to search engines.

At the level of *theoretical* innovation, it is evident that current research is encouraging a push into domains of theory substantially new to literacy research. These include an interest in games studies (see, for example, <http://gamestudies.org>), Actor Network Theory (e.g. Andrews, 2006), recent developments within theories of space and time hitherto most commonly associated with fields like geography and architecture (e.g. Appadurai, 1996), 'flow theory' (e.g. Csikszentmihalyi, 1990, 1996), developments in socio-technical studies (e.g. Perkel, 2006), social network theory (e.g. Wellman, 2001), social informatics, and so on.

With regard to the second question, Andrew Burn (2007) reports recent research he has conducted on the meaning of multimodal texts in the form of video games being developed by young people. He notes that while cultural studies radically shifted the emphasis within media research from textual structures to lived cultures, it failed to develop a new way to think about signification and text. Moreover, the concept of merging cultural studies and social semiotics has to date failed to generate research that connects a semiotic analysis of media texts with research into the cultures of those who produced them and those who received them. The need for this connection derives from the fact that textual analysis alone can at most demonstrate *potential* meanings. Burn's work seeks to connect social semiotic analysis of multimedia texts with analysis

of interviews with cultural producers and receivers of multimodal texts that afford access to 'insider' meanings and perspectives associated with the social practices in question – in Burn's case, designing and producing videogames. This approach resonates strongly with our definitional link between literacies and participation in discourses and of the meanings cultural 'insiders' and 'outsiders' can and cannot make respectively from textual artefacts.

Options for Research Orientations in the Sociocultural Study of New Literacies

Various intellectual, purposive, and procedural or organizational options are available for investigating new literacies. As educationists interested in new literacies we are aware that researchers in this area often sense an expectation that their research should try to make some active and more or less direct contribution toward enhancing teaching and learning within formal education settings. While this is a valuable research outcome, we think it is important to acknowledge that the very 'newness' of the phenomena under investigation, plus the fact that to a considerable extent the field of literacy studies needs to re-invent itself in order to address the changes going on around us, caution against adopting unduly goal-directed and functional/applied orientations at the outset. We envisage a range of legitimate orientations toward the study of new literacies and will briefly describe some of them here.

(a) 'Let's See' Research

Viable research includes studies conducted for their own sake, that aim primarily at understanding in depth a 'new' social practice and the literacies associated with or mobilized within this practice. It adopts a 'let's see' attitude that encourages the researcher to get as close as possible to viewing a new practice from the perspectives and sensibilities – or 'mindsets' (Lankshear & Knobel, 2003, 2006) – of 'insiders.' The existence of striking differences in mindsets with respect to social practices involving new technologies should alert researchers to the importance of attending to how 'insiders' engage with new literacies on *their* (i.e. insider) terms (cf. Jenkins, 2006). This involves attending to the ways that meaningful content and socially recognized ways of interacting, using expressive resources, and conveying meanings are engaged, monitored, 'realized' and thought about by those who are 'inside' the practice in question. While their participants were not fully 'insiders' to new literacies in the sense being described here, the studies by Mackey, McClay & Mackey, Nahachewsky, and Sanford & Madill in this volume are good examples of 'Let's see' research in the broad sense we have in mind.

The growing field of game studies presents many good examples of the 'Let's see' orientation towards new literacies research (e.g. Shaffer, 2005, 2006; Squire, 2006, 2007; Steinkeuhler, 2006, 2007, this issue pp. 299-320). New forms of social expression like anime music videos and machinima (short films made with the help of digital game content and game play engines) similarly provide rich terrain for a 'let's see' approach, which could also focus on examining how norms of participation and interaction are established, challenged, and evolve within a meaning-making practice and community (e.g. how the mores of effective participation in a given virtual world are established, transmitted and adhered to; how players learn to participate effectively within a dedicated gaming discussion forum or chat channel). This would be done in order to better understand what might be entailed, for example, in participating in Discourses that include 'new' forms of social interaction, identity presentation, and meaning-making resources.

Another potentially helpful research dimension of the 'Let's see' type would focus on teachers' awareness of political ramifications of their practices when they try to take account of young people's literacy interests in ways that put them at odds with the politics and policies of education systems. Indeed, the kind of ethos we associate with new literacies will often – if not typically – run counter to systemic thinking and norms. For this reason, teachers who seek to adapt their practices to take account of new literacies 'insider' perspectives may well find themselves stepping into 'minefields of local education-system politics' (Jill McClay, personal communication). They may do this consciously or unconsciously, strategically or not strategically, in smart or not so

smart ways, and successfully or unsuccessfully. In terms of a new literacies research agenda, investigations of teacher thinking and action in such cases could be very helpful.

(b) 'Try On' Research

Research possibilities also include studies that 'try on' different theories, or, better yet, develop new theories for explaining what's 'new'. This is not to say that 'old' theories have passed their use-by date. Rather, the point here is that the convergences we see between Web 2.0, new technical and ethos stuff, and the second mindset are to some extent proportionately related to new convergences in discipline-based theories and methods.

For example, second-language acquisition theory can be brought together with post-colonial and postmodern identity theories in an analysis of a young man's online fansite dedicated to a popular Japanese band (Lam, 2000). Researching and theorizing multimodality is being extended by researchers like Andrew Burn (2007, forthcoming) beyond the social semiotics of texts per se to include insights into the accomplishment of meaning making gleaned from interview data provided by text producers and consumers. Narrative theory and game theory are being applied to collaborative, real-time narrative construction in live role-playing contexts in order to better understand layers of narrative construction and agency (cf. Hammer, 2007; Ito, 2007).

Concepts from human geography and space theory are being applied to studies of young people's literacy practices to better understand the *dimensionality* of these practices (e.g. Leander & Sheehy, 2004). Sociolinguistic analysis, discourse analysis, and conversation analysis techniques are brought to bear variously on transcripts of instant messaging conversations or other interactive online texts to explore distributed project collaboration or collaborative writing processes (cf. Black, 2005, Thomas, 2007).

Further possibilities include using Actor Network Theory (Latour, 2005) to analyse participation in virtual worlds; literary analysis to examine new forms of narrative emerging in and across fictional blogs, wikis, and video diaries accessed via video hosting services like YouTube.com, etc. (e.g. real blogs written by fictional authors; fiction narratives told using the medium of blogs; wikis dedicated to documenting fictional worlds); or social network analysis theory or network systems theory to examine collaborative online spaces (e.g. MySpace.com, Flickr.com, the blogosphere), among others. Guy Merchant (this volume, pp. 241-256), for example, investigates the usefulness of social network theory in his examination of everyday digital literacy practices. He brings this theoretical position to bear on Bourdieu's concept of 'cultural capital' to develop and explore the concept of 'digital capital' and its possible role in new forms of social and civic participation.

(c) Educationally Applicable Research

A third research orientation focuses more directly and self-consciously on pursuing findings that can potentially be applied to better understanding or enabling learning in school and other formal learning spaces or, perhaps, to applying ideas and findings from extant studies to formal learning settings (see, for example, the articles by Luce-Kapler, Hammett, Burke & Rowsell, and Peterson & McClay in this volume). For example, studies like those of Chandler-Olcott & Maher (2003) and Black (2005), which address the nature, role and efficacy of reviewer feedback in honing young people's artistic craft and Standard English written narrative expression, respectively, might be trawled for clues about how to mobilize effective features of reviewer feedback for school learning purposes. Other examples might include case studies of participants who are working collaboratively with others on projects requiring them to learn through participation. Foci might include examining and documenting self-directed or do-it-yourself learning in participants' everyday lives, such as learning a range of highly valued, sophisticated digital processes and/or language-related practices, such as specific programming languages, photoshopping techniques, or learning how to use sophisticated software (e.g. Leander & Mills, 2007; Thomas, 2007).

Alternatively, work done at the interstices of games, learning and society by researchers at the University of Wisconsin has obvious potential application for enhancing learning within formal contexts. Like the examples mentioned above, this is not applied research in any pragmatic,

functional, or *direct* sense. The point is not to research games and related phenomena with a view to seeing how games can be imported into schools. Rather, the point is to examine games and gaming with a view to better understanding the kinds of principles underlying effective games design, to explore patterns of engagement that seem to be associated with good practice within virtual environments. Findings provide concepts and principles that can be 'interpreted and translated' into possible approaches to creating good learning environments. The research does not produce any 'off the shelf' options, or even remote approximations to these – although they may eventually provide some resources that well-informed educators could put to good use within well-designed approaches to formal learning. Rather, findings from this research provide evidence-based starting points for developing innovative approaches to formal learning, and to augment existing approaches that begin from similar principles, goals and assumptions. Hence, the concept of an 'affinity space' has been developed out of empirical investigations of gaming (Gee, 2004, 2007). This poses questions about what affinity spaces for learning science might look like, or what might be involved in trying to develop affinity spaces for learning science. At the point where one species of hard work ends, a space emerges for undertaking a different but related species of hard work (see, for example, Shaffer et al, 2005).

(d) *A Research Programme Orientation*

Before presenting some brief indicative cases of new literacies research that can be seen as developments out of the matrix we have described, we think it is important to endorse the idea of adopting a *research programme* orientation to developing the field wherever and whenever appropriate opportunities exist. Without in any way wanting to underestimate the value of individual researchers conducting single studies independently, or of virtual networks of individual researchers sharing and interacting, we nonetheless see considerable potential benefits deriving from substantial programmes emanating out of Centers. The GLS (Games + Learning + Society) programme (formerly known as GAPPs) developed by James Paul Gee and colleagues at the University of Wisconsin, Madison; centres developed by Mitch Resnick and Henry Jenkins at MIT, Boston; the graduate research programme of the Annenberg Center for Communication at the University of Southern California; research being undertaken at the London Knowledge Lab (<http://www.lkl.ac.uk/cms/index.php>); and the ITU Center at the University of Oslo, among numerous others, exemplify the kind of advances that can be made in building components of a field when critical masses and economies of scale are achieved.

Some Brief Indicative Cases of New Literacies Research

(i) *Researching Collaborative Online Game Development as a New Literacy*

Within the context of a larger research project (SYNchrony) conducted by a team of researchers, Kevin Leander (Leander, 2005; Leander & Lovvorn, 2006; Leander & Mills, 2007) investigated retrospectively aspects of a collaborative endeavour to design and develop an online game. Leander's account indicates very clearly how real-time study of the kind of phenomenon he captured retrospectively would constitute a paradigm case of new literacies research.

The phenomenon. Leander's informant, Steven, recounted his experiences over an 18-month period – which began when Steven was 13 years old – of collaborating online to design and build a massively multiplayer game. He teamed with Jake (then aged 9), a British friend he had met online, and they recruited others from the USA, England and Australia to form a core of four game builders and a peripheral crew of three additional designers and builders, along with free access to an experienced programming consultant. Their game, 'Perathnia', was modelled on successful online role-playing games like *Runescape*. The project was based on members' enjoyment of games like *Runescape* – with their rich imaginaries or game universes of characters and foes – as well as on particular limitations within these games (e.g. characters couldn't jump or fly in *Runescape*). The group hoped to transcend such limitations by building their own game, and, at the same time, were spurred on by the possibility of making good money in the event of hatching a successful subscription-based game. Unfortunately for the group, however, the project ended prematurely, at

which time they had created a number of parts for the game, including three-dimensional models for most of the player character types, different clothing models and skin textures, 'designs for 50 different weapons ... designs for a few game structures, parts of the game landscape, a number of animations, and some preliminary testing of the game program or "engine" itself (Leander & Mills, 2007, p. 180).

Discourse and discourse membership. The participants could have been studied in 'real time' as members of both games-playing communities and as members of a games design/development/production discourse. This dimension could have been opened out into a focus on identity, for example, which could well constitute a study in its own right. Equally, an approach that looked at how the discourse coordinates its members, and how its members organize various elements of the discourse in sync, could provide another orientation. Leander obtained some interview-based clues on this, especially with respect to the development of Steven's identity as a game developer, but a full-blown real-time ethnography could capture insider perspectives and understandings about what was going on at different 'levels' of engagement within the discourse and at the interfaces between membership of one discourse and membership of others, and so on.

Tools, techniques – new 'technical stuff'. Building the game components involved accessing and becoming proficient with a range of technical tools and processes. This included, for example, obtaining copies of useful software via social networks or online stores, by having their game consultant create a small program to solve a tricky file-sharing problem. It also included learning how to use a range of software to render objects in three dimensions (e.g. *3D Studio Max*) and which involved referring to manuals and other guide texts in the process, how to animate three-dimensional objects, how to create and add textures to objects (e.g. skin textures, sword surface textures), and how to divide tasks up in ways that best matched people's areas of digital expertise.

The technical dimension of game development also involved the group in working out ways to work collaboratively across time and space, to troubleshoot coding snags, in object development, to deal with bandwidth and data transfer issues, to work effectively in a context where not everyone had the same suite of tools and software, and so on. For example, Steven was responsible for all the three-dimensional object development, and Sid, a 21-year-old graphic artist in England, was responsible for creating textures for different objects. Steven gives a sense of how they collaborated across software applications (*Adobe Photoshop* and *3D Studio Max*), geographical distance, and game developer roles in solving an object development and file-sharing issue.

STEVEN: See, I just send him this little thing [referring to a 'face' file that can be created inside *3D Studio Max*], 'cause that's easy to send, and he uses *Photoshop* on it and sends it back to me. And I take this little bitmap [sent by Sid], and I apply it in *3D Studio Max*, and it shows up on the [character] model. And then I see where it looks a little bit weird, and then I say, 'It looks weird on the nose,' and he didn't know what I was talking about, so I took screen shots, and I drew little arrows and showed him. (Leander & Mills, 2007, p. 183)

Encoding meanings. In fact, Steven's explanation of the group's game development process also gestures toward discursive aspects of what is involved in encoding meanings successfully. The audience would not entertain a character's skin looking 'weird on the nose'. Moreover, the meanings to be encoded were such as to call for a specialist on 'texture'. The conceptual and material division of labour involved in encoding meaningful content in this example is interesting, and may differ in significant ways from everyday literacies in earlier times. The division of encoding labour under conditions of 'new technical stuff' may be worth investigating as a theme in its own right.

Theory choices. Leander uses elements of space theory (cf. Leander & Sheehy, 2004), and Appadurai's theory of *flows* in making sense of his data. He argues that hitherto literacy research has been overly *situated* in terms of the scope and contextualization of the practices being studied (see also Leander & McKim, 2003): '[w]e have ... held literacy too far apart from the flows of materials, bodies and embodied practices [and] privileged a reading of their world as being organized by literacy' (in Leander & Mills, 2007, p. 184). Leander argues for a conception of literacy

practices that includes distributed systems and the movement of ideas, resources, media, money, knowledge, and people around the world. The case of Steven is all the richer for this conceptual framing around 'flows'. Not content to focus simply on the 'textual' design of the game itself, Leander (p. 185) identifies three digital flows that played significant roles in shaping, enabling and constraining Steven's project:

Realizing the project required at least three forms of digital flow: digital knowledge (skills and programming code), digital resources (programs, servers, networks) and design for data flow (economizing on digital file size so that the game will be kept mobile).

Focusing on the team members' identities as game developers, on the goal of their project, and the knowledges on which they draw affords a powerful and overdue critique of text-centric concepts of 'design':

We want to push the notion that in a distributed, digital project such as this, the challenge for team members was not simply to acquire skills, tools, and resources for design, as has been imagined in multi-modal design (e.g., New London Group, 1996); rather, their challenge was to make knowledge, resources, and data move across national borders. (Leander & Mills, 2007, p. 197)

New 'ethos stuff'. Developing the game also involved attention to new 'ethos' stuff. This included the importance of choice within a game, which effectively backgrounded narrative plotlines. Foregrounded were opportunities for players to develop their own in-game goals (cf. Gee, 2003) and to take multiple paths through the game.

Design for data flow offers another angle on 'new ethos stuff'. Design involved paying attention to file sizes, Internet bandwidth, baseline hardware requirements for users, ease of use, finding a compromise between detail and speed of online action, and the like.

[T]he look of the game was a compromise between the artistic abilities of the team, their desire to improve on the graphics of *Runescape*, the limited resources of the kind of server and bandwidth that could be run by their start-up company, and the computational load that the game would place on prospective subscriber's computers. A leaner, simpler game would be easier to serve and easier for subscribers to run. The beauty of Perathnia had to be achieved in a compromise with its mobility. (Leander & Mills, 2007, p. 178)

Leander's work shows clearly and powerfully how fruitful new ways of conceptualizing literacy can be. By paying attention to the ways in which a group of young people in various countries used and shared ideas, resources, and expertise, the study demonstrates how understanding new literacies may well call for 'new' theorizing and conceptualizing. Pure speculation on our part suggests other theoretical and conceptual framings that might also have proved fruitful for understanding new literacies include – among many others – Actor Network Theory (e.g. Latour, 2005), activity theory (e.g. Engeström et al, 1999; Kaptelinin & Nardi, 2006), Gee's principles of effective learning and his concept of affinity spaces (Gee, 2003, 2004), ludology or the study of gaming and play activities (cf. Gonzalo, 2003; Squire, 2007), approaches to multimodality that are more 'user' and less 'text' focused (e.g. Burn, 2006, 2007, forthcoming), along with theories from business studies, economics, the sociology of work, etc., that discuss leverage, collaboration, networks, as well as attention economics (Goldhaber, 1997), theories underlying software, hardware and network development, and the like, and coherent combinations and hybridizations of these and other options. This is not to say that any of these theoretical orientations would have been 'better' or 'more effective' than the position developed by Leander; instead, our point here is that each one of these positions not traditionally hooked up to studies of literacy would have afforded potentially fruitful insights into the same data.

Working from our position here, a range of research questions arises out of work that 'tries on' new theories and new ways of thinking about literacy practices. Another set of questions also arises out of a focus on young people's new technology production. These include:

- What can we learn about literacy from the ways in which young people take up and use digital tools and skills to work on collaborative projects? In what ways do social networks assist with the technical dimensions of achieving one's design and product development aims and goals?

- What can we learn from the strategies young people employ to troubleshoot design and programming problems encountered in building a digital game?
- What new forms of collaboration are being enacted by young people involved in distributed game design? How are distributed groups formed and sustained over time? How are new collaborators recruited to the group and non-contributing collaborators ejected from the project? What effects does this seem to have on the project itself?
- What design practices are being developed in collaborative project spaces online and what might this mean for education?
- In what ways do literacy learning pathways developed by young people in non-school settings challenge established assumptions about effective classroom learning?
- What are some of the powerful literacies to be found in Web 2.0 practices?

(ii) *Analysing Writing and Identity Online*

Fan fiction ('fanfic') involves devotees of some media or literary phenomenon, like a television show, movie, video game, anime series, or book, writing 'alternative' stories based on its characters or plotlines (Jenkins, 1992, 2006; Black, 2005). Stories relate alternative adventures, mishaps, histories/futures, and locations for main characters, create 'prequels' for shows or movies, or realize previously non-existent relationships between characters. Fanfic predates the Internet and considerable fanfic activity continues outside online environments. Nonetheless, the Internet has enabled almost infinitely more people to actively participate in contributing and reviewing fanfic than was previously possible.

Fanfic research is gaining visibility within literacy studies (cf. Chandler-Olcott & Mahar, 2003; Trainor, 2003; Black, 2005; Thomas, 2007). Rebecca Black's research into a popular online fanfiction archive and review forum, Fanfiction.net, provides a perspective on how studies of affinity spaces might be framed and implemented as a substantive focus within new literacies research.

Fanfic, meanings and discourse membership. Black examines the practices of posting and reviewing fanfictions on Fanfiction.net, emphasizing the discursive nature of being fanfic writers and reviewers and how this is integral to doing meaning work in that space. Fan narratives must establish their authors as people with close knowledge of the original sources sparking their narratives, and a strong sense of what can be done within parameters set by borrowed characters, plotlines and settings (cf. Lankshear & Knobel, 2006; Black, 2007b). Reviewers must likewise demonstrate knowledge of the original sources for fics they are reviewing by commenting on, say, how 'well' (or otherwise) the author has changed or enhanced a familiar set of characters or added to an established storyline. In short, fan *affiliations* shape how things are written *and* read.

While any popular text is 'fair game' for being rewritten in some way, it is not the case that anything goes in the rewriting. Authors are expected to stay close to the narrative 'design' they have chosen: for example, 'in canon', where the author remains true to the nature, characters, foci and settings of a media text while adding new storylines or exploring relationships between characters; an alternative universe design; or cross-over fic, where characters and plots from two different original sources appear in the same story (e.g. *Star Wars* mixed with *Lord of the Rings*; cf. Thomas, 2007); and so on. Authors are expected to signal how their work builds formally on the work of others (typically with an opening disclaimer acknowledging who 'owns' which characters and settings). Reviewers almost uniformly know to position themselves as supportive and collegial in their feedback, balancing expressions of pleasure in the story with gentle, constructive suggestions for further improving the narrative (Black, 2007a).

There is a discursive expectation that authors will aim to write well-crafted stories that attend to standard grammar, spelling and punctuation conventions, and authors have a plethora of 'writing advice' sites that spell out 'socially recognized ways' of producing good quality fanfic available to support them. These advise how to avoid creating overblown, non-credible 'Mary Sue' characters (Black, 2005), and how to provide a good balance of dialogue and description, develop a plotline that isn't too hackneyed, ensure that characters or problems are introduced with sufficient

explanation or foreshadowing, that character names are managed in ways that avoid reader confusion, and so on.

Identity analysis. Black emphasizes the importance of identity and 'presentation of self' within fanfiction writing (Black, 2005, 2007a) and is especially interested in studying ways in which 'adolescents with limited English proficiency construct identities in online English and text-dominated spaces' (Black, 2006, p. 170). Identity is 'the ability to be recognized as a "kind of person", such as an anime fan, within a given context' (Black, 2007a). From among diverse available options Black uses discourse analysis techniques drawn from Gee (2001) to investigate how fanfic writers engage in (multiple) identity work in their narratives and profile pages within Fanfiction.net.

Black analyses the 'author notes' – notes to readers that come before the start of each story or chapter within a story – and reviewer comments in the body of fanfic produced by a young English as a second language migrant to Canada writing under the pen name of Tanaka Nanako. The analysis represents Nanako's growing proficiency with English and narrative writing and her developing sense of self as an accomplished writer. In her earliest fics (at age 14) these notes comprise apologies for English spelling and grammatical errors. Later, they begin eliciting reviewer feedback on English grammar and plot development. Black's analysis of Nanako's author notes portray her as having developed a culturally hybrid writing identity spanning the anime fanfic she writes based on the popular television series *Card Captor Sakura*, her pre-migration insider knowledge of Chinese culture, her Canadian immigrant identity, and the development of a carefully contrived linguistic hybridity within her narratives. She blends Japanese terms that have high social cachet within anime fanfiction, along with Chinese Mandarin dialogue for her Chinese characters into her English-medium fics. Her ability to draw on resources from three languages is highly regarded by her readers (Black, 2005, p. 123).

New ethos stuff, 'post-genre' writing and classrooms. Fan fiction writing offers young authors a space in which to develop dimensions of writing that are valued in school. Black (2007a) describes Fanfiction.net as an 'affinity space' within which 'members are using digital literacy skills to discover, discuss, and solve writing and reading-related problems, while at the same time pursuing the goals of developing social networks and affiliating with other fans' (p. 133). As described earlier in this article, affinity spaces are places or sets of places where people can affiliate with others based primarily on shared activities, interests and goals (Gee, 2004). Participants in affinity spaces can access archived resources, dispersed and shared knowledge, collaborative help and expert advice, in forms ranging from FAQs (frequently asked questions), 'walkthroughs' and 'guides', to one-on-one conversations and feedback. Educational researchers and theorists working in games studies, cyberculture studies, as well as in the study of fanfiction and other forms of collaborative writing, are increasingly pondering the extent to which principles and procedures organic to affinity spaces might be appropriable within formal learning settings with a view to enhancing teaching and learning there.

Narrative writing grounded in collaborative reworkings of television series or movie plotlines is often dismissed by teachers as 'poor writing' and lacking in imagination and creativity. It is rarely considered in relation to larger social practices of intertextuality and 'media mixing', which afford growing kudos in work and leisure contexts beyond the school and, in the case of intertextual sophistication, within formal education itself (Lankshear & Knobel, 2002; Jenkins, 2004). Fanfiction research may usefully inform the work of educators in multiple ways. These include helping teachers to better understand and respond to students' classroom narratives, providing insights into mass participation in forms of popular culture that increasingly engage the energies of people across the social spectrum within their out-of-school and post-school lives, and drawing attention to the extent to which conventional genre boundaries (e.g. narrative) and norms for expertise are under challenge from 'new literacies' (see also, Jenkins, 2006; Thomas, 2007).

The collaborative nature of fanfic writing and reviewing, the importance of identity, affinity spaces and intertextuality in most fanfic, the post-genre narrative forms of fanfic, and so on make fanfic practices a rich field of study for researchers interested in applying insights from fanfic practices to classrooms. Indeed, fan practices in general are fruitful foci for further research. Examples of worthwhile areas for research include:

- examining a range of fan practices, such as game walkthroughs, Lego models of an online game event, fan wikis, and critiquing the limitations of the genres currently taught and valued in schools as media of expression and meaning-making;
- asking how might traditional narrative analysis be extended or reworked to better accommodate an analysis of writing practices, networks and affinities;
- asking how might one go about ‘researching’ a particular affinity space;
- examining the ‘goodness of fit’ between Goldhaber’s theory of attention economics, with its constitutive social class system comprising stars and fans, and social practices within fanfic affinity spaces (see Goldhaber, 1997);
- investigating what successful instances of positive collaboration between companies and fanfic writers might have tell us about effective ways to navigate copyright issues within fan practices;
- asking in what ways might classrooms better accommodate collaborative writing and linguistic hybridity.

Conclusion

New literacies are a substantial and far-reaching historical phenomenon whose presence as a challenge to conventional literacies has set in train a dialectic we believe will play out during the decades ahead. The outcome we envisage will be some kind of ‘resolution’ that transcends currently contending categories of practice, and not a simple displacement of one by the other. Meanwhile, it is human beings as the *enactors* of literacies who carry this dialectic. It is through them at the level of individuals, members of groups (of interests and affinities), and bearers of institutional roles engaging in literacies as social practices that this literacy dialectic plays out.

This phenomenon begs deep and rich understanding. It is worthy of understanding in its own right as a social-historical process of major significance – indeed, of significance on an epochal scale. As a Time-Warner executive once remarked to us: ‘This is as good as Gutenberg’. It is also worthy of understanding as a means for enabling people and institutions to work toward humanizing this dialectic as far as possible, to push it in directions of progressive resolution. Such understandings call for sustained research and theoretical work, notably within education and at interfaces between education and social practices within settings and institutions beyond schools and universities. A key component of this research and theoretical development will focus on new literacies: as more or less discrete practices and in relation to established literacies. This article has advanced a basis from which to envisage a research agenda for sociocultural studies of new literacies and offered some examples of research along what we see as fruitful lines.

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