Digital Education
Palgrave Macmillan’s Digital Education and Learning

Much has been written during the first decade of the new millennium about the potential of digital technologies to produce a transformation of education. Digital technologies are portrayed as tools that will enhance learner collaboration and motivation and develop new multimodal literacy skills. Accompanying this has been the move from understanding literacy on the cognitive level to an appreciation of the sociocultural forces shaping learner development. Responding to these claims, the Digital Education and Learning Series explores the pedagogical potential and realities of digital technologies in a wide range of disciplinary contexts across the educational spectrum both in and outside of class. Focusing on local and global perspectives, the series responds to the shifting landscape of education, the way digital technologies are being used in different educational and cultural contexts, and examines the differences that lie behind the generalizations of the digital age. Incorporating cutting-edge volumes with theoretical perspectives and case studies (single authored and edited collections), the series provides an accessible and valuable resource for academic researchers, teacher trainers, administrators and students interested in interdisciplinary studies of education and new and emerging technologies.

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Digital Education
Edited by Michael Thomas
Digital Education
Opportunities for Social Collaboration

Edited by
Michael Thomas
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Foreword

In the 1980s and 1990s, many scholars were noting the revolutionary potential of new information and communication technologies for transforming human communication and production of knowledge. Yet, even by the turn of the millennium, only a fraction of the world’s population had access to the Internet and fewer still were able to publish material online. One decade later, though, Internet access has quadrupled to reach more than a quarter of the world’s people, and hundreds of millions around the world are using new Web 2.0 tools, such as wikis, blogs, microblogs, and social network sites, to connect, create, remix, and share. The “read-write” vision of Internet pioneers (i.e., that the Web would be a site not only for information retrieval but also for mass creativity and participation) is starting to come to fruition.

What then is the role of Web 2.0 in education? Much discussion of technology in education understates its potential by only considering how its use may or may not accelerate the achievement of extant learning goals. As Seth Godin wisely warns on Seth’s Blog, “A car is not merely a faster horse. And email is not a faster fax...And Facebook is not an electronic rolodex.” We need to “play a new game, not the older game but faster.” At the same time, we are also in danger of overstating the potential of technology, by getting swept up in its ability to enthrall our students whether or not any positive results are achieved.

Digital Education introduces a healthy corrective to exaggerated techno-optimism or techno-pessimism. The thought-provoking edited collection represents one of the first serious attempts to examine how Web 2.0 may not only improve but also help transform education. Contributors to the book bring a wide range of social theory to the task, from realms of education, communication, cultural studies, and media studies. And they apply this theory to examining incipient efforts to deploy Web 2.0 tools in a broad range of formal educational settings, especially at the tertiary and adult level. Chapters from and about
Foreword

Australia, Canada, Germany, Indonesia, South Africa, Spain, the UK, the United States, and Venezuela result in a diverse international discussion that is not common in educational research, and this breadth helps us to better understand the relationship of theory to practice.

Speaking from diverse countries and contexts, the authors challenge the simplistic notion that all twenty-first century students are “digital natives” who effortlessly learn with new technology, and instead illuminate the complexities of promoting digital literacies among today’s learners. They show how students’ access to, participation with, and fluency in the use of new technologies do not in themselves guarantee that any serious learning is taking place. Rather, as pointed out throughout and emphasized in the conclusion, the latter also requires educators or mentors to provide expert scaffolding, expert modeling, and expert critique. Examples abound in the book of how we might begin to do so.

Finally, although the contrasts between today’s Web 2.0 and the first-generation Web are great, from a broad historical perspective they represent a continuation of older trends from plain text to multimedia, from static to dynamic content, from authorship by an educated elite to mass authorship, and from high costs of entry into the public sphere to low ones. The long trajectory of these changes and their significance for human development make it even more important that we critically evaluate their relationship to education. The contributions in this book represent an especially broad and thoughtful overview of where we have come on these issues and where we stand today.

Mark Warschauer
Enter some classrooms today, and you will see that instructors have made great efforts to integrate digital technologies in order to enhance learners’ access to information and collaborative activities. In others, the start of the class can be compared to boarding an airplane: learners are expected to sit down and immediately switch off all of their electronic devices.

This book is an attempt to address many of the important questions, contradictions, and opportunities related to digital education and to consider them from the perspective of different learning contexts and international researchers around the world. The chapters collected in this volume present numerous reasons to explore, in particular, the responsibilities educators must assume in the digital age. The first part of the book includes chapters mainly from a theoretical perspective, focusing in particular on digital literacy (chapter 2), existing research studies on Web 2.0 in education (chapter 3), adult education (chapter 4), educational networking (chapter 5), and a model for technology integration based on mentoring (chapter 6).

Five more chapters are included in the second part of the book, which address particular research-based or practical applications of digital technologies in more detail: virtual and personal learning environments (chapter 7), virtual worlds (chapter 8), Web 2.0 in an Asian context (chapter 9), social media (chapter 10), and social networking sites (chapter 11). In the final chapter, Stephen Bax presents a critical
Twenty years ago, first as an undergraduate and then a graduate student, I walked to the university library to search for books for my essays and dissertations. Generally, I saw books as a trustworthy and authoritative source of information. Today, students faced with a similar task intuitively head straight to their computers and open an Internet browser to access an online library before going to campus, if they cannot first read the article or book online. Indeed, a recent study of first-year students’ online search habits in Australia (Judd & Kennedy, 2010) reported that they relied on Google and Wikipedia about 80 percent of the time. When asked further, however, to rank the Web sites they least trusted in terms of information accuracy, Google and Wikipedia were at the top of the list of sites identified.

The term “digital native,” popularized by Marc Prensky in his 2001 essay, is now a decade old, and while even in 2010 it is the subject of major conferences, it has provoked vociferous critique from academics in recent years, suggesting that researchers are no longer willing to accept the taken-for-granted assumptions of the educational marketplace (see chapter 12). Similarly, Web 2.0 technologies burst onto the scene less than half a decade ago, and while a great deal of potential exists in areas such as virtual worlds, blogging, wikis, and podcasting, they are still used by a minority rather than a well-informed majority of instructors or learners (see chapter 3). Indeed, in a recent survey of 4,600 professors in the United States, the only technology instructors regularly used was a course management system (CMS) such as Blackboard, usually as little more than a repository for course documents and information. According to the Chronicle of Higher Education, “Only 13 percent of the professors surveyed said they used blogs in teaching; 12 percent had tried videoconferencing; and 13 percent gave interactive quizzes using ‘clickers,’ or TV-remotelike devices that let students respond and get feedback instantaneously” (Young, 2010, n.p.). Faced with such a sobering reality it is necessary to deconstruct terms such as “digital education,” “digital literacies,” and “Web 2.0” and to examine ways of applying them in a wider range of educational contexts as well as how to embed them in the curriculum, long after the vendors promoting them have left the scene (Ito et al., 2010).

The attempt to integrate new technologies is affected by a number of factors, and they have been strongly in evidence once again in the emergence of digital education: the speed at which educational technologies move in and out of fashion; the cost of acquiring and developing them;
the effort needed to train teachers to use them; and the time needed to adapt existing learning resources to new systems (see chapter 6). If we follow the logic of the airplane analogy introduced above, it is easy to see how technology, in particular digital technologies, can be used as a mechanism for control (see chapters 7 and 11). Digital, wireless, and mobile technologies can clearly also be a source of distraction in the classroom, whether in the form of mobile phones, handheld games machines, electronic dictionaries, or laptop computers. They can also be used by teachers to control learners and content or by administrators to control teachers with the aid of virtual learning environments (VLEs). At the same time, techno-enthusiasts would argue that digital technologies can be used to promote learner autonomy and creativity (see chapters 9 and 10).

The constant overload of information made possible by the Web has foregrounded the importance of learning how to filter information; this process is equally applicable to the hype surrounding digital education itself, and we need to distinguish what can be applied in education from the unhelpful revolutionary rhetoric. What is important, as even a cursory understanding of the history of educational technologies suggests (Cuban, 1986), is establishing the right balance between these opposing tendencies—drawing on the infectious enthusiasm while tempering it with a central role for instructors as more than mere facilitators who enable learning to take place (see chapter 12). As Weller (2009) has pointed out in this regard, we need to be aware of the centralization/decentralization dilemma that has underpinned much of the history of educational technology—the opportunity to balance the use of technology for controlling learners as well as for promoting autonomy, collaboration, and creativity; we might add, of course, that this has also been true of the history of education in general, from Plato to Web 2.0.

Indeed, in *The Republic* (1955), Plato sets out three main aspects of his philosophy that remain relevant for educators in the digital as well as any other age. First, educators must be truly engaged with the act of teaching as a moral duty. Second, educators must be highly knowledgeable in their subject areas but underline that learning stems from an active and dialogical process of questioning rather than mere knowledge transfer. Third, education should be seen as a lifelong endeavor and can best be understood in the wider context of the learning society.

While the iconic cover of *Time* magazine in January 2007 depicting a computer screen as a reflecting mirror announced the arrival of Web 2.0 technologies in the popular imagination, the reflecting mirror of user-generated content can also be seen as something of a narcissistic
mirror—one in which educators and learners need to reestablish a balance between opportunities for self-expression, speaking the truth to power, and responsibility. In order to understand the possible futures of digital education, we must consider the past rather than risk repeating it. While this dictum has rarely been used in association with the application of technology to learning, it ought to remain uppermost in the minds of digital educators.

In *Oversold and Underused* (2001), Larry Cuban describes the introduction of a multimillion-dollar learning environment called the Stanford Center for Research, Development, and Teaching (SCRDT) at Stanford University in the late 1960s. Federal funds were used to build a “state-of-the-art” television studio consisting of cameras, videotape recorders, and monitors. In addition, a large-group instruction (LGI) room shaped like an amphitheater was built to accommodate 160 students. Beside each seat, a “student responder” was positioned consisting of a punch-button controller with the numerical digits 1–10, and the letters Y, N, and O inscribed on it. At the front of the room there was a stage with a large screen and a lectern for the teacher, and two large TV screens were suspended from the ceiling. For technical assistance, the teacher could draw on the technician who was seated in a glass-paneled room at the back of the amphitheater. Assistance ranged from increasing the sound to simultaneous interpretation and help with data projection. The student responders were aimed at allowing students to interact with the lecturer by replying to his/her questions—“do you understand?” “Am I speaking too quickly?”—or to multiple choice questions using the numerical scale. According to Cuban, the “data went directly to a mainframe computer, where students’ responses were immediately compiled and displayed at a console on the professor’s lectern. The lecturer was then able to adjust the pace and content of the presentation, based on feedback from this advanced interactive technology” (p. 100). By the early 1970s, however, the student consoles were already disconnected and had become merely “toys that students fiddled with during boring lectures”; the rest of the equipment was unused or had fallen into a state of disrepair. By the early 1980s, almost all of the original equipment had been removed, and the student responders “had become a harmless anachronism that an occasional professor could cite as an example of a passing technological fad.” Significantly, by 2001, the room had become something of historical interest as an “archaeological slice of a technological past,” and was being used as a regular lecture hall, not significantly different from those from the previous century. Cuban’s enquiries to Stanford faculty about the use of the facilities suggest that very “few
professors had been involved in the design of the building or LGI” and that as “a result, only 2 of 35 professors in the School of Education had ever used the machinery back when it was operational” (p. 101). Over a short period of time, the original support staff for the facilities were made redundant as federal funding dried up. When the technology broke down, there was no one left to repair them, and equipment rapidly became out-of-date as newer machines came on the market.

Cuban’s narrative presents in many respects a fascinating case study on the risks facing any attempt to integrate learning technologies and a counterweight to all the transformational rhetoric that has all too often accompanied Web 2.0 technologies in particular. In keeping this perspective in mind, as well as the real opportunities for increased social collaboration offered by emerging technologies (Davies & Merchant, 2009), it is hoped that this book will contribute to timely debates on the future of digital education in order that instructors, learners, and policymakers can learn from, rather than merely repeat, the mistakes of the past.

References

PART I

Theoretical Perspectives
CHAPTER 2

Modified, Multiplied, and (Re-)mixed: Social Media and Digital Literacies

Mark Pegrum

Introduction

The way educators talk about “literacy” has changed. More and more often, we pluralize it or preface it with adjectives—or both. Actually, this is not entirely new. Literacy started to multiply decades ago, giving rise, for example, to visual literacy, media literacy, and, more lately, information literacy. Paul Gilster, who popularized the term “digital literacy,” called it into service as a book title as far back as 1997 (Gilster, 1997). It is a process that led logically to the New London Group’s (2000) promotion of “multiliteracies.” And it is a process that has recently gained speed and urgency, thanks to the proliferation of digital tools and platforms like blogs, wikis, social sharing and social networking sites—in short, social media built “on the ideological and technological foundations of Web 2.0” and promoting “the creation and exchange of User Generated Content” (Kaplan & Haenlein, 2010, p. 61).

Yet it is no easy matter to deal with the explosion of contemporary modes of literacy driven by social media. In the new millennium, literacy is simultaneously more important and more complex than ever before. Long gone are the days when basic functional literacy was sufficient for everyday life. In networked, postindustrial societies, holding down a job, staying connected with friends, and keeping up with the latest information demands competence in a wide swathe of literacies, active as well as passive. And participation is not optional: Those who
lack appropriate literacies barely exist in digital culture and are doomed to hover on the fringes of digital societies and digital economies.

But surely there is little danger of that happening to today’s students? Surely the younger generation is dragging the rest of us, kicking and screaming, into the technological millennium? So the myth that has grown up around the “digital generation” would have us believe. Like many myths, it is built around a kernel of truth: Young people have a strong impetus to connect and socialize with their peers online, as adults increasingly bar them from traditional play spaces and hangouts like parks and malls (boyd, 2008; Watkins, 2009); they have plenty of time to develop expertise through tinkering with technology; and they do not have a pre-digital mind-set about how technology can or should be used. Unsurprisingly, researchers find that youth are heavy users of participatory digital technologies and that some young people have built up considerable know-how in this area (Ito et al., 2010). Early indications from an ongoing CIBER project suggest that young net users are increasingly “crowdsourcing” their knowledge (Krotoski, 2010), effectively drawing it from their online social networks, while new research by Accenture (2010) demonstrates that many young people are making extensive use of digital technologies, or expect to do so, in the workplace.

For all that, in the public imagination the “digital generation” has been unhelpfully mythologized in at least three ways. First, a growing body of research shows that factors like gender, race, language, geographic location, socioeconomic status, and education level complicate easy assumptions about young people’s access to and use of technology (e.g., Australian Communications and Media Authority, 2008; Hargittai, 2010). The “digital generation,” in other words, is far less homogenous than the term implies (e.g., Hague & Williamson, 2009; Livingstone, 2009). Second, just because kids are using technology for social and entertainment purposes, it does not mean they are acquiring the critical literacies necessary to use it for educational or professional purposes, or that they fully understand its affordances and pitfalls (The Committee of Inquiry into the Changing Learner Experience, 2009; Hague & Williamson, 2009). In short, many kids are “tech-comfy” but, with limited exceptions—notably a substantial minority who “geek out” (Ito et al., 2010) in remix culture, and whom we will come to later—they are not “tech-savvy” (Dudeney, 2009; Pegrum, 2009). Third, many adults are far more technologically accomplished than many kids and, indeed, remix culture, which is often seen as the hallmark of the younger generation, may be better viewed as a loose partnership between older and
younger digerati (cf. Ito et al., 2010), with less digitally able youth acting mainly as a receptive audience and/or viral agents for its spread.

So we should not be duped by the sight of fingers flying across key-pads or keyboards. If we fall for the “myth of the cyberkid” (Facer & Furlong cited in Livingstone, 2009, p. 70), we will fail to realize how patchy many young people’s technological knowledge is. And, as a result, we will fail kids in their need to acquire digital literacies. If we want to ensure that the old digital divide does not simply reconfigure itself around literacy issues, we have to start addressing new literacies more systematically and more extensively in the classroom. While certainly not intended as a checklist of discrete literacies, this chapter maps out some of the key, often overlapping, areas we must consider in preparing students of all levels to make the most of their potential in a Web 2.0 world.

**Focus on language**

The Web is not (just) writing. The Web is not (just) a book. The Web is not (just) a library. Yet the Web is largely about writing, is partly a book, and is, among many other things, a library. *Print literacy* remains a core literacy, not just offline but also online, where a high level of competence in traditional skills—the ability to write eloquently, communicate clearly, and argue persuasively—is essential to hold your readers’ attention in a Web article, present yourself authentically on a blog, or carry a point in a controversial Wikipedia entry. Although such skills are grounded in the print era, they can also be trained digitally. Students at lower levels can begin to develop a public identity on individual or class blogs, with those at higher levels maintaining interactive diaries, debating controversial topics in discussion forums, or building collaborative projects on a class wiki. Advanced students could post to public blogs, discussion boards, or wikis, with their work being assessed not only on its accuracy or coherence but on its appropriateness, persuasiveness, and overall contribution to the interactive digital context.

Although traditional print literacy skills remain important, language use online is changing in some ways. Netspeak, or textspeak—or indeed “txtspk”—is emerging as a new linguistic register that is perfectly suited to its context of rapid textual communication on the net or mobile phones. Rather than repressing its use, a codeswitching approach to *texting literacy* in the classroom would show students when and how to switch into and out of txtspk. In the case of language learners, this would help them access everyday usage, a little like studying idioms in
the target language. In the case of native speakers, it would allow them
to make use of preexisting txtspk skills as appropriate, while raising
their awareness of contextual issues like those flagged up by the English
teacher in the following email exchange that took place with a final year
secondary school student in Australia in mid-2009 (names have been
changed). It is a classic example of an educator seizing a “teachable
moment” to deliver contextualized input:

hey Ms S, im not at school 2da. cn u mark my essay and ill fix it 4 thur.
cheers Fred

Fred,
We have discussed this in class before. Consider your audience and the task.
Try again.
Miss S.

Hi Ms. Smith,
I am not at school today because I have dental and medical appointments,
Please find attached a draft of my essay; I know you don't have much time
but if you could please just take a quick look over it to see if my structure
and links are good that would be really helpful!

Thanks a lot,
Fred

Punctuation is changing too. Hyperlinks, suggests Weinberger
(2009a), can be seen as a new form of punctuation, one that, unlike
most punctuation, tells us how to continue rather than where to stop.
But the effects of hyperlinks go well beyond this. They often serve to
indicate the main points of emphasis of a text and can shift, subtly or
strongly, the weight of its arguments. They signal how open a text is,
how interwoven it is with other texts around it and, depending on which
sources have been linked to, they tell us something about its credibility
and balance. Of course, hyperlinks can impact negatively on the nar-
rative coherence of a reader’s experience online—with each link giving
the reader an opportunity to depart and, perhaps, not return—at the
same time as they impact positively on a reader’s autonomy. Students
need to acquire hypertext literacy to analyze and evaluate such text, and,
increasingly, they will need to learn how to punctuate their own digital
writing with hyperlinks that amplify and bolster their messages.

Multiple literacies, or multiliteracies, as promoted by the New
London Group (2000) and others, have a dual focus. On the one hand,
“multiliteracies” can refer to the multiple languages and cultures with
which we come into contact through new communication channels and media; literacy, after all, is not just about one's native language. On the other hand, “multiliteracies” can refer to the newly prominent literacies that occasionally supersede, but in most contexts complement, print literacy’s modern(-ist) emphasis on letters and words: visual literacy, audio literacy, video literacy. Although these are unlikely to ever entirely eclipse print literacy, they will continue to gain in relative importance as the age of print recedes. Visual literacy, broadly defined, merits special consideration. With research showing that young net users are easily impressed by slick Web design (Livingstone, 2009, p. 74, p. 133), they are in need of guidance on how to interrogate visual elements. Visual literacy is also fundamental to reading the Web’s proliferating tag clouds, not to mention its visual search displays, and it will be at the core of the ensemble of literacies all net users will need if—as in some predictions of the “geospatial Web” or “3D Internet”—the future Web grows to resemble a virtual world navigated by avatars. Multiliteracies can be usefully complemented by media literacy to promote a critical understanding of traditional media and advertising, which often work in multimodal formats with the accent on the visual. It is worth noting that multiliteracies will be crucial, too, at the point where the Web meets the world (O’Reilly & Battelle, 2009), giving us both the “Internet of things” (where physical objects are integrated into the net) and augmented reality (where Web-based information is overlaid on the “real” reality around us). It has even been suggested that the skills necessary to navigate this new informational universe powered by embedded, embodied devices will include physical literacies (Sandford, 2009, pp. 12–13). Certainly, we will all need multiple, enmeshed skills of perception and analysis.

But multiliteracies are not just passive skills. A person who can consume but not produce media, suggests Henry Jenkins, should not be considered literate (Lacasa, 2010). Students can sharpen their multiliteracy skills by using Web 2.0 tools like blogs or wikis to create multimedia documents; by not just listening to or watching but actively producing podcasts and vodcasts; by building multimedia narratives in digital storytelling formats; and, perhaps most productively of all, by engaging in a simplified version of what Jenkins (2008) calls “transmedia storytelling,” where they would learn to express their developing ideas across multiple media. Thus, at different stages of a project, they might individually or collaboratively produce written (hyper-)texts, slideshows, or audio or video files. Language learners could introduce the target language(s) into the mix, learning to codeswitch between
tongues at the same time as they learn to codeswitch between semiotic modes (Hampel & Hauck, 2006).

Naturally, multiliteracies must be underpinned by a certain level of technological literacy, that is, the ability to use common Web 2.0 and other software, and the ability to adapt to new software as it becomes available. Ideally, technological literacy should be complemented by a deeper level of code literacy (i.e., the ability to read and write computer code). Code literacy may play a significant role in a digital divide reconstituted around literacy issues, with those competent in this area most easily able to escape the template-style strictures of commercial software; circumvent the censorware of meddlesome governments (Newton, 2009); and tailor digital channels to their own expressive and communicative needs (Prensky, 2008). This raises teacher training issues, but perhaps none is so pressing as the need for a shift of mind-set: Teachers must be ready to work in partnership with their students, combining their own pedagogical expertise with whatever levels of technological expertise their students bring to the classroom, especially those students who are already code literate.

**Focus on information**

It is not only language that is changing online. So, too, are the ways we access and assess information. Most people’s online experiences begin with a search engine or portal. However, few possess the search literacy to make the most of search engines, for example by using finely differentiated search terms, opting for visual displays, or seeking multimodal results. Few are aware of the limitations of search engines, like their frequent commercial bias or their reliance on ruthless popularity contests that may disenfranchise minority perspectives. The hit or miss nature of many young net users’ information searches (Livingstone, 2009, pp. 50–52; Weigel, James, & Gardner, 2009, p. 10) is compounded by an overreliance on the triumvirate of the Web (typically their first and only source of information), Google (typically the only search engine used, in its basic rather than its advanced formats) and Wikipedia (typically the first result in a Google search) (Carr, 2009). That does not mean that the Web, Google, and Wikipedia are not useful tools; but like all tools, they are better tailored to some contexts than others. We need to help students move outside their comfort zones to explore and critique a wide set of search engines: visual search engines like Quintura or Tag Galaxy; metasearch engines like Gnosh or WebCrawler; or a searchroll creator like Rollyo. Even if students opt to return to Google
for their own searches, they will have a better sense of what Google (and all search engines) can and cannot offer them, and what they themselves must bring to the search process.

Of course, it is only possible to search for information that has been indexed, and the way we index information is shifting rapidly as we move away from the top-down, hierarchical taxonomies typical of Web 1.0 toward the bottom-up, organic folksonomies associated with Web 2.0. The latter depend on the principle of tagging. Students need a degree of tagging literacy to help them grasp the nature of “feral data” (Education.au, 2009)—that is, uncontrolled tags—and to appreciate the pros and cons of tag clouds, which may be flexible and extensible but simultaneously vague and inconsistent. Ultimately, students must learn to read taxonomies and folksonomies with and against each other (Pegrum, 2009, p. 37), juxtaposing the orderliness of the former with the openness of the latter. It is important, too, that students have the visual literacy not only to read tag clouds, as noted earlier, but to parse the many new applications, from Wordle to WordSift, which work with a tag cloud metaphor. In addition, students must become effective taggers themselves, recording metadata that will enable them to manage their own online journeys as well as contributing to managing the connections among disparate parts of the digital global storehouse. Students can begin making these contributions from within classroom walls, by publishing class folksonomies, adding to public folksonomies, or simply learning to carefully tag their own materials online.

Assessing information is just as important as accessing it. This is where the metaphor of the Web as a book or a library breaks down: All of us need to stop treating online documents as if they were pages in a book or books in a library. “[D]uring the Age of Paper,” says Weinberger (2009b, n.p.), “we got used to the idea that authority comes in the form of a stop sign: You’ve reached a source whose reliability requires no further inquiry.” But online texts are different, even if they are based on offline models. Take Web encyclopedias: Wikipedia tells us, for instance, that a kangaroo is “a marsupial from the family Macropodidae”; Conservapedia tells us that “[a]fter the Flood . . . kangaroos bred from the Ark passengers migrated to Australia”; and Uncyclopedia tells us that a kangaroo is “a FRIGGIN’ HUGE MOUSE” (Pesce, 2007a, 2007b). There is not a lot of common ground here. In short: On the Web there is a pressing need for information literacy or, as Rheingold (2009c) calls it in a twist on an Ernest Hemingway quote, “Crap Detection 101.”

The Web calls for a commonsense approach, with students assessing online information in light of what they already know. This means they
require a baseline of knowledge to help them contextualize and evaluate new information. It turns out, then, that being able to look up everything is no good reason for not memorizing anything. Beyond this, students must learn to notice and see through slick graphic design; they must learn to evaluate the origins, authorship, history, accuracy, objectivity, completeness, currency, and relevance of every digital document they encounter; and they must learn to compare any given online source with other sources, online or offline. There is little doubt that “triangulation” is the future of information seeking. Unsurprisingly, given that the three encyclopedias cited above are online documents, the last two kangaroo entries have changed slightly from the 2007 versions quoted, and any of them might be (further) changed at any moment by just about any net user in the world. Reading the multivoiced, provisional, evolving documents of Web 2.0 as if they were edited, finished, stable print documents is another common failure of information literacy (Pegrum, 2009, p. 37). One way of developing students’ skills is to start with spoof websites like those about Dihydrogen monoxide (www.dhmo.org) or the Pacific Northwest Tree Octopus (zapatopi.net/treecoctopus/), both of which have trapped many students in the past (e.g., Krane, 2006), before moving on to the analysis and evaluation of more challenging materials. Students must learn that people bend and stretch the truth to suit their contexts and purposes; and they must learn how, in the absence of gatekeepers like librarians or teachers, they can still find information that is suitable for their own contexts and purposes. In a sense, this is what information literacy is all about.

To be fair, we should give students the good news along with the bad. Approached the right way, digital documents can help liberate us from the tyrannical sanctity of print. Tracing the development of news stories through blogs and mainstream media is instructive in uncovering the shaping of journalistic “Truth.” Wiki history and discussion pages reveal all the drafts written, all the points revised, and all the arguments buried in the process of constructing the current version of the “Truth” as presented on the main wiki pages themselves (Doctorow, 2008, pp. 169–170, on Wikipedia). We can encourage students to approach “Truth” backwards—deconstructively, if you like—by following its data trail into the past, an approach which will certainly give them, and indeed all of us, a healthier attitude toward the many “Truths” we encounter every day.

Yet there is simply too much information available for us to be able to access it all, let alone assess it. We are drowning in a morass of facts, figures, and opinions, many of them of questionable validity. Consider
the number of terms coined in the last decade or so to highlight various aspects of what, back in 1970, Alvin Toffler (Toffler, 1970) called “information overload”: information fatigue syndrome (Lewis, 1996, cited in Naish, 2008, p. 17); data smog (Shenk, 1997); infomania (Wilson, 2005, cited in “Infomania,” 2005); Facebook fatigue (e.g., Malik, 2007); news fatigue (The Associated Press & the Context-Based Research Group, 2008); infobesity (Naish, 2008, p. 25); information obesity (Whitworth, 2009); and stream fatigue (Iliffe-Moon, 2009).

What we have is information, lots of it. What we do not have is enough attention: “Value now lies not in information, but in its relevance: filtering, sorting, contextualizing that which ‘speaks to us’ ” (Sasaki, 2009, n.p.). Or, as Shirky (2008b) put it in the title of his paper at Web 2.0 Expo NY: “It’s Not Information Overload. It’s Filter Failure.” What is missing here is filtering literacy.

“If the news is that important, it will find me,” one US college student observed recently (cited in Stelter, 2008, n.p.). Increasingly, we need to set up filters that ensure that the right information does make its way to us and we are not left drowning in a morass of data that exceeds our capacity to deal with it. First, we need to filter relatively static Web sources, which might include identifying and relying on appropriate mediation by librarians, editors, critics, journalists, or teachers. Second, we need to filter the real-time Web, keeping up with breaking news, which might involve setting up RSS feeds from trusted media sources, perhaps organizing those feeds through applications like RSS Voyage; keeping up with social news sites such as Digg or Reddit, perhaps focusing our attention through applications like OurSignal or Stack; or setting up Google Alerts for key terms trending in the news, on blogs, or on the Web at large. Third, we need to filter our own social networks, or, more exactly, to begin to understand our social networks as filters that can feed us commentary from our Facebook friends, our LinkedIn contacts, or those we follow on Twitter. Students would benefit from educational guidance on all these aspects of filtering.

Unsurprisingly, we are starting to hear discussions of attention literacy (Rheingold, 2009a). When confronted with too much undifferentiated information, we can become distracted by details and miss larger patterns (Wasik, 2009). There is growing evidence of the inefficiency and inaccuracy of multitasking, its advantages for lateral thinking notwithstanding (Small & Vorgan, 2008; Watkins, 2009). We are seeing rising stress levels (Stone, 2008) and a rise in attention-deficit disorders and their symptoms (Hallowell, 2007; Small & Vorgan, 2008). All of this suggests that from time to time we need to turn down or even switch
off the flow of information and communication in order to create space to reflect. Any moderately sophisticated understanding of digital technologies must include an understanding of when, for personal, social, educational, or health reasons, to turn them off. This, too, is something we must communicate to students.

Focus on connections

If not having your own story is tantamount to being unfulfilled in late modern society (cf. Giddens, 1991), not having your own digital story is tantamount to not existing at all in digital culture—or being, at best, an object of stories others tell about you, or an extra in stories others tell about themselves. Personal literacy (Burniske, 2008) is therefore a crucial metaliteracy that empowers individuals to develop and shape their online presence. Only by gaining facility with digital literacies are we able to craft a Web presence that represents who we are or want to be, while reducing the risk of being misread or misunderstood. Students can be encouraged to experiment with self-presentation on blogs or in digital stories, in the process developing the digital public voices that will be essential to their professional and social futures. In this context, an understanding of media literacy, as mentioned earlier, will help students appreciate the extent to which commercially prepackaged roles and identities are being marketed to them online (Mayo & Nairn, 2009; Montgomery, 2007). Young people need to be warned, too, of threats to their digital identities from commercial and political surveillance and data mining (Martin, 2008, p. 174). Digital safety, as we will see, must be a core consideration.

The available evidence suggests that, far from being isolating, Internet use, especially for the younger generation, is largely about maintaining and strengthening social connections (Ito et al., 2010; Watkins, 2009). It is likely the future of the Web will be less about Google’s algorithms than Facebook’s vision of “a more personalized, humanized Web, where our network of friends, colleagues, peers, and family is our primary source of information, just as it is offline” (Vogelstein, 2009, p. 1). Indeed, social media are all about this kind of connectivity. Already, more and more of us are obtaining more and more of our information not through third party news websites but through our social networks: 33 percent of net users obtain news through Facebook and 19.5 percent through Twitter, according to one 2009 survey (MacManus, 2009; cf. Evangelista, 2010), while a 2010 report indicates that 75 percent of online news consumers receive news forwarded through email or social