
New Literacies and the Challenge of Mindsets

Introduction

This chapter argues that ‘new’ literacies are related to an emerging and evolving mindset and that the idea of ‘new’ literacies is a useful way to conceptualize what might be seen as one component of an unfolding ‘literacy dialectic’. By a *dialectic* we mean a kind of transcendence, in which two forces that exist in tension with one another ‘work out their differences’, as it were, and evolve into something that bears the stamp of both, yet is qualitatively different from each of them.

Since the eighteenth century and particularly since the Industrial Revolution, Western industrialized countries have developed along a broad trajectory in conjunction with a characteristic way of thinking about the world and responding to it. We can refer to this general way of thinking about the world as a *mindset*. Part of this trajectory and its associated mindset included the development of certain kinds and qualities of literacy practices and ways of thinking about literacy. Recently, however, important changes have occurred on a historical scale. These are associated with the development and mass uptake of digital electronic technologies and the

rise of a new mode of development of a broadly 'post-industrial' kind (e.g., Castells 1996, 2000). These changes have been accompanied by the emergence of different (new) ways of thinking about the world and responding to it. A new kind of mindset has begun to emerge and some new kinds of *literacies* have begun to evolve. We call these 'new' literacies. While these 'new' literacies share some features in common with conventional forms of literacy that developed throughout the modern era, they also differ from conventional literacies in some very important ways.

We are presently at a point in the historical-cultural development of literacy where we don't really know how to deal educationally with these new literacies. What seems to be happening is that the day-to-day business of school is still dominated by conventional literacies, and engagement with the 'new' literacies is largely confined to learners' lives in spaces outside of schools and other formal educational settings. Insofar as schools try to get to grips with the changing world of literacy and technology (often seen in terms of using computers in the production of texts and textual representations), they often simply end up reproducing familiar conventional literacies through their uses of new technologies. Learners who have access to *both* realms of literacy – the conventional and the 'new' – experience parallel 'literacyscapes' (Leander 2003). At school they operate in one literacy 'universe', and out of school they operate in another. For some learners this experience is confusing and/or frustrating. Learners who do not have out-of-school access to 'new' literacies may escape this kind of confusion or frustration, but at the expense of not encountering forms of practice that are becoming increasingly prevalent in everyday life.

While at present it is possible to carve our lives up in ways that accommodate the different kinds of literacies and confine them to different spaces – at schools and universities and, in many cases, at work we operate with conventional literacies, but at home and in various public and community spaces we engage in 'new' as well as conventional literacies – it will almost certainly *not* be like this in the future. Rather, social routines and their embedded literacies will draw on elements of both what is currently familiar and what is currently 'new' in ways that perhaps we can scarcely begin to imagine now. Part of making a successful transition to this future state of affairs will involve understanding *both* 'literacy legacies' – the conventional and the 'new' – from the inside, and knowing how to draw on them productively and creatively as a necessary condition for participating effectively in social routines. This will require us to develop conceptions and arrangements of literacy education that enable learners to negotiate the kind of transcendence – the dialectic – that seems most likely to occur.

‘Mindsets’ and ‘the contemporary fracturing of space’

The idea of a mindset usually refers to a point of view, perspective, or frame of reference through which individuals or groups of people experience the world, interpret or make sense of what they encounter, and respond to what they experience. Mindsets can be thought of as sets of assumptions, beliefs, values, and ways of doing things that orient us toward what we experience and incline us to understand and respond in some ways more than others.

In addition, however, the ‘set’ in ‘mindset’ usually refers to the sense of someone’s mind being *set* or *fixed* – as in ‘set in stone’ – in the way they approach the world. For example, the definition of ‘mindset’ provided by Roger Caldwell in a course on futures offered at the University of Arizona states that a mindset is ‘a person’s frame of reference that is fixed’. Moreover, someone

can have a particular ‘mindset’ that is so strong in a specific outlook that they do not see other perspectives, even though they might hear them and believe they have been given consideration. This prevents looking at new options in a realistic sense.

(Caldwell, no date or page)

This coheres with the use of ‘mindset’ in decision theory and system theory as described by *Wikipedia*, according to which a mindset

refers to a set of assumptions, methods or notations held by one or more people or groups of people which is so established that it creates a powerful incentive within these people or groups to continue to adopt or accept prior behaviours, choices, or tools.

(wikipedia.org/wiki/Mindset, accessed 30.12.05)

The concept of mindsets is useful for thinking about literacy education specifically, and learning more generally, under current historical conditions. At present, schools and classrooms can be seen as a specific instance of a more general phenomenon that involves a ‘fracturing of space’ accompanied by a striking divergence in mindsets (Lankshear and Bigum 1999: 457).

The idea of space having been fractured refers to the emergence of *cyberspace* as a distinctively new space that co-exists with physical space (*ibid.*). Cyberspace has not *displaced* physical space, of course, and will not displace it. Nor, however, can physical space ‘dismiss’ cyberspace. For the majority of young people in so-called developed countries who are now in adolescence, cyberspace has been integral to their experience of ‘spatiality’

since their early years. In these same countries an entire generation has grown up in a world saturated by digital electronic technologies that cyberspace links to each other as an enormous network. Co-existence is the destiny of these two spaces. Neither is about to disappear.

The idea of a striking divergence in mindsets accompanying this contemporary fracturing of space refers to the difference between people who continue to approach the world in familiar ways because they see the current world as essentially unchanged, and others who see the world as being significantly different now from how it was until recently, and who approach it differently. The former, in various ways, continue to view the world from a perspective based on the constitution and mastery of the *physical* world throughout the modern era and within the industrial mode of development (Lankshear and Bigum 1999). The latter view the contemporary world as being significantly different from how it was before the ‘advent’ of digital electronic technologies, the transition toward a new mode of development (Castells 1996, 2000), and the explosion of *cyberspace*.

An indicative example: from atoms to bits

A specific example of the kind of qualitative differences that are involved between the divergent mindsets is apparent in Nicholas Negroponte’s example of different perceptions of a computer’s value. Negroponte recalls checking in at a place where he was asked if he had a laptop computer with him. He was asked how much it was worth (in case it got lost or stolen). Negroponte valued it at 1 to 2 million dollars. The check-in person disputed the possibility of the machine having such a high value, and asked what kind it was. On being told the brand and model she assigned it a \$2000 value. Negroponte says this exchange reflects the distinction between *atoms* and *bits* as different kinds of stuff.

Atoms belong to the physical world we have always known, and to the world which can be captured in ‘analogue’ forms. Bits (binary units) belong to the non-physical digital world. They are ‘states of being’ like ‘on or off, true or false, up or down, in or out, black or white’ which can be represented in binary code of 0s and 1s in a colourless, sizeless, weightless form that can be ‘moved’ at the speed of light (Negroponte 1995: 14).

We are, of course, well used to dealing with atoms. Over the centuries humans have developed concepts, frameworks, laws, assumptions and procedures for handling the myriad aspects of the physical world. Thinking in atomic terms has become a kind of ‘baseline’ in our everyday approach to

the world. Many things are changing, however, as our everyday environments become increasingly digitized. This invites us – indeed, *challenges* us – to develop new conceptual beliefs and knowledge orientations and approaches to our everyday world.

Not unreasonably, the person in the position of responsibility for property was thinking in terms of atoms, in the form of the physical computer. The laptop was atom stuff, of a particular make and vintage, and its value as such was \$2000. Being ‘digital’ in his orientation to the world, Negroponte approached the value of the machine in terms of its ‘bits’. That is, he thought of the machine in terms of its ‘contents’ in the form of ideas or patents potential and the like that were ‘contained’ or ‘stored’ (even the language gets tricky) as binary code some ‘where’ on the hard disk. Depending on what was on the disk at the time, the value of the ‘computer’ could have amounted to practically anything at all in dollar terms, not to mention in terms of potential human benefits and the like.

This example gives a sense of the degree of qualitative differences in mindset involved when reading, respectively, out of a physical/material/industrial mindset (including what we will later refer to as a ‘newcomer’ mindset), and when reading out of a mindset (that we will later refer to as an ‘insider’ mindset) informed by a sense of cyberspace and the digital. It only takes us part of the way, however, because while it addresses the all important ontological difference between atoms and bits as different kinds of ‘stuff’, it does *not* yet speak to the fracturing of space at the level of a new co-existent space (i.e., cyberspace). Negroponte’s example could refer to a universe in which there were only standalone computers, with no networks: no cyberspace. We would certainly have to deal with different kinds of *stuff* under those conditions, but we would not have to deal with different kinds of ‘*space*’ – or, at least, not to the same extent. Yet as we will see, it is the interconnectedness of phenomena in cyberspace, enabled by technologies of ‘bits’ and ‘bytes’, that is what is really at stake in these two diverging mindsets. The information contained on the computer hard disk can take on a completely new kind of life – and engender completely new kinds of lives – when that computer is part of a global internet(work) from what it can have when it is ‘confined’ to the space of a standalone machine.

The two diverging mindsets

At their most general level the two divergent mindsets can be stated as follows (see Lankshear and Bigum 1999). The first mindset assumes that the contemporary world is essentially the way it has been throughout the

modern-industrial period, only now it is more technologized or, alternatively, technologized in a new and very sophisticated way. To all intents and purposes, however, the world on which these new technologies are brought to bear is more or less the same economic, cultural, social world that has evolved throughout the modern era, where things got done by means of routines that were predicated on long-standing assumptions about bodies, materials, property and forms of ownership, industrial techniques and principles, physical texts, face-to-face dealings (and physical proxies for them), and so on.

The second mindset assumes that the contemporary world is different in important ways from the world we have known, and that the difference is growing. This is related to the development of new digital electronic internetworked technologies and new ways of doing things and new ways of being that are enabled by these technologies. More and more the world is being changed as a result of people exploring hunches and ‘visions’ of what might be possible given the potential of digital technologies and electronic networks. The world is being changed in some fairly fundamental ways as a result of people imagining and exploring how using new technologies can become part of making the world (more) different from how it presently is (second mindset), rather than using new technologies to do familiar things in more ‘technologized’ ways (first mindset).

At an early point in the development of the internet, Nat Tunbridge (1995) interviewed Electronic Frontier Foundation co-founder John Perry Barlow on the theme of issues arising around the internet at that time, and how Barlow understood and responded to those issues. We will draw on ideas from that interview at several subsequent points in this chapter. In the course of the interview Barlow drew a distinction that suggests convenient labels for the two mindsets. He distinguished between people who have been born into and have grown up within the context of cyberspace, on one hand, and those who come to this new world from the standpoint of a life-long socialization in physical space, on the other. Barlow refers to the former as ‘natives’ and the latter as ‘immigrants’. We prefer to call them ‘insiders’ and ‘newcomers’ to cyberspace and, on this basis, to identify the two broad mindsets spelled out above as a *Newcomer* or *Outsider* mindset (Mindset 1) and an *Insider* mindset (Mindset 2), respectively.

This distinction marks off those who ‘understand the Internet, virtual concepts and the IT world generally’ from those who do not (Barlow, in Tunbridge 1995: 2). That is, it distinguishes mindsets, even though Barlow does not refer to mindsets *per se*. Newcomers to cyberspace don’t have the experiences, history and resources available to draw on that insiders have. And so, to that extent, they cannot understand and respond to the space as

insiders do. Barlow believes this distinction falls very much along age lines. If we update his numbers to allow for the decade that has passed since he was interviewed by Tunbridge, Barlow would be saying that, generally speaking, people over the age of 35 are ‘newcomers’ and, conversely, that those in societies like our own who are under 35 are closer to being ‘insiders’ in terms of understanding what the Internet is ‘and having a real basic sense of it’ (ibid.: 2).

Reflection and discussion

- To what extent do you see yourself as a ‘newcomer’ or an ‘insider’ with respect to Barlow’s classification with respect to new technology practices?
- To what extent is it possible for a ‘newcomer’ to ever become an ‘insider’?
- To what extent do *all* people born in First World countries after 1985 have an ‘insider’ mindset by default?

Barlow is suggesting that without the appropriate mindset people will approach the tools and environments of the digital technology revolution in inappropriate ways. Moreover, he believes that in the current context, legions of ‘newcomers’ (‘immigrants’) are doing precisely that.

In the same interview Barlow also provided a colourful and enthusiastic statement of what it is like to approach the world from the insider mindset. Barlow said of the internet, ‘Technologically. Philosophically. Socially. I . . . believe this is the biggest technological event since the capture of fire in terms of what it will do to the basic look and feel of being a human being’ (ibid.: 4). Such a general statement tells us very little on its own, but we can begin to get a sense of the ways ‘the look and feel of being a human being’ might change by reference to such concrete and prosaic examples as what it is like, say, to be a consumer (or, for that matter, to be a retailer) under conditions where thinking from the second mindset is applied to internet space. Let’s, for example, consider Jeff Bezos’s description of the kind of thinking that went into creating Amazon.com. Robert Spector’s (2000) account of the creation and rise of Amazon.com provides some interesting insights into how Bezos, the CEO of Amazon.com, thinks about information space and how to ‘live’ there. Spector describes how Bezos wanted to establish the kind of enterprise that Amazon.com has since become, and had made it known to corporate headhunters that he wished ‘to hook up

with a technology company, where he could chase his real passion [of] “second-phase” automation’ (2000: 16).

Bezos identifies second-phase automation as ‘the common theme that has run through my life’ (cited in Spector 2000: 16). By first-phase automation, Bezos means ‘where you use technology to do the same old . . . processes, but just faster and more efficiently’. Within e-commerce, using barcode scanners and point-of-sale systems would be typical examples of first-phase automation. In such cases an e-commerce enterprise would be using the internet to do ‘the same process you’ve always done, but just more efficiently’ (ibid.: 16).

First-phase automation did not interest Bezos. He wanted to do more than simply transfer life as it is done in a physical space to the online world of the internet. He preferred to think in terms of second-phase automation. This is ‘when you can fundamentally change the underlying . . . process’ – in his case, a business process – ‘and do things in a completely new way’. For Bezos, second-phase information is ‘more of a revolution instead of an evolution’ (ibid.: 16).

To a large extent, buying a book on Amazon.com *is* a qualitatively different experience from buying a book in a conventional store. For example, Amazon.com invites consumers to reconstitute themselves in certain ways. Each webpage for each book has space for readers to post reviews of the book, an evaluation rating scale for readers to post their rating of the book, and a facility for readers to say whether they found a particular review useful (and the same holds for all other items sold through Amazon.com, such as music CDs, movies, electronic components, kitchenware, etc.). To this extent, consumers are being invited to *also* become critics, reviewers or commentators. The practice of inviting reader/user-consumers to submit reviews can be seen as part of Amazon.com’s suite of strategies for encouraging customers to buy maximum product. Amazon.com has gone so far as to offer cash prizes to customers who write the first customer review for certain listed books and other products sold through Amazon.com.

So far as the book side of its operation is concerned, Amazon.com’s mission is ‘to use the Internet to transform book buying into the fastest, easiest, and most enjoyable shopping experience possible’ (Amazon.com 1996–2000: 1). In line with this, the company also supplies a rating for each book based on customer evaluations and a ranking number that indicates how well the book is doing in sales from the website in comparison with other books (this ranking system applies equally to all the other products listed by the company). Amazon.com also recommends books you might like, based on your previous purchases or on information you have

provided, and offers an alerting service to let you know when new books are available, using keywords you key into the service sign-up form. This web of services, products and customer participation is distinctively ‘new’ with respect to what it means to ‘shop’ online. We will return to Amazon.com a little later.

Meanwhile, we will now look more closely at what we think are some important dimensions along which the two mindsets vary as they play out in everyday life. The dimensions we will explore in more detail in the following section are summarized in Table 2.1. We want to emphasize that these are intended to illustrate in concrete ways how the two mindsets play out in the context of everyday life within typical kinds of routines and social spaces. They do not ‘exhaust’ the mindsets. Moreover, other people might emphasize different foci. The point is not to try and provide a definitive set of dimensions but, rather, to provide some indicative examples that can be varied and improved upon from case to case and setting to setting. Our main aim is to provide a general sense of how the mindsets play out, recognizing that the kind of dichotomy depicted here is sharper and more ‘ideal’ than exists in real life. In other words, the construct of mindsets, as spelled out and used here, is more heuristic than tightly *scientific*.

Elaborating the mindsets

Competing ‘ontologies’: atoms and bits, physical and cyber spaces

The scale of difference that can arise between interpreting and responding to the world from a physical-industrial perspective and a non physical-informational/postindustrial perspective has already been illustrated by reference to Negroponte’s anecdote about the monetary value of his laptop computer. It is sobering to reflect on the profundity of the gulf that separates the two valuations, and what this represents in terms of who and where one is in the contemporary world. From a physical-industrial perspective, it is perfectly ‘natural’ to think of the computer as a material commodity of a particular brand and to estimate its monetary value accordingly. From the perspective of ‘being digital’, however, the first thing that is likely to spring to mind in terms of value is what is on the hard disk and how much it would ‘cost’ to lose that (e.g., ask someone who has lost the data set for a doctoral dissertation to a hard disk crash about what a computer is worth).

A similarly wide gulf in perspective is apparent from a very different

Table 2.1 Some dimensions of variation between the mindsets

<i>Mindset 1</i>	<i>Mindset 2</i>
The world is much the same as before, only now it is more technologized, or technologized in more sophisticated ways:	The world is very different from before and largely as a result of the emergence and uptake of digital electronic inter-networked technologies:
<ul style="list-style-type: none"> • The world is appropriately interpreted, understood and responded to in broadly physical-industrial terms • Value is a function of scarcity • An 'industrial' view of production: <ul style="list-style-type: none"> • products as material artefacts • a focus on infrastructure and production units (e.g., a firm or company) • tools for producing • Focus on individual intelligence • Expertise and authority 'located' in individuals and institutions • Space as enclosed and purpose-specific • Social relations of 'bookspace'; a stable 'textual order' 	<ul style="list-style-type: none"> • The world cannot adequately be interpreted, understand and responded to in physical-industrial terms • Value is a function of dispersion • A 'post-industrial' view of production: <ul style="list-style-type: none"> • products as enabling services • a focus on leverage and non finite participation • tools for mediating and relating • Focus on collective intelligence • Expertise and authority are distributed and collective; hybrid experts • Space as open, continuous and fluid • Social relations of emerging 'digital media space'; texts in change

angle in the way Barlow discusses the issue of censorship on the internet and, specifically, in the different kinds of responses he mentions about how to address pornography on the web. There are very different ways of looking at such concerns depending on whether one comes from the physical space mindset or from an alternative mind-set associated with understanding cyberspace.

From the standpoint of the first mindset, 'keeping the internet safe' becomes a matter of imposing blocks and filters in ways that parallel physical world behaviour: road blocks, fences, restraints, and so on. Barlow captures something of the difference between first and second mindset

approaches to censoring the internet or keeping it safe by reference to the difference between using filters and adopting educative responses to address pornography. He believes that imposing gross filters to control content ultimately cannot work because internet space cannot be controlled in that way. The more elaborate the filter, the more elaborate will be the search to find ways around it, and the more powerful these resistances become. Barlow advocates more local and individualized filters that work on the principle of people taking responsibility for their choices and deciding what 'noise' they want to filter out. He reasons as follows: 'If you have concerns about your children looking at pornography the answer is not to eliminate pornography from the world, which will never happen; the answer is to raise them to find it as distasteful as you do' (Barlow, in Tunbridge 1995: 5).

The important educational implication of this, as we will see below, is that physical type responses to the use of the internet in schools largely end up either eliminating use of the internet altogether, because safety cannot be assured, or providing such controlled opportunities for using the internet that learners incur a double loss: they get a distorted experience of the internet and, at the same time, lose out on opportunities to learn how to keep themselves safe, which, as research increasingly indicates (e.g., Leander 2005), young people who range widely over the internet learn to do and become disposed to doing. Schools are often trapped here and inevitably go for the safe option, because for teachers to play an educative role that truly assists young people to assume moral responsibility for their internet activity, teachers themselves need to 'know their internet', which, to a large extent, they still do not.

Reflection and discussion

- Taking the case of a school in which you're currently working, or that you attended as a student, how does this school address student 'safety' online?
- To what extent do these 'security measures' enhance or hinder student learning? To what extent do these measures shape how computers and the internet are used at your school, and how does this compare with how you use computers and the internet outside school contexts?
- If you can, examine a school's technology use policy (try searching online for one). Does the statement contain tensions or contradictions between the 'promise' of digital technologies (e.g., the internet will enable students to access experts around the

world), and many of the 'rules' written into the policy (e.g., students will be unable to use email at school). If so, what do you think is going on behind the words?

Competing bases of value

Barlow also distinguishes between paradigms of *value* he sees operating in physical space and cyberspace respectively. In physical space, says Barlow, controlled economics increases value by regulating scarcity. To take the case of diamonds, the value of diamonds is not a function of their degree of rarity or actual scarceness but, rather, of the fact that a single corporation owns most of them and, hence, can regulate or control their scarcity. Within this paradigm, scarcity has value. We might note here how schools have traditionally operated to regulate scarcity of credentialled achievement, including allocations of literacy 'success'. This has maintained scarce 'supply' and, to that extent, high value for those achievements that are suitably credentialled. In the economy of cyberspace, however, the opposite holds. Barlow argues that with information it is familiarity, not scarcity that has value. With information, 'it's dispersion that has the value, and it's not a commodity, it's a relationship and as in any relationship, the more that's going back and forth the higher the value of the relationship' (in Tunbridge 1995: 5). The implication here is that people who bring a scarcity model of value with them to cyberspace do not understand the new space and will act in ways that diminish rather than expand its potential. For example, applying certain excluding conditions to the use of information (e.g., copyright restrictions) may constrain the dispersal of that information in ways that undermine its capacity to provide a basis for *relationship*. This would in turn undermine the potential of that information to work as a catalyst for generating creative and productive conversations, the development of fruitful ideas, the emergence of effective networks. The kind of value Barlow sees as appropriate to cyberspace has to do with maximizing relationships, conversations, networks and dispersal. Hence, to bring a model of value that 'belongs' to a different kind of space is inappropriate and creates an impediment to actualizing the new space.

Production, intelligence, authority and expertise: Web 1.0 and Web 2.0 in relation to the mindsets

The idea that within ‘information space’ value is related to dispersion has been extended in some interesting new directions since the time Barlow was interviewed. Some of these have been nicely captured in recent discussions surrounding a distinction that some influential writers and commentators on matters pertaining to the internet have drawn between ‘Web 1.0’ and ‘Web 2.0’ as different sets of design patterns and business models in software development. Tim O’Reilly’s (2005) account of Web 2.0 and how its approach and perspective differ from Web 1.0 is a well-known and widely read account of the distinction to date. O’Reilly’s key points and illustrative examples apply directly to three important dimensions of difference between the two mindsets that we have tabulated above (see Table 2.1). These are, respectively:

- the difference between an ‘industrial’ view of production evident within the first mindset and a ‘post-industrial’ view integral to the second mindset;
- the difference between a focus on intelligence as a quality or possession of individuals and a focus on collective intelligence;
- the difference between seeing expertise and authority as ‘located’ within individuals and institutions, as in the case of the first mindset, and seeing them as distributed, collective and hybrid.

To elaborate these points we will first provide a brief overview of salient aspects of O’Reilly’s account of Web 1.0 and Web 2.0.

O’Reilly traces the origins of the distinction between Web 1.0 and Web 2.0 to discussions that addressed issues and ideas arising from the fall-out of the 2001 dot.com crash, including the observation that the major companies to survive the crash seemed to share some features in common. Parties to the initial discussions began assigning examples of internet applications and approaches to either a Web 1.0 list or a Web 2.0 list. Some of the examples most likely to be familiar to readers were assigned as shown in Figure 2.1.

Participants provided the reasons that inclined them to identify a particular application or approach as belonging to Web 1.0 rather than Web 2.0, or vice versa. Among the many considerations addressed, several are particularly relevant to our account of the two mindsets. We will briefly describe some of the examples O’Reilly covers and show how the features and principles relevant to their assigned status in terms of Web 1.0 or Web 2.0 respectively relate to the mindsets.

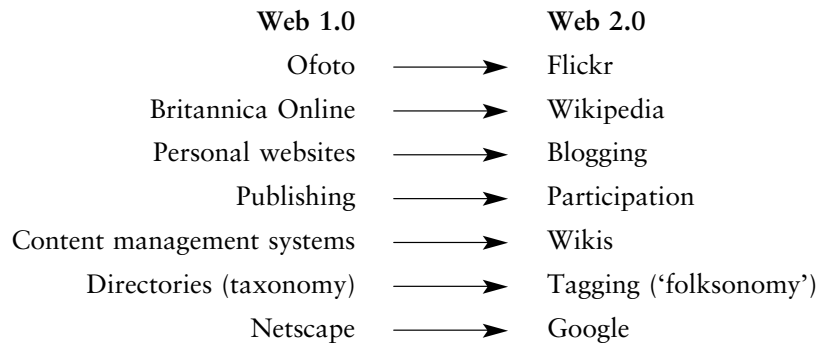


Figure 2.1 Some typical examples of Web 1.0 vs Web 2.0

Source: Adapted from O'Reilly (2005: n.p.)

The examples that fall within the Web 1.0 column take the form of products, artefacts or commodities that are produced at a source and made available to internet users. Britannica Online is a classic example of an internet commodity that subscribers can access at a fee. Ofoto began as a front for Kodak to sell digital photo processing online to users who could post digital photos on the Ofoto server to share with friends. Much like the free e-card that serves as a conduit to buying flowers or greetings cards online, Ofoto's gallery space was an enticement to buy a product rendered by a supplier. As O'Reilly notes, even the free web browser offered by Netscape took the form of an artefact – as a 'piece' of software in the form of a desktop application – that was released in updated versions from time to time that needed to be downloaded. It in fact comprised the centrepiece of Netscape's strategy to 'use their dominance in the browser market to establish a market for high-priced server products' (O'Reilly 2005: n.p.).

The point here is not about *commercial* product delivery so much as the fact that what users receive are readymade artefacts or commodities. O'Reilly speaks here of 'packaged software'. In Web 1.0 the 'webtop' as a platform largely emulates the desktop, with producers and consumers engaged in creating and consuming applications and informational *artefacts*. Users are not positioned as controllers of their own data. What one 'gets' on a website is what web publishers put there. The logic is of use rather than participation; of reception and/or consumption rather than interactivity and agency. Directories and the taxonomies they are based upon or 'enact' are developed at a 'centre' and are made available for users in the form that their creators have designed. They get used because they

are presumed to be 'authoritative' and to reflect 'expertise' and 'experience' and 'wisdom' possessed by their designers.

While this oversimplifies things somewhat, there is enough here that is familiar to readers for making a link to the first mindset. 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 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 those 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 has to do with *the kind of products* characteristic of Web 2.0. In contrast to the 'industrial' artefactual nature of Web 1.0 products, Web 2.0 is defined by a 'post-industrial' worldview that focuses much more on 'services' and 'enabling' than on production and sale of material artefacts for private consumption. Production itself is based on 'leverage' 'collective participation', 'collaboration' and distributed expertise and intelligence, much more than on manufacture of finished commodities by individuals and work-teams operating in official production zones and/or drawing on concentrated expertise and intelligence within a shared physical setting.

Google.com, Wikipedia.org, Amazon.com, and Flickr.com provide some representative examples of many of the touchstone differences found in Web 2.0 internet services when compared with Web 1.0 software and internet applications and, by extension, between our two mindsets, as well as between established and 'new' literacies.

In the case of Google, there is no product to be downloaded, no artefact to be consumed. Instead, there is a service we can use in order to search for information, including images, videos, sounds, and the like. If we purchase products sold by companies who advertise on Google we may pay indirectly for using the service. Otherwise, to all intents and purposes the service is free. The service functions as an *enabler* for users – it helps optimize our internet experience by helping us find what we may be looking for. Google does not host the information it provides. That information can be stored anywhere. The search engine simply mediates between users, their internet browsers, and the servers and sites that contain information. As software, the search engine is not a distributed software application (as, say, Netscape

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was). Rather, the software is located on the internet and storage servers and *performed* by users who key in the URL for accessing the Google interface. Users have to know how to locate and use it. They can use it more or less efficiently. What they get from Google may reflect their degree of efficiency in terms of identifying useful search terms, understanding the role of Boolean logic in an effective search, knowing how to conduct a natural language search, being familiar with the full range of search functions available on Google (e.g., knowing about Scholar.google.com; knowing that entering the following string into Google's search window, enables a particular website or space to be searched: searchterm site: URL. For example, we can search for the references to the term 'affinity', on our own blog by using this string – affinity site: everydayliteracies.blogspot.com).

At the same time, there is an interesting and important *reciprocity* here. The search engine enables users to locate information, but at the same time users contribute to the value of the search engine by enhancing 'the scale and dynamism of the data it helps to manage' (O'Reilly 2005: n.p.). Google is, ultimately, a massive database and data management system, that evolves and improves and becomes more responsive the more it is used. Users *participate* in and through Google. They contribute to building a continuously improved and more dynamic database that is mediated by Google's page rank system. To this extent, the information one user gets as a consequence of doing a particular search is a function of searches that other users have done previously. The database is, so to speak, at any point in time a product of the collective participation and 'intelligence' (as enacted through use of keywords, Boolean logic, natural language, etc.) of all users. To all intents and purposes, Google's 'product' is the database that is *managed* through the software and generated through millions of users performing the software. The users are an integral part of Google's production; integral to developing its product. And the service automatically improves the more that people use it – a principle that O'Reilly identifies as inherently Web 2.0.

Reflection and discussion

The user-driven qualities of Google's page rank system has spawned, among many other things, two related phenomena known as Googlebombing and Googlewhacking.

Googlebombing involves a user deliberately manipulating page ranks by creating multiple links that use a specific phrase or 'anchor text' to click-through to a target site in order to associate the target site with

the anchor text more closely in Google's estimation of relevance (the anchor text doesn't have to appear on the target site, only on the hyperlink texts on the referring webpages). This process can be used to make a social statement or a humorous point (see en.wikipedia.org/wiki/Googlebomb). Perhaps the most famous example of Google-bombing is the search phrase, 'miserable failure', which (in early 2006) returns the official biography of current US president, George Bush, at the top of the results list.

Googlewhacking is akin to a game or competition where the goal is to generate a two-word search with just one solitary search result (for more see: googlewhack.com). In this game, the more bizarre the two search words, the better (see <http://www.googlewhack.com/tally.pl>).

- Why do you think these practices have emerged?
- To what extent are these sorts of user-driven effects worth paying attention to when studying new literacies?

The free, collaboratively produced online encyclopedia, *Wikipedia.org*, likewise reflects the principle of mobilizing collective intelligence by encouraging free and open participation and trusting to the enterprise as a whole functioning as a self-correcting system. Whereas an 'official' encyclopedia 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. In other words, it is an encyclopedia created through *participation* rather than via publishing. While identifiable people are responsible for beginning and overseeing the initiative, the content is generated by anybody willing to do so.

The idea is that as more and more users read and edit entries online, the more the content will improve. At the same time, ideally, the content will reflect multiple perspectives, excesses and blindspots will be edited out, and by countless incremental steps the resource will become increasingly user friendly, useful, reliable, accountable and refined. The logic is one of distributed and collective expertise. Trust is a key operating principle. The ethos is to reach out to all of the web for input, through limitless participation, rather than the more traditional belief that expertise is limited and scarce, and that the right to speak truths is confined to the 'properly credentialled'. The idea is *not* that anyone's opinion is as good as anybody

else's but, rather, that anyone's opinion may stand until it is overwritten by someone who believes they have a better line. The right to exercise this belief is not constrained.

We referred earlier in this chapter to the example of Amazon.com and Jeff Bezos' idea of wanting 'to do things [in business] in a completely new way'. We noted that this involved much more than just purchasing a book, or some other product online, and mentioned specifically Amazon's practice of inviting customer reviews and ratings. It is interesting to see how this practice reflects Web 2.0 logic.

O'Reilly makes two salient, related points here. First, he notes that unlike other online booksellers Amazon harnesses user activity to produce better search results than their competitors. Whereas competitors typically lead with the company's own products or with sponsored results, Amazon always leads with the 'most popular' item corresponding to the search terms. The popularity index is a real-time computation based on an amalgam of sales and 'flow' around a product (e.g., how much user attention the book obtains, other books bought by customers who buy the book in question and how these other books are selling and are rated), and so on. Second, he argues that Amazon's database for books has now become the main source for bibliographic data on books. According to O'Reilly, like its competitors Amazon obtained its original database from R.R. Bowker, the ISBN registry provider that publishes *Books in Print*. However, Amazon outstripped and transcended this kind of data. The company

relentlessly enhanced the data, adding publisher-supplied data such as cover images, table of contents, index, and sample material. Even more importantly, they harnessed their users to annotate the data, such that after ten years, Amazon, not Bowker, is the primary source for bibliographic data on books, a reference source for scholars and librarians as well as consumers . . . Amazon 'embraced and extended' their data suppliers.

(O'Reilly 2005: n.p.)

In other words, Amazon leveraged collective intelligence in the form of reader engagement and consumer data into the number one bibliographic data source on books, providing a free service for scholars as much as consumers while simultaneously outstripping competitors in sales. In doing so they turned users into distributed 'experts' and 'authorities' on book data. They also transformed bibliographic data directories from centralized published sources to a collaboratively generated freely available and 'always on' and permanently updated searchable database in multiple

languages, serving multiple countries at the disposal of anyone who has internet access.

The highly popular photograph sharing service, Flickr.com, adds an interesting dimension to user annotation by means of ‘tagging’. This has generated a ‘bottom-up’ approach to providing metadata for classifying online content that enables searching, popularly known as ‘folksonomy’. The basis of folksonomy is ‘tagging’. The principle involved is simple. Flickr is a service that allows people to post photographs to the web after they have signed up for an account. For each photograph or set of photographs account holders upload to their site they can add a number of ‘tags’. These are words they think describe their photo and that would lead other people who key the word(s) into the Flickr search engine to their photos (and there are a range of options that determine who a person permits to view their photos). Account holders can also invite or accept other people to be on their list of contacts. Contacts can then add tags to the photos posted by those people who have accepted them as contacts. The account holder, however, has the right to edit tags – their own and/or those added by contacts – as they wish. The millions of photos publicly available on Flickr become a searchable database of photos. Tags provide a basis for patterns of user interests to emerge in ways that enable communities of interest to build and for relationships to develop among members who share common interests, tastes, etc. They have enabled different interest groups to coalesce around shared image projects (e.g., the Tell a Story in Five Frames group, the Secret Life of Toys group).

Reflection and discussion

Open Flickr.com and find the ‘Popular Tags’ hyperlink or go directly to: <http://www.flickr.com/photos/tags>. Click on this link, and examine the ‘tag’ map you’ll find there. Click on any tags that appeal to you, then try searching for different tags and see what results:

- What does the tag map or cloud tell you about the Flickr universe?
- In what ways might the tags people place on their photos shape the way viewers look at these photos? Does this matter?
- What, if anything, stops Flickr’s tag system from becoming overwhelmingly random?

Return to the Flickr front page, and look for the ‘Groups’ hyperlink at the top of the page. Click on this link and explore some of the groups

listed on the new page. Try searching for possible groups and see what you find (if you're stuck for ideas, try 'secret life of toys', or 'tell a story in five frames').

- Why might a person subscribe to a group?
- To what extent does the complete set of Flickr groups constitute a kind of folksonomy? (See Davies 2006).

The concept of 'folksonomy' was developed in juxtaposition to 'taxonomy'. Taxonomies are centralized, official, expert-based or top-down classification management systems. The operating principle of taxonomies is that people who presume – or are presumed – to understand a domain of phenomena determine how the individual components of that domain shall be organized in order to make a shared sense or meaning of the domain. The Dewey library classification system is a taxonomy of types of texts, according to which a given book is assigned a number on the basis of the kind of book it is deemed to be and where it fits into the system. By contrast, a folksonomy is a 'popular', non-expert, bottom-up classification management system, developed on the basis of how 'authors' (e.g., of photos) decide they want their works to be described or 'catalogued'.

One interesting consequence of folksonomic organization is that the tags people choose say something about *them* as well as about the tagged object (O'Reilly 2005). When a user finds a photo they would not have expected to fall under a particular tag, they might think the tagger's approach to classification is sufficiently interesting to delve further into it; for example, as a pursuit of 'the idiosyncratic', or the 'quirky', or 'of someone who might think a bit like me'. The scope for participants to make their own meanings, find collaborators who share these meanings, and build relationships based on shared perspectives opens up possibilities that are foreclosed by centralized and authoritative regimes that circumscribe norms of correctness, legitimacy or propriety.

Folksonomy presents one angle on the idea of new computing and communications technologies as 'relationship technologies' (see Schrage 2001; Barlow, in Tunbridge 1995). This opens up a theme which is inchoate in the Web 1.0–Web 2.0 distinction, but which is better made by reference to a similar but different discussion. The connection with Web 1.0 and Web 2.0 can be seen in terms of a contingency around software applications. O'Reilly notes that while both Netscape (Web 1.0) and Google (Web 2.0) can be regarded as software companies, they belong to quite different software worlds. He says:

it's clear that Netscape belonged to the same software world as Lotus, Microsoft, Oracle, SAP, and other companies that got their start in the 1980s software revolution, while Google's fellows are other internet applications like eBay, Amazon, Napster . . . DoubleClick and Akamai.

One dimension along which these software worlds can be distinguished is by saying that many of the products – the 'tools' or 'solutions' – of that first software world were designed to be used in the production and transfer of *information*. They were artefacts primarily designed to be used in the production of information artefacts. They belong to the discursive world of the 'Information Revolution', 'Information Technologies', and the 'Information Society'. By contrast, the software applications of Web 2.0 swim in a different sea. It is a sea that, to be sure, generates information and manages information, but does so largely in the course of (and in the name of) facilitating 'other business'. And in each case this 'other business' is heavily *relational* – it brings people into relationship (which is not to say that they need ever meet or even knowingly interact – although in many cases there is direct, even if impersonal interaction, like buyer and seller. These latter applications are often referred to as 'relationship technologies', and in time may be seen as integral to some kind of 'relationship revolution'.

The point we want to emphasize here has been made most persuasively by Michael Schrage (2001; see also Bigum 2002). Schrage argues that viewing the computing and communications technologies of the internet through an information lens is 'dangerously myopic'. The value of the internet and the web is not to be found in 'bits and bytes and bandwidth'. In a justly celebrated comment, Schrage claims that to say the internet 'is about "information"' is a bit like saying that "cooking" is about oven temperatures, it's technically accurate but fundamentally untrue' (Schrage 2001: n.p.). Schrage states the point we want to affirm here as follows:

While it is true that digital technologies have completely transformed the world of information into readily manipulable bits and bytes, it is equally true that the genuine significance of these technologies isn't rooted in the information they process and store.

A dispassionate assessment of the impact of digital technologies on popular culture, financial markets, health care, telecommunications, transportation and organizational management yields a simple observation: The biggest impact these technologies have had, and will have, is on relationships between people and between organizations.

The so-called ‘information revolution’ itself is actually, and more accurately, a ‘relationship revolution’. Anyone trying to get a handle on the dazzling technologies of today and the impact they’ll have tomorrow, would be well advised to re-orient their worldview around relationships.

(ibid.: n.p.; original emphasis)

As we will see in the next chapter, this point has enormous implications for participant priorities so far as popular everyday engagement with new literacies is concerned.

Reflection and discussion

List all the ways in which you use new digital technologies on a given day (e.g., mobile phone for talking, gaming, text messaging, checking email; computer and internet for web searching, gaming, emailing, shopping, instant messaging, webcamming; etc.). To what extent do your own practices bear out Schrage’s claims, and why might this be?

Perspectives on space

From the standpoint of the first mindset, space is typically thought of as enclosed, as having borders. In the educational context, learning space is bordered by the classroom walls, lesson space by the hour or 40-minute time signal, and curriculum and timetable space by the grid of subjects to be covered and the time and physical space allocations assigned to them (if this is 9 a.m. Friday in Room A202, it must be 8th grade Math). Space tends to be strongly centred on the teacher and/or architectural features like the chalkboard, electronic whiteboard or set-up of computers, benches, etc. Tasks tend to be singular and defined at a given time, and learners are expected to be on task, which often means all students on the same task at the same time. Being not on that task is seen as being disengaged from learning.

Learners who have grown up on the inside of a cyberspatial mindset often see things very differently, and approach them very differently. The presumption that one will be working on one task at a time or in one ‘place’ at a time when engaged in learning (or, for that matter, in entertainment or recreation) is foreign to many who approach and respond to their world from the second mindset. A teenage informant (Violetta) provided a classic statement from the standpoint of the second mindset in an online interview with our colleague Angela Thomas (2006). Violetta explained that at the end of the school day she and her friend Sarah return to their homes:

She calls me on the phone when she's ready to log on later. We keep the phone conversations going while we log on and decide where to go. We're always on my talker, but sometimes we go idle there to visit other places. I keep telling dad I need a bigger monitor, because I end up with so many windows open that I can't always follow what's going on in each one. Then we do about six different things at the same time.

We'll have my talker open, our icq on, we have the role-playing MOO we've just joined going to open, we have our homework open (which I am pleased to report, we both get done at the end of the night, and its sooooo much more fun doing it this way!), we have the palace open, we have our own private conversation windows open for different friends, and we have our phone conversation going on at the same time. And that is not to mention having conversations with mom or dad, popping out for drinks and nibbles, and having my music on in the background. Then, depending what's going on, we have hysterics over the phone together as we manage the activities going on in each window.

(from Angela Thomas' interview with 'Violetta':
'I am Violetta today, I am feeling bright yellow and somewhat creative'; see Thomas 2006)

It appears that Violetta saw this kind of multitasking not simply as some casual kind of *modus operandi* confined to interactions with her closest friends but, rather, as a way of operating more generally across her everyday life. Violetta divulged to her online researcher-interviewer that she was in fact spreading herself across multiple practices and discourses at the very time of interviewing.

I am talking to you but at the same time I am talking to this cool guy Matt who I know from school, and trying to do some homework – an essay, for which I am hunting some info on the web – you know, throw in some jazzy pics from the web and teachers go wild about your 'technological literacy' skills. Big deal. If they ever saw me at my desk right now, ME, the queen of multi-tasking, they'd have no clue what was happening.

(from Angela Thomas' interview with 'Violetta':
'I am Violetta today, I am feeling bright yellow and somewhat creative'; Thomas 2006 and forthcoming)

A little later we will look at an example of student multitasking in the context of a wireless classroom, and get a glimpse of how this behaviour came into tension with a conception of classroom propriety grounded in

conventional views of managing classroom space in accordance with attention to ‘the task at hand’.

Textual ‘orders’

Integral to the first mindset is the dominance of the book as the text paradigm, social relations of control associated with ‘bookspace’, and a discernible textual ‘order’. By this we mean that during the age of print the book comprised the text paradigm. It shaped conceptions of layout, it was the pinnacle of textual authority, and it played a central role in organizing practices and routines in major social institutions. The book mediated social relations of control and power, as between author and readers, authorial voice as the voice of expert and authority, teacher/expert and student/learner, priest/minister and congregation, etc. Textual forms and formats were relatively stable and were ‘policed’ to ensure conformity. Certain genres of texts were privileged over others and seen as appropriate within particular (institutional) settings – e.g., school classrooms – whereas others were regarded as more marginal and not appropriate. Books exerted great influence on institutional space, architecture and furniture, as well as on norms for conduct within particular spaces.

The book in no way comprises the text paradigm in the emerging digital media space. Indeed, there is *no* text paradigm. Text types are subject to wholesale experimentation, hybridization, and rule breaking. Conventional social relations associated with roles of author/authority and expert have broken down radically under the move from ‘publishing’ to participation, from centralized authority to mass collaboration, and the like. The organization of space, architecture and furniture, and control of movement associated with bookspace have become curious aberrations under the sign of new media. While people who grew up under the hegemony of the book and a stable ‘generic order’ may ponder whether it is ‘proper’ to write this kind of way in a blog, or to focus on this kind of theme, digital insiders seem much less preoccupied by such concerns. This is not to say there are no norms in the new space, for there are. But they are less fixed, more fluid, and the sheer proliferation of textual types and spaces means there is always somewhere to ‘go’ where one’s ‘ways’ will be acceptable and there will be freedom to engage them, and where traditional emphases on ‘credibility’ become utterly subordinated to the pursuit of relationships and the celebration of sociality.

The mindsets at work within educational settings

The standpoint we are adopting here – our working hypothesis – is that the world is now significantly different from how it was two or three decades ago, and that this difference has a lot to do with the emergence of new technologies and changes in social practices associated with these. In part, this is a matter of what we have called the contemporary fracturing of space. Besides living in and reckoning with physical space, we are now increasingly called upon to reckon with cyberspace. Besides a mechanical world there is also a digital electronic world to be reckoned with, at least on the part of those inhabiting the social mainstream. As in any age, one can choose to withdraw from a mainstream. But anyone wanting to attach themselves to the contemporary mainstream will be called upon to reckon with digital-electronic ways and with cyberspatial ways. In addition, the changes are in part a matter of a move from what we have called ‘industrial’ values and ways of doing things toward an increasing embrace of ‘post-industrial’ values and ways of doing things.

To repeat, we are not talking about a *displacement* here. Cyberspace has not and will not displace physical space. The mechanical has not been displaced by the digital-electronic, and will not be in any foreseeable future. Industrial ways have not been displaced by post-industrial ways. The *balances*, however, are shifting significantly. To some extent ‘industry’ has been displaced geographically – from the ‘First’ world to pockets of the ‘Third’ world – yet we still find many industrial principles operating in ‘First’ world sites. It would be a brave person, however, who would maintain that the industrial mode has not lost a very significant amount of ground to the post-industrial throughout the urban ‘First’ world, and this trend will most likely continue at a strong rate in the decades ahead.

Against this background we have distinguished two mindsets, although we have spoken of them in somewhat mechanical and polemical ways. It is not as if those who approach the world from the first mindset are conscious of doing so, or would necessarily be aware that there is any other way of approaching the world. Likewise, those who have been born into the digital-electronic-post-industrial world might not be aware in the slightest that the world has changed and this change has a lot to do with the emergence of new technologies and evolving social practices associated with them. It is simply the world they have been born into, grown up in, and whose operating logic they have more or less absorbed. So, when we call these mindsets a ‘newcomer/outsider’ and an ‘insider’ mindset respectively, our point of reference is the changed world. Ironically, the newcomers to this changed world are those who have been in the world

longest. They grew up under one order, became familiar with it – absorbed it – in just the kinds of ways the ‘insiders’ to the new order have. But their ‘default’ logic is different from that of the contemporary world. Despite all their age and experience, they have lived ‘outside’ this world for the most part. They have to be ‘reborn’ to enter it; they have to approach it as ‘newcomers’.

For their part, the ‘insiders’ to the new world have grown up inside it. This also includes acquiring an approach to the physical world that is conditioned by their simultaneous insider experience of the cyberspatial-digital/electronic-post-industrial world. They have experienced both worlds and both spaces from birth as ‘a *complex*’. Their conception of the physical world is conditioned by their experience of the cyberspatial world, and vice versa. Their experience of what is left of the industrial order has been attained from within circumstances that are increasingly shaped by post-industrial logics and values. This is not a simple age split, of course, since other variables are involved. Some young people who are chronologically of the insider generation may be steeped in ‘newcomer’ perspectives and ways as a consequence of geographic location, home values, and so on. Nonetheless, as Barlow says, anyone in western urban centres under the age of 35 is more likely to have significant entrée to the insider mindset than are people in those same centres who are older. It is not clear-cut, although the dice are loaded. It is a matter of overcoming circumstances captured in the idea of ‘other things being equal’.

So far as education is concerned, to this point in time teachers are predominantly chronologically ‘newcomers’ or outsiders. Not surprisingly, then, it is very easy to find examples of the newcomer mindset being applied in classroom contexts that are marked by elements of contemporary change and that are increasingly inhabited by insiders. To put it another way, it is very easy to find examples where teachers and administrators approach new technologies in ways that constitute these new technologies as simply more recent forms of established tools, rather than as constitutive elements of new ways of doing things and new ways of being.

Old wine in new bottles: new technologies and the newcomer mindset

A large corpus of literature now exists that describes uses of new ICTs within school settings, including within literacy education specifically. Very little of this literature, however, describes anything that is significantly *new* so far as literacies and social practices are concerned. It does not follow from the fact that so-called new technologies are being used in literacy education that *new literacies* are being engaged with. Still less does it imply

that learners are developing, critiquing, analysing, or even becoming technically proficient with new literacies.

In other work (e.g., Lankshear and Snyder 2000: Ch. 5; Goodson *et al.* 2002: Ch. 4; Lankshear and Knobel 2003), we have identified recurring features of new technology-mediated literacy practices found in classrooms in a range of countries. These reflect a strong tendency to perpetuate the old, rather than to engage with and refine or re-invent the new. Many researchers have identified the ‘old wine in new bottles’ syndrome, whereby long-standing school literacy routines have a new technology tacked on here or there, without in any way changing the substance of the practice. Using computers to produce neat final copies and slideshow presentation software or webpages for retelling stories, are some obvious long-standing examples. Other examples include using Webquests as a learning tool (Bigum 2003a), generating a school website to ‘inform the community’ (Bigum 2002), and using weblogs to post homework and assignments or to report classroom events (Knobel and Lankshear 2006; see also Merchant 2005, forthcoming).

These examples reflect thinking from the first mindset: schools, classrooms and literacy are the same as before, just now more technologized. The webpage or slide show stands in for paper, pencil and crayon as a medium for presenting stories or recounts. The webquest stands in for the photocopied worksheet where the teacher poses a question or problem and provides a list of resources students are to use in tackling it. The school website stands in for an occasional newsletter or a printed prospectus or parent-teacher information evening. The blog stands in for homework notebooks or other arrangements whereby parents and caregivers provide evidence of having checked homework, as has been common practice in many schools and education systems for decades.

Such accommodations of new technologies to established ways are hardly surprising when we take larger and underlying institutional characteristics of school into account. School routines are highly regular forms of practice that are intimately linked to what we call the ‘deep grammar’ of schooling. We can begin to see why this is so by considering two key elements of the deep grammar of school, which constructs learning as teacher-directed and ‘curricular’. This very construction is bound up with central tenets of the first (newcomer) mindset.

First, schooling operates on the presumption that the teacher is the ultimate authority on matters of knowledge and learning. Hence, whatever is addressed and done in the classroom must fall within the teacher’s competence parameters, since he or she is to *direct* learning.

Second, learning as ‘curricular’ means that classroom learning proceeds

in accordance with a formally imposed/officially sanctioned sequenced curriculum that is founded on texts as information sources. Seymour Papert (1993: 9) observes the long-standing pervasive tendency in the education literature 'to assume that reading is the principal access route to knowledge for students'. The world, in other words, is accessed via books and printed texts (i.e., school is *bookspace*, not cyberspace). This imposes a pressing and profoundly instrumental value and significance on the capacity to *read* – as distinct from more directly on forms of participation with the world, including the social world.

The ongoing agenda to technologize learning still encounters a teaching workforce that is largely un(der)prepared for the challenge of *directing* computer-mediated learning in the role of teacher as authority. That is, most teachers (let alone teacher educators) still lack insider-like experience and expertise with new technologies and contemporary social practices associated with their technical and social evolution as cultural tools and processes. Not surprisingly, teachers often look for ways of fitting new technologies into classroom 'business as usual'. Since educational ends are directed by curriculum, and technologies are often regarded by teachers as 'mere' tools, the task of integrating new technologies into learning is often realized by adapting them to, or adding them onto, familiar routines. One corollary of this is that making learners 'technologically literate' is still largely reduced to teaching them how to 'operate' the new technologies. Beyond that, 'operating' computers is then largely confined to learners doing with computers what they would previously have done with the conventional learning technologies of print and bookspace.

In like manner, teachers who are encouraged to adopt new gadgets are often 'won over' by demonstrations of how new tools can be used to obtain greater efficiencies in managing and controlling physical space and extending their authority and power within the learning process to physical spaces beyond the classroom. For example, using weblogs for administrative purposes becomes a way of reaching directly into the home. Similarly, a popular ruse for getting wireless PDAs into schools has been to demonstrate the ease with which they can be used to keep the roll and, even, to track student movements around the school grounds. With easy taps of the stylus teachers can mark off presence and absence on a class list and send it wirelessly to the school's centralized administrative database.

In short, these ways are wedded to the first mindset: management of physical space; centralized authority and expertise invested in the teacher; fidelity to long-standing conceptions of teaching and learning and their social relations; perpetuation of the book and bookspace, and time-honoured forms of language practice like story telling, recounts, retellings.

This logic can be seen as a specific instance of a much larger phenomenon: the systematic separation of (school) learning from participation in ‘mature’ (insider) versions of Discourses which are part of our life trajectories (Knobel 1999). School learning is learning for school; school as it always has been. The burgeoning take-up of new technologies simply gives us our latest ‘fix’ on this phenomenon. It is the ‘truth’ that underpins many current claims that school learning is at odds with authentic ways of learning to be in the world, and with social practice beyond the school gates. The reason why many school appropriations of new technologies appear ‘odd’ in relation to ‘real-world’ practices – with which children are often familiar and comfortable – has to do with this very logic. It is precisely this ‘deep grammar’ of schooling that cuts schools off from the new (technological) literacies and associated subjectivities that Bill Green and Chris Bigum (1993) say educators are compelled to attend to. To put it another way, new literacies and social practices associated with new technologies ‘are being invented on the streets’ (Richard Smith, personal communication). These are the new literacies and practices that will (many of them) gradually become embedded in everyday social practice: the literacies against which the validity of school education will be assessed. But the ‘deep grammar’ of school is in tension here with its quest for legitimation in a high tech world, which is potentially highly problematic for schools.

Reflection and discussion

- To what extent is getting children to retell a story using presentation software like PowerPoint a case of ‘old wine in new bottles’? Why?
- Locate online lists of suggested new technology use in classrooms advocated by your federal government (e.g., in the UK, becta.org.uk; in Australia, edna.edu.au; in the US, ed.gov/about/offices/list/os/technology/index.html). Evaluate the extent to which these recommended uses reflect insider and/or newcomer mindsets respectively.

Mindsets, space and tasks: on task, off task, multitask

As part of a recent ethnographic study of young people’s ICT practices, Kevin Leander and colleagues observed case study participants in a private girls’ school that made extensive use of mobile computing within a wireless

environment. Not surprisingly, some students spent considerable time in class engaging in self-selected purposes. This extended to gaming, shopping, and downloading music, as well as including the 'more to be expected' activities like emailing, private chatting and Instant Messaging. Kevin Leander's fieldnotes (see Leander 2005) included vignettes like the following.

[Context: Final exam preparation in a Grade 9 English class; the teacher is focusing on a list of poems they will need to be able to discuss.]

Mia opens her laptop and logs into the network. She accesses Xanga.com – a popular weblog hosting service – and begins reading a weblog. The title of the weblog is, 'Thank God I'm an Atheist,' and Mia laughs while reading the latest entry on this blog.

The teacher asks, 'Is there anybody who doesn't understand imagery?' She walks close by Mia, who quickly opens a blank Word document and keys in 'Imagery' before flipping back to her web browser and reading a different weblog.

Teacher: 'Who can describe an image from "After Apple Picking" by Frost?'

Mia keeps the weblog she was reading open on her laptop, but looks at Richa's book and gives the first answer of the day: 'In the first four lines you get an image of an apple in an apple tree.'

Teacher: 'Good, a very realistic one. Read those lines again because they are interesting lines.'

The blog post lines in front of Mia read: 'There is nothing more foul than dissecting a fetal pig.'

Teacher: 'Frost especially likes to use the seasons of the year.'

Mia opens her own blog and begins working on an entry for that day. She types away, occasionally glancing at the teacher. Most of the other girls in the class are looking in their books.

Teacher: 'What is he doing? Is he looking in the mirror? Frozen water; again, he tries to strengthen that image, of being old, tired, winter, freezing cold.'

Mia continues typing her blog entry.

The teacher asks Richa to read the first five lines of 'After Apple Picking', and asks Mia to read the next line of the poem.

Teacher: 'Is there symbolic value to it?'

Mia: 'I was going to say that it stands for him, but I think it stands for something bigger.'

Teacher: 'Good intuition.'

The teacher calls on Mia at least twice more, and Mia offers her interpretation that the apple picking in the poem stands for death. It is now 22 minutes into the class and Mia is still typing her blog entry. She also changes her blog template to a blue background and the text colour to purple. She stops fiddling with her new set up to read a few lines from the next poem under consideration.

Some of the students, like Mia, who engaged most in pursuing self-selected purposes during class time did not believe they were learning less than they otherwise would as a result of this, and, in fact, even when they were 'drifting' on their screens they demonstrably participated as much if not more in class discussions than their 'on task' peers (proficient 'doers' of school). Two of these students claimed that being able to go to other places during time in class when they already knew about the matters under discussion alleviated boredom. Their capacity for multitasking seemingly allowed them to maintain one eye on task while going about other business.

Contrary to such self-appraisals on the part of students, some teachers soon began to limit the times that students could use their laptops to points in lessons the teachers deemed appropriate. This trend was underway before Leander and colleagues' research was even completed. From the standpoint of literacy education in relation to learning, it is important to note the tension that exists here between newcomer and insider mindsets with respect to multitasking. In formal and non-formal settings beyond the school, including workplaces, the capacity to multitask fluently is often highly valued and sometimes serves as a status marker. Effective multitasking is associated with greater efficiency, as well as with being digitally proficient. From the insider perspective there is no conception of 'disrespect' or of paying insufficient attention to a task if one is multitasking, whereas from the one space-one task perspective of the newcomer mindset, such connotations often apply. Rather, from the insider perspective, the idea is more one of attending to a specific task to the extent needed to perform it adequately or well, but that other things being equal it is better to be able to move fluently between tasks simultaneously, not least because time online is a resource to be used as efficiently as possible. Similarly, under conditions of intensified competition in the world of work, efficient multitasking becomes an important part of competitive edge. It seems very

likely that the social, cultural and economic value and esteem associated with multitasking will increase in the years ahead, to the point of becoming the default mode. To this extent, responses like closing down on possibilities for multitasking might well prove in the relatively short term to be on the wrong side of history.

Interestingly also from the standpoint of tensions between the mindsets, the researchers also observed high levels of internet safety consciousness among the study participants. They avoided communication with unknowns and were very careful about what information they gave out about themselves. For students like these there is no legitimate basis for schools to hide behind fears about internet safety as a ground for limiting internet access within formal learning contexts. And so far as Mia is concerned, it appears that even under conditions of extreme multitasking she was able to provide at least as much attention to the tasks specifically associated with the official learning of the classroom to perform them well. That may say something about formal classroom tasks, but it does not provide a basis for pre-emptive strikes against multitasking in class.

Toward 'new' literacies

In the next chapter we will spell out our view of what count as 'new' literacies. Before turning to that, however, we want to consider the implications of our argument about the challenge of mindsets for a viable conception of 'new' literacies.

Briefly, we would argue that the more a literacy practice can be seen to reflect the characteristics of the insider mindset and, in particular, those qualities we have addressed here that internet commentators like Tim O'Reilly have associated with the concept of Web 2.0, the more it is entitled to be regarded as a *new* literacy. That is to say, the more a literacy practice 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, Phase 2 automation over Phase 1 automation, relationship over information broadcast, and so on, the more we should regard it as a 'new' literacy.

This is *not* to say that conventional literacies are not important. It is not to say that from some perspectives and relative to some purposes they may not (still) be *more* important than 'new' literacies. For us to deny the

continuing importance of conventional literacies and to otherwise denigrate them would be ingenuous in the extreme. This book and the privileges we enjoy as authors and as academics and researchers owe a vast amount to conventional literacies – including some very ‘old’ literacies – and we want to make that absolutely clear. Our work as writers and researchers alike draws on literacy practices like ‘syllogistic arguing’ – presenting information in accordance with norms of reasoning associated with the syllogism as a form of argument. Syllogistic argument dates back to the Ancient Greeks. A lot of the time when we are trying to carve through difficult patches in a chapter, or even in a paragraph, we are *not* multitasking. Rather, we are agonizing over how best to try and state an idea clearly: attending to something that is as specific as whether to put ‘not’ before or after a particular word. We take as much care as we can to obey the publisher’s norms for formatting, and we think in terms of pages, and of trying to maximize the potential of the book to be used in bookspace. Indeed, we write it as a book, and not as a blog, or as a wiki. On the whole we think we perform a bit better as practitioners of conventional academic literacies than we do as ‘new’ literacy readers and writers. That is not to say that we don’t wish we were much better practitioners of ‘new’ literacies than we are – because we *do* wish that. But we would not wish it at the expense of having to give away any proficiencies we may have as practitioners of conventional literacies. Not yet.

By contrast, vast amounts of perfectly ‘proper’ engagement in new literacies end up in what O’Reilly calls ‘the long tail of the web’. There is not necessarily a lot of kudos in the eyes of the world to be had from, say, making a useful contribution to Wikipedia that might be taken up – for all one would ever know – by many other people. There are no royalties to be had there or, typically, any other public recognition. On the other hand, the riches to be had and enjoyed from membership of online communities and interest groups can be enormous, and there is no questioning the meaning that Violetta – introduced earlier – derives from her online life and its intersection with her face-to-face life. To some extent ‘new’ literacies bespeak a world of intrinsic satisfactions, whereas the world of conventional literacies – as seen particularly in the fetishized ways literacy is constructed as a personal benefit and a *sine qua non* for social and economic advancement – remains closely tied to considerations of instrumental value.

Here again, it is not all or nothing. Intrinsic values are obviously available within conventional literacy practices, and are commonly pursued; instrumental values can be derived from ‘new’ literacies and are commonly pursued. Nonetheless, we think that the trend toward massive levels of

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participation in ‘new’ literacies, as we will see in later chapters, indicates a growing sense of intrinsic satisfactions to be had there and an equally growing disposition to seek them. It seems likely that schools, with their established grounding in a mindset associated with status and value attaching to scarcity, and with literacy comprising a key instrumentality for unlocking advantage and status through achievements at levels wilfully preserved for the few, will increasingly face a challenge to maintain student engagement in conventional literacies conceived and implemented from the perspective of the newcomer mindset.

Much more could be said here. Sufficient has already been said, however, to clear the way for taking a more focused look at concepts and practices of *new* literacies. We turn to this task in Chapter 3.