



## Part II

# Multiliteracies Theory in Motion

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## 5 New Media, New Learning

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### Introduction

This chapter analyzes the distinctive features of what are often today called the ‘new media’, a range of information and communications media using digital technologies, including technologies for the creation and storage of text, still and moving images and sound, and the distribution of this content through local computing systems and the Internet. The relationships of these new media to education vary from attempts at transliteration of the classroom and heritage learning relationships into the digital media, to educational projects as fundamental as changing the social relationships of learning.

### Apparently New Media, Apparently New Learning

The new digital media will change the face of education. We’ve heard this said often, and more frequently since the invention of the Internet. One kind of response to this proposition is: ‘Impossible and besides inequitable, because not every student has a computer or internet access.’ On top of the other historic divides which mean that some kinds of learners perennially do better at school than others, we are adding another – a ‘digital divide’ between those who can afford the technology, and those who can’t (Cuban, 2001; Mitchell, 1995; Virilio, 1997). To this, contemporary technology innovators reply that digital creation and access media are becoming as ubiquitous as the telephone and the radio in an earlier era – cheaper desktop and laptop computers, mobile phones with comprehensive computing and Internet functionalities, portable reading devices, and devices for digital video and audio recording and playback, to name just a few areas of significant development.

Another kind of response to the new media is a rush to adopt. In that rush, we have seen teachers bring the new media into the classroom, as if the medium itself were the message. Instead of writing a story longhand on a piece of paper, students type it to a word processor, or a blog, or put together a video. There’s something new here, to be sure, but just how new? Have the relationships of knowledge and pedagogy changed in any significant way? Is classroom discourse that much different? Often, the answer is ‘no’, because





we can use new technologies to learn old things in old ways. We can set up the new media devices in our contemporary world to do old-fashioned didactic teaching: the teacher or textbook publisher puts content into a learning management system; the learners work through the content step by step; the learners take a test at the end and get a grade that indicates whether they have passed or failed. We can use computers to re-create traditional, transmission pedagogies that embody a mimetic relationship to knowledge: absorb the theories, practice the formulae, learn the facts, appreciate the greats of the canon, internalize the socio-moral truths that others have deemed will be good for us (Kalantzis & Cope, 2008b). There are some differences, to be sure – the image of the solar system in the old science textbook stays still, but the planets move around the sun in the digital ‘learning object’ – but the learners’ relationships to knowledge and the processes of pedagogy have not necessarily changed in any significant way (Cope & Kalantzis, 2009).

Then there are the dedicated attempts to mechanize learning. Some of these are cheap enough for schools’ meager budgets. Give every child a device that looks like a television remote control, ask a question, then instead of having just one student answer, all the students answer by pressing a button on their remote. In this way, the teacher gets a picture of what every learner knows, not just the child whose hand shoots up hand first. Or get the students to do online reading comprehension tests. The machine, rather than the teacher, scores the learner, which means students in the one class can be reading different books depending on their reading and interest levels (see, for instance, [www.renlearn.com](http://www.renlearn.com), used in some 75,000 schools). Put some of these pieces together into a ‘learning management system’, and students can be assigned work, access that work, participate in class ‘discussions’ and have their work scored. For its apparent novelty, this is called e-learning. Everything that could happen in a classroom can now happen though a computer network.

Many of these things are, in a technical sense, new to education. Schools have had to collect together new resources, teachers have had to master new technologies, and students have had to engage in new types of mediated activity as a part of their school work. But oftentimes the underlying learning relationships have barely changed. New media do not necessarily mean new learning. Old institutions have an enormous capacity to assimilate new forms without fully exploiting their affordances. From the scope of possibility in the new media, teachers and curriculum designers all-too-often selectively do things with them that are not much more than conventional.

## New Media

What more could the new media do for education? How might they support a new learning? To answer these questions, we need first to explore what’s new about the new media. We are going to focus on four dimensions of the new media which we would argue represent a significant break from the media of

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our habituated cultural and educational home – the media we have lived with for the duration of modernity thus far. To look at the new media and then to consider the possibilities for new learning in this way is not to imply that technologies are, on their own, agents of social change. Rather they are symptoms of social change, or fellow travelers on a journey of social transformation in which social conditions make the technologies imaginable then useable, and in which the technologies provide the affordances (the means of cultural production) for new social forms. The following four dimensions represent a schematic overview of key characteristics of the new media. In the last section of this chapter, we will explore the educational affordances of each of these dimensions. But before we start the four, a digression – what, textually speaking, is not new about the new media? We will take as cases-in-point, hypertext and virtual reality and ask the question: How different are the textual practices of the Internet from those of books and print literacy?

Hypertext, it is argued, is one of the most distinctive features of the digital communications environment, creating the possibility of non-linear readings and reader-chosen navigation paths. Even at first glance, hypermedia technologies are not so novel, tellingly using metaphorical devices drawn from the textual practices of the book, such as ‘browsing’, ‘bookmarking’, ‘pages’ and ‘index’. Moreover, when we examine the book as an information architecture, its characteristic devices are nothing if not hypertextual. Gutenberg’s Bible had no title page, no contents page, no pagination, no index. In this sense, it was a truly linear text. However, within a century of Gutenberg’s invention, the modern information architecture of the book had been developed, including regularly numbered pages, punctuation marks, section breaks, running heads, indexes and cross-referencing. Amongst all these, pagination was the critical functional tool (Eisenstein, 1979).

The idea that books are linear and the Internet is multilateral is based on the assumption that readers of books necessarily read in a linear way. In fact, the devices of contents, indexing and referencing were designed precisely for alternative lateral readings – hypertextual readings, if you like. And the idea that the book is a text with a neat beginning and a neat end – unlike the Internet, which is an endless, seamless web of cross-linkages – is to judge the book by its covers. A book does not begin and end at its covers, despite the deceptive appearances of its physical manifestation. It sits in a precise place in the world of other books, literally when shelved in a library, located in multiple ways by sophisticated subject cataloguing systems, and intertextually positioned by the apparatuses of attribution (referencing) and subject definition (contents and indexes).

As for hypertext links that point beyond a particular text, they do no more than what citation has always done, albeit much faster. The footnote developed as a means of linking a text back to its precise sources, and directing a reader forward to a more detailed elaboration (Grafton, 1997). The only difference between the footnote and hypertext is that in the past you had to go to the library to follow through on a reference. Books, in other words, have



developed elaborate ways of bursting out of their covers, of always referring to the world outside their covers, including to other books. This relationship to other writing and other books comes to be regulated in the modern world of private property by the laws, conventions and ethics of copyright, plagiarism, quotation, citation, attribution and fair use (Cope, 2001a). So, for all the hype in hypertext, it only does what books have always done, which is to point to connections across and outside of a particular text.

Take also the hyperbole of the ‘virtual’. There’s not much about the virtual in the digital communications era which print and the book did not create as a genuine innovation 500 years earlier. The book as a communication technology brought modern people strangely close to distant and exotic places though the representation of those places in words and images on the printed page. So vivid at times was the representation, that the early moderns could be excused for thinking they were virtually there. So too, in their time, the photograph, the telegraph, the newspaper, the telephone, the radio and the television were all credited for their remarkable verisimilitude – remarkable for the ‘real’ being so far away, yet here so easily, so quickly and so seemingly close and true to life. Each of these new virtual presences became a new kind of reality, a new ‘telepresence’ in our lives. We virtually lived through wars via the medium of newspapers; and we virtually made ourselves party to the lives of other people in other places and at other times through the medium of the novel or the travelogue. In this respect, digitization is just another small step in the long and slow journey into the cultural logic of modernity. Digital reproduction and transmission of meaning simply reopens the fundamental questions of aura, authenticity and location raised by Walter Benjamin in the 1930s in his discussion of ‘the work of art in the age of mechanical reproduction’ (Benjamin, 1970).

But here are four things which, we would argue, are new...

***Dimension 1: Agency***

One of the key differences between the old media and the new is in what we call the balance of agency. Whereas broadcast TV had us all watching a handful of channels, digital TV has us choosing one channel from amongst thousands, or interactive TV in which we select our own angles on a sports broadcast, or making our own video and posting it to YouTube or the Internet. Whereas novels and TV soaps had us engaging vicariously with characters in the narratives they presented to us, video games make us central characters in the story to the extent that we can even influence its outcomes. Whereas print encyclopedias provided us definitive knowledge constructed by experts, Wikipedia is constructed, reviewed and editable by readers and includes parallel argumentation by reader-editors about the ‘objectivity’ of each entry. Whereas broadcast radio gave listeners a programmed playlist, iPod users create their own playlists. Whereas a book was resistant to annotation (the size of the margins and out of respect for its next reader), new reading devices

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and formats encourage annotation in which the reading text is also a (re) writing text. Whereas the diary was a space for time-sequenced private reflection, the blog is a place for personal voice which invites public dialogue on personal feelings. Whereas a handwritten or typed page of text could only practically be the work of a single creator, ‘changes tracking’, version control and web document creation such as Google Docs make multi-author writing easy and collaborative authorship roles clear (Kalantzis, 2006a; Kalantzis & Cope, 2008a).

Each of these new media is reminiscent of the old. In fact, we have eased ourselves into the digital world by using old media metaphors – creating documents or files and putting them away in folders on our desktops. We want to feel as though the new media are like the old. In some respects they are, but in some harder-to-see respects they are quite different.

One important and underlying difference is what we call the changing balance of agency (Kalantzis, 2006b; Kalantzis & Cope, 2008b). The earlier modern regime of communications used metaphors of transmission – for television and radio literally, but also in a figurative sense for books, curricula, public information, workplace memos and all manner of information and culture. This was an era when bosses bossed, political leaders heroically led (to the extent even of creating fascisms, communisms and monolithic welfare states for the ostensible good of the people), and personal and family life (and ‘deviance’) could be judged against the canons of normality. Not only have things changed in today’s everyday life. The most advanced of contemporary workplaces devolve responsibility to teams and ask workers to buy into the corporate culture (Cope & Kalantzis, 1997). Neoliberal politics tells people to give up their reliance on the state and to take personal responsibility for their own welfare. Diversity rules in everyday life, and with it the injunction to feel free to be true to your own identity.

Things have also changed in the social relations of meaning-making. Audiences have become users. Readers, listeners and viewers are invited to talk back to the extent that they have become media co-designers themselves. The division of labor between culture and knowledge creators and consumers has been blurred. Consumers are also creators, and creators are consumers. Knowledge and authority are more contingent, provisional and conditional-based relationships of ‘could’ rather than ‘should’. This is what we mean by a ‘shift in the balance of agency’, from a society of command and compliance to a society of reflexive co-construction. It might be that the workers creating bigger profits for the bosses, that neoliberalism ‘naturally’ exacerbates disparities in social power, and that diversity is a way of putting a nice gloss on inequality. The social outcomes, indeed, may at times be disappointingly unchanged or the relativities even deteriorating.

What has changed is the way these outcomes are achieved. Control by others has become self-control; compliance has become self-imposed. New media are one part of this broader equation. The move may be primarily a social one, but the technology has helped us head in this general direction.



Whether it be in the domains of work, governance or cultural life, the command society is giving way to the society of reflexivity in which agency is more evenly balanced. Or so we might say in moments of strategic optimism. In moments of pessimism, we might experience these same phenomena as fragmentation, ego-centrism, randomness, ambiguity and anarchy. And when this pessimism turns to fear, we might want to return to earlier, simpler command structures – in nations, workplaces, households and schools.

Pessimists and optimists alike might agree that we are in the midst of a transformation that is creating new forms of subjectivity and new kinds of personality. These transformations can be viewed both from within a systems perspective and beyond it. From a systems point of view, these are the kinds of governance structures, the kinds of organization and the kinds of people required today, for the most conservative, small government and pro-enterprise points of view. We hear these points of view expressed in the public rhetoric of innovation and creativity, the knowledge economy, and individual autonomy and responsibility. Notwithstanding the high-sounding rhetoric, left to run their course, these transformations may only legitimate and even exacerbate systemic inequities.

History, however, is more open-ended than that. Inevitably, human systems are so complex that they allow possibilities outside the scope anticipated by their progenitors and apologists. For every moment when the ideologues of small government succeed in shrinking the state, there is another moment in which people learn the civilities of self-government in their various communities of practice; for every moment when command structures in workplaces are replaced by structures which ask workers to ‘fit’ in with the workplace culture, there is another moment in which people acquire the collaborative competencies of socially directed work; for every moment when compliant personalities are replaced by the ego-centrism of individualism, there is another moment in which new relationships of co-dependence and mutual reliance are created and the bonds of sociability are extended and deepened. Whatever the domain, there is a shift in the balance of power and in the moral economy of agency which favors egalitarianism and liberty. And this is despite and beyond prevailing systems and structures of power. From this something genuinely new could emerge.

The trends, however, are always contradictory. Just as agency is passed over to users and consumers, power is also centralized in ways that become more disturbing with time. The ownership of commercial media, communications channels and software platforms is becoming alarmingly concentrated. Besides, to what extent are the new media, such as games, an escape from reality? And for every dazzling new opening to knowledge and cultural expression in the new ‘gift economy’ of the Internet (where content can be accessed for free) – and Google is a prime example of this –there are disturbing new possibilities for the invasion of privacy, cynically targeted advertising and control over knowledge sources and media (Kalantzis & Cope, 2008b).

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### *Dimension 2: Divergence*

What happens when you create space for agency? One of the first and most obvious things is that you discover a panoply of differences that the industrial-era workplace, the nationalistic state and modern ideas of personal normality had wanted to pretend did not exist.

Here's a catalog of differences which in an earlier modernity we tried to ignore, or if they could not be ignored, to separate onto another side of a geographical border, or institutional boundary, or a normative divide of 'deviance': material differences (social class, locale, family circumstances); corporeal differences (age, race, sexual orientation, physical and mental abilities); and symbolic differences (culture, language, gender – an amalgam of gender and sexual identification and identity). All of these differences in our late modernity present themselves as insistent demographic realities. They have become living and normative realities too, supported by an expanded conception of human rights. However, as soon as we begin to negotiate these differences in good faith, we find ourselves confounded by the categories. We discover that the gross demographic groupings used in the first instance to acknowledge differences are too simple for our needs. We are instead dealing with an inexhaustible range of intersectional possibilities – where gender and race and class meet, for instance. We face real-world specificities which confound generalizations about people who formally fit the ostensible categorical norm. In fact, if you take any one the categories, you'll find that the variation within that group is greater than the average variation between groups. There are no norms. Rather, you find yourself in the presence of differences which can only be grasped at a level which defies categorization: different life narratives (experiences, places of belonging, networks), different personae (affinities, attachments, orientations, interests, stances, values, world views, dispositions, sensibilities); and different styles (epistemological, learning, discursive, interpersonal). The gross demographics might tell of larger historical forces, groupings and movements; they don't tell enough to provide a sufficiently subtle heuristic or guide for our everyday interactions. For history's sake, we need to do the gross demographics, but today a lot more.

The rebalancing of agency in our epoch brings with it a shift away from a fundamental logic of uniformity in an earlier modernity, to a logic of difference. And more: we don't just not have difference as a found object, legacies of lived experience that we can at last recognize. There is also today a tendency to diverge, or to become more different. Here is one of the great paradoxes of what is also an era of globalization, when we are undoubtedly becoming more closely interconnected in many respects: communications, media, trade, travel, capital flows, ideas flows (Steger, 2008). We also live in a time when the scope for agency allows us to make ourselves more different. And because we can, we do. Take for instance the rainbow of gender identifications and expressions of sexuality in the newly plastic body; or the shades of ethnic identity and the juxtapositions of identity which challenge our



inherited conceptions of neighborhood; or the locale that highlights its peculiarities to tourists; or the bewildering range of products anticipating any number of consumer identities and product reconfigurations by consumers themselves.

The new media are one part of this mix, one of the many catalysts in the transition from an era of homogenization to an era of divergence. This is because the new media provide channels for differences to represent themselves. After an era in which every pressure was to create homogeneity (mass media, best-selling authors, mass-produced products, assimilating minorities), today's society and media provide spaces for divergence (the myriad of micropublishing opportunities on the web, from social networking sites to blogs to self-posted television, reflecting any and every shade of identity and timbre of voice).

Not only does difference come to light more vividly and poignantly. Differences can auto re-create. Individuals and groups can become more different. The cost of entry for different ways of speaking, seeing, thinking and acting is lower. You don't need specialist trade skills or heavy-duty infrastructure to be out there in your own voice – through the web, or in video, or using digital print.

The economies of scale of cultural production have been reversed. The logic of mass production (big-production TV; large print-run books) is being displaced at least in part by the logic of mass customization (tens of thousands of widely divergent messages in YouTube; books where a print-run of one costs the same per unit as a print run of 10 or 10,000). This is what makes it possible for discourse communities to diverge, to find and develop voices that are truer to their evolving selves – profession-speak, peer-speak, diaspora-speak, fad-speak, affinity-speak (Cope & Kalantzis, 2000). Knowledge and culture become more fluid, contestable and open. Discourses become less mutually intelligible, and we need to put more effort into cross-cultural dialogues in order to get things done.

After the sociological description of this moment, we may choose to add a layer of agenda-implying interest. Differences have historically been overlaid by patterns of injustice (Fraser, 2008; Fraser & Honneth, 2003). Recognition of differences requires some acknowledgment of injustice. And acknowledgment suggests redress. Greater scope for agency suggests autonomous spaces in which to be different, and to diverge. Agency plus difference/divergence prefigures a newly expanded conception of human rights.

### ***Dimension 3: Multimodality***

As for the means of production of meaning, one deceptively simple thing has produced enormous change. The digital world reduces the elementary modular unit for the production of textual meaning from the character to the pixel. Quite simply, this means that written language, sound and image are all made of the same stuff (Cope & Kalantzis, 2004).

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Earlier modern technologies of representation found awkward ways of bolting one mode onto another. It was hard to print images and words on the same page, so images were isolated in a separate section of the book. It took several decades to achieve, but sound was finally attached to movie film stock, but only by means of a completely different, special purpose and expensive manufacturing technique. In the first centuries of print-literate modernity, we managed to put different representational modes together, but not comfortably, and at a cost.

This was one of the reasons why, in an earlier modernity, the modes of representation drifted apart. At times they were even dragged apart. The radical iconoclasts of Protestantism tore the stained glass windows and the statues out of churches in order to force upon supplicants an unmediated relationship with the Word. The printing press required different processes for text (the offset letterpress) and image (engraving) (Cope, 2001b), so if image and text were to be in the same book, for the most pragmatic of manufacturing purposes they had to be separated.

After half a millennium in which written text has been a pervasive source of knowledge and power, photographic means of representation (lithographic printing, cinema, analog television) began to afford greater power to create images and comfortably overlay images with written text. The digital accelerates this process as the elementary modular unit of manufacture of textual meaning is reduced from the character to the pixel. Images and fonts are now made of the same raw materials, and more easily overlaid – hence the television screens that stream more and more writing over images, and the magazines and newspapers which layer images and text in a way that was never easily achievable in the era of letterpress printing. Parallel to this is a revival of the aural, or the use of the oral as a representational means across distances previously dominated by writing. In the first instance, it was analog telephone and radio that allowed this possibility, then more closely overlaid in the digital era as sound is also made from the same bits and bytes as images and characters. New overlays of oral and written modes emerge as telegraph, telegram and then email stay more faithful to the fluid epistemes of speaking than the earlier literate forms of letters and memoranda. Then voice synthesis of digital text turns the readable into the hearable.

Now we have digital devices where we can put all of these together, but only because sound, written language, still image and moving image can all be made, stored and distributed – because they can all be reduced to the common platform that is the zeros and ones of the digital world. Hence multimodality, or, the capacity to mix modes.

New literacies centered on hybrid and multimodal text emerge. Modes of meaning that were relatively separate become ever-more closely intertwined. The practical consequences are enormous, as more written text appears in traditionally visual media (such as television) and truly integrated multimodal media emerge, even in traditional areas such as print. And at the creation end of the process, word processing and desktop publishing integrate the logistics



of visual design into text construction, to the extent even of turning the once-obscure craft language of the typesetter into a universal language for text visualization – fonts, point sizes and the like – as a fundamental basis for ‘marking up’ textual architectures (Kalantzis & Cope, 2008a).

From the mid-1990s, the Internet takes this even further, with its blurring of the boundaries and overlaying of written text, icon and image, as well as its extensive use of spatial and architectonic metaphors associated with site navigation (Castells, 2001; Gilster, 1997; Mitchell, 1995). Adding yet another layer of multimodality, the Internet and its earlier multimedia progenitors include the capacity to overlay audio because, ultimately, sound too can be made into the same digitally recordable stuff as pixels. The effect of all of these changes over the past half century, picking up pace with digitization, has been to reduce the privileged place of written text in Western culture, progressively bringing the visual and other modes to a par. In some contexts, even, other modes are now being privileged ahead of the written-textual (Kress, 2000, 2003).

***Dimension 4: Conceptualization***

To be a user of new media requires a kind of thinking which we will call ‘conceptualization’. In the world of passive consumerism, you didn’t need to know so much of what was inside the machine (mechanical, informational, socio-cultural). To be a player today and not just a viewer/reader/consumer, you need to get your head around new social and technical architectures. You need to be able to read and write representational designs. This creates a new cognitive load, not just to think in conceptual-design terms, but in order to monitor your thinking about your thinking, or metacognition. What are the skills and logics of navigation and discernment in a media environment of seemingly infinite extent and so demanding that we make hypertextual choices? How does one plan where one goes or recap where one has been? How are the social and informational networks to be mapped if one is to get a clearer view of their patterns of meaning?

Then there is the mechanics of communication and discovery, all of which require new forms of higher-order abstraction – ersatz identifications in the form of file names, thumbnails, menus and directories; semantic tagging, whether that be home-made folksonomies or the formal taxonomies and standards which are used to drive web feeds, to define database fields and identify document content; and using schemas or ontologies to structure information architectures and content for ‘semantic publishing’. The new media needs a new, conceptualizing sensibility (Cope & Kalantzis, 2004).

**New Learning**

What does this mean for schools? Will the traditional classroom work, or even make sense, in the near future? Will the children of Nintendo, the web and

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video games find traditional classrooms engaging? Will the employers of the knowledge economy find good memory and good discipline sufficient or even adequate? (Gee, 2004).

Against each of the four dimensions of the new media, we will juxtapose four dimensions of the new learning.

### *Dimension 1: Designers*

The balance of agency in heritage, didactic education was one in which teachers and textbooks told. For their part, students put up their hands and took tests in order to get the answers right or wrong. Knowledge was definitive. The direction of the knowledge flows was top-down. The moral lesson was to accept authoritative, universal knowledge as true and to comply with its 'discipline'.

This logic fitted well with the logic of the earlier modern media. It does not fit with the logic of the new media, or the commensurate shifts in the balance of agency in the everyday experiences of work, citizenship and personal life. If education is to be relevant to the contemporary social needs and personal dispositions, it has to do something different. Education has to conceive schools as knowledge-producing communities, and create in learners a sense that they themselves are knowledge producers.

In the case of teachers, digital media allow them to be designers of pedagogy and builders of learning content. Textbooks which followed the syllabus were designed to be followed by the teachers, and learners in turn followed these. 'Turn to Chapter 7', was the extent of the teacher's intervention. Go to the next 'digital learning object' is an instruction from a learning management system that is not much different. Like 'Chapter 7', it is something that has been created by someone who can, and that's obviously not the teacher. However, given the accessibility of the digital world, what's to stop teachers and schools developing banks of learning resources and publishing them to the web – such as the Learning Elements of the 'Learning by Design' project (<http://L-by-D.com>) – which are locally engaged and are expressions of their own professionalism and a culture of collaboration in the school as teachers share their work (Kalantzis & Cope, 2005)?

In the case of learners, why can't they draw on a variety of available resources – digitally accessible information, in their community and environment, amongst parents and peers – in which they actively make knowledge in its various modes and permutations (such as experiential, conceptual, analytical and applied)? They would not be reinventing the world any more or less than an expert does. They would be just as reliant on knowledge sources, but be rebuilding knowledge themselves in an active, engaged way as if they were an expert.

Once again, the digital will support this, providing as it does unprecedented means for accessing, recording, sharing, working collaboratively and publishing the knowledge that learners may have gained in their digital

portfolios. The key shift, though, is not the medium, but the capacity of the medium to support learners to be knowledge producers rather than knowledge consumers (Kalantzis & Cope, 2008b).

### ***Dimension 2: Learner Differences***

The old, one-size-fits-all, on-the-same-page curriculum is no longer necessary in the context of new media. Nor is it such a good idea in a world of endemic divergence. Heritage modern schooling did all it could to remove or ignore differences, working on the foundational assumption that the learners in the classroom can be regarded as more or less the same, or can be sorted into groupings. With the teacher at the front of the room and the test at the end of the term, everyone had to be turning to ‘Chapter 7’ at the same time. This was the communicative basis of its key technologies of homogenization – separatism (by age, ‘ability’, culture, language, social destiny) and assimilation (remember this stuff, demonstrate you can think this way, become the kind of person we want you to be).

But look at all the differences in school today, so visible and so insistent: material (class, locale, family), corporeal (age, race, sex and sexuality, and physical and mental characteristics) and symbolic (culture, language, gender, family, affinity and persona). Today’s education has little alternative but to recognize the social realities of pluralism and develop strategies for inclusion that are without prejudice to that diversity.

Using digital media, learners do not all have to be on the same page. At any one time, they can be doing what is best for them given what they already know. And how can a teacher know what a learner knows? A much more graphic, realistic and detailed view is possible in a digital environment in which actual performance is recorded in portfolios rather than bald test scores. Complex, multiperspectival assessment is possible, which continuously feeds back into the process of appropriate learning design for that student. If students are knowledge creators, they can be asked to link the particularities of their life experiences closely into the knowledge that is being made. By this means, their knowledge-making becomes revoicing, not replication. Students can also work together more readily in the digital environment. Lesser or greater contributions are visible for what they are (and this could be appropriate), and differential perspectives and knowledge can be valued as the basis for collective intelligence.

Here are some ways in which a more inclusive education, with and without the support of new media, can address learner differences:

1. **Connect:** Make points of contact with learners’ lifeworlds. Create avenues for learners to say who they are, and to be who they are. Value what they already know by frequently asking what that is. Ask them to connect new experiences and knowledge with what they already know, think and feel. Do not second-guess the dimensions of difference – open out the curric-

ulum to embrace what learners bring to the learning experience, surprisingly perhaps. Open a window onto their identities and figure out what makes them ‘tick’. By honoring their lifeworlds as places of valid and useful knowledge, a teacher creates the sense of belonging that is central to inclusive education. The new media provide no special path, but they do provide tools for self-identification and connecting with learners’ lifeworld experiences by encouraging them to represent those experiences and encouraging them to connect these with the learning tasks at hand.

2. Value: Students need to be able to express themselves in the ways they feel most comfortable. They need to be able to create new knowledge in different kinds of ways, depending on what works best for them. Effective teaching and learning in the context of deep social diversity needs to involve multiple and varied pedagogical approaches. This entails different emphases and mixes of ‘knowledge processes’ to suit different ‘learning orientations’ and what a learner finds to be the most effective modalities of representation for them in the new media environment.
3. Engage: All-too-often our institutions and practices of schooling still reflect the knowledge transmission and personality frames of the command society, such as the communication patterns of classroom discourse, the information architectures of curriculum or the rigid expectations of ‘right’ and ‘wrong’ answers in testing regimes. These were all oriented to uniformity, or one-size-fits-all education. The more we take agency into account, however, the more multifarious its manifestations become – material, corporeal and symbolic – and the more complex the matrices and intersections. And to face all these agencies in one classroom! The solution of the command society was one teacher talking at the middle of the class, one textbook telling one narrative one chapter at a time, one test which told of one way of knowing. The result was assimilation to the middle way, or failure. A more inclusive approach will recruit learner agency, subjectivity and identity as an energy for learning. This means that the classroom must be very different to those to which we have become accustomed. It must allow alternative starting points for learning (what the learner perceives to be worth learning, what engages the particularities of their identity). It must allow for alternative forms of engagement (the varied experiences that need to be brought to bear on the learning, the different conceptual bents of learners, the different analytical perspectives the learner may have on the nature of cause, effect and human interest, and the different settings in which they may apply or enact their knowledge). It must allow for different learning orientations (preferences, for instance, for particular emphases in knowledge-making and patterns of engagement – experiential, conceptual, analytical or applied). It must allow for different modalities in meaning-making, embracing alternative expressive potentials for different learners. And it must allow for alternative pathways and destination points in learning. If we could allow this much scope to learner agency, we would allow a



thousand differences to flourish at the same time as creating a more powerful sense of inclusion and belonging. This would also mean that learners would have more opportunities to jump out of the rut of narrow lifeworld destinies, opening their horizons of possibility and their potentials for self-transformation. New media environments have the potential to make these ambitious aspirations practical possibilities.

4. Create knowledge ecologies: Centering educational energies on learner agency in all its variety will also create new dynamics, sociability and ethics of knowledge creation. Inclusive education changes the direction of knowledge flows so learners and teachers are more actively involved in the construction of knowledge. Learning is a matter of engagement, moving backward and forward between formally developed or scientific knowledge and the lifeworld. When learner–knower lifeworlds are so varied, diversity of perspective becomes a resource. Learning–knowing is most powerful when collaborative and diverse perspectives are brought to bear. Knowledge construction and learning, in other words, is all the more potent for its productive engagement of diversity. This is the basis for learning and knowledge ecologies are very different from traditional transmission models of pedagogy and broadcast models for communicating knowledge. New media environments make this a more manageable possibility – collaborative content creation environments such as wikis, personal journaling environments such as blogs, and digital imaging and video for the recording of content. The educational outcome is not just content knowledge, or at least not that primarily. It is the development of the kinds of people who have the capacity to learn and act in particular ways. They can navigate change, negotiate deep diversity and make and lead change rather than be knocked about by it. They can engage in sometimes difficult dialogues; they can compromise and created shared understandings; and they can comfortably extend their cultural and knowledge repertoires into new areas. They are tolerant, responsible and resilient in their differences. The key questions for educators, then, are how do these new ‘types of people’ learn to be themselves, learn to relate with others and learn how to get things done in today’s knowledge ecologies? And how can we use the new media to support these objectives?
5. Evaluate: Learner transformation is a central mission for education. This occurs through the extension of one’s repertoire of knowledge and capacities. It involves boundary crossing, expanding one’s horizons in a world of differences. This does not mean having to leave one’s old self behind as was the case in the days of assimilation. Rather, a new equality of outcomes would be reflected not in sameness but in comparability, equivalent but not necessarily the same results. You don’t have to be the same to be equal. How, then, do we create forms of assessment and evaluation which can tell us, in meaningful ways, how learners have grown through their learning experiences? The answer is only in part in conventional terms – test results which get you into certain educational sites and which

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open up certain employment and life alternatives. It also means using innovative assessment and evaluation practices such as portfolio evaluation, peer review and the personal testimonies of learners. The new media environment is ideal for these kinds of complex and multifaceted learner assessment processes (Kalantzis & Cope, 2008b).

### *Dimension 3: Synesthesia*

Heritage modern schooling divided modes of meaning neatly into different subjects. Language was for text; art was for visuals. Conventional modern schools stripped away the richly multimodal life of pre-school children by separating off the mechanics of handwriting or phonics. New learning uses synesthesia – or mode shifting – as a pedagogical device. The new media make this so much easier, and so much more excitingly close to the ‘realness’ of television, video games and the Internet (Kress, 2000, 2003).

The process of shifting between modes and re-representing the same thing from one mode to another is called synesthesia. Traditional literacy does not by and large recognize or adequately use the meaning and learning potentials inherent in different modes, or the synesthesia involved in shifting between one mode and another. Rather, it tries to confine itself to the monomodal formalities of written language, as if the modality of written language could be isolated as a system unto itself. This was always a narrow agenda. Today, such narrowing is unrealistic, given the multimodal realities of the new media and broader changes in the communications environment.

However, the consequences of narrowing of representation and communication to the exclusive study of written language (sound–letter correspondences, parts of speech and the grammar of sentences, literary works and the like) are more serious than its still-powerful, though declining, relevance to contemporary conditions. Synesthesia is integral to representation. In a very ordinary, material sense, our bodily sensations are holistically integrated, even if our focus on meaning-making attentions in any particular moment might be one particular mode. Gestures may come with sound; images and text sit side by side on pages; architectural spaces are labeled with written signs. Much of our everyday representational experience is intrinsically multimodal. Indeed, some modes are naturally close to others, so close in fact that the one easily melds into the others in the multimodal actualities of everyday meaning. Written language is closely connected to the visual in its use of spacing, layout and typography. Spoken language is closely associated with the audio mode in the use of intonation, inflection, pitch, tempo and pause. Gesture may need to be planned or rehearsed, either in inner speech (talking to oneself), or by visualization. Children have natural synesthetic capacities, and instead of building upon and extending these, school literacy attempts, over a period of time, to separate them off, to the extent even of creating different subjects or disciplines, literacy in one cell of the class timetable and art in another (Kress, 1997).



In the face of the ‘back to basics’ movement, we would put the case that synesthesia is a pedagogical move which makes for powerful learning in a number of ways. Some learners may be more comfortable in one mode than another. This may be their preferred mode of representation – what comes to them easiest, what they’re good at, the mode in which they best express the world to themselves and themselves to the world. One person may prefer to conceive a project as a list of instructions; another as a flow diagram. The parallelism means that you can do a lot of the same things in one mode that you can do in the next, so a pedagogy which restricts learning to one artificially segregated mode will favor some types of learners over others. It also means that the starting point for meaning in one mode may be a way of extending one’s representational repertoire by shifting from favored modes to less comfortable ones. If the words don’t make sense, the diagram might, and then the words start to make sense. But the incommensurability of modes works pedagogically, too. The words make sense because the picture conveys meaning that words could never (quite or in a completely satisfactory way) do. Conscious mode switching makes for more powerful learning (Kalantzis & Cope, 2008a).

Changes in the contemporary communications environment simply add urgency to the call to consciously deploy multimodality in learning. We are in the midst of a seismic shift in communications in which, as we have argued in this chapter, the new media are intrinsically multimodal. Word processing, web work, PowerPoint, blogging, making a wiki, creating image galleries, video-making and game-making and playing – all of these build upon and realize a wider and more powerful range of human meaning-making capacities than the heritage media of traditional school subjects. They also allow learners of different dispositions to drift in the direction of expressive forms with their comfort zones, while challenging them to transfer meanings into new and as yet unfamiliar forms.

***Dimension 4: Metacognition***

Didactic pedagogy taught facts assembled into disciplinary shape and unveiled to learners in theoretical sequence. In the 20th century, a less-abstract ‘authentic’ pedagogy emphasized experiential learning – through doing, demonstration, experimentation or immersion. The new learning seeks to engage learners in more powerful conceptualizing and metacognizing processes. Some of this is reminiscent of didactic teaching – labels for things more finely defined than in the ambiguities of everyday language and theories which tie those labels together into patterns of explanation. But the new learning engages the learner as co-constructor of concepts – as definer, theory-maker, critic and analyst.

Specialized, disciplinary and deep knowledges are based on the finely tuned distinctions of concept and theory typical of those developed by expert communities of practice. Conceptualizing is not merely a matter of teacherly or

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textbook telling based on the legacy of academic disciplines, but a knowledge process in which the learners become active conceptualizers, making the tacit explicit and generalizing from the particular. This may involve drawing distinctions of similarity and difference, categorizing and naming. Here, learners give abstract names to things and develop concepts (Vygotsky, 1962). Or it may mean making generalizations and putting the key terms together into interpretative frameworks. Learners build mental models, abstract frameworks and transferable disciplinary schemas. In the same pedagogical territory, didactic pedagogy would lay out disciplinary schemas for the learners to acquire (the rules of literacy, the laws of physics and the like). Such conceptualizing requires that learners be active concept- and theory-makers. It also requires weaving between the experiential and the conceptual (Kalantzis & Cope, 2005). This kind of weaving is primarily cognitive, between Vygotsky's world of everyday or spontaneous knowledge and the world of science or systematic concepts, or between Piaget's concrete and abstract thinking (Cazden, 2006).

Some of the new learning is reminiscent of authentic education, when learners connect knowledge with personal experience, are immersed in new experiences and are asked to apply their learning in real-world contexts. But the new learning does more, by insisting on the higher-order conceptualizing. Insofar as navigation of the new media requires higher-order skills of conceptualization and abstraction, learning that engages students in and through new media environments will support pedagogical experiences appropriate to our moment, in and for its characteristic cartographies and its grammars.

## Conclusion

The possibilities of the new media for education have as yet barely been explored. It may look as though we have adopted new media in the classroom. However, these media have a deceptive capacity to do to old things. In fact, we have often been weaned to the new media by metaphors from old representational and social practices. For these very reasons, we need to go back to an analysis of the fundamentals of the new media, and a reading of the affordances of the new media gives us a sense of their potentials to support a new learning.

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