3 IMAGINING MULTI-ROLES IN WEB 2.0 DISTANCE EDUCATION

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Abstract
This chapter focuses on emerging technologies that we see as having the most profound impact on learning: online social communication/Web 2.0 tools and environments. In the online social networking environment, individuals can switch seamlessly through varying roles of expert, amateur, audience, author, learner, and educator. Web 2.0 has redefined how information is created and shared, and is enabling the transformation of distance education. In this chapter we examine the world for our learners outside of their formal learning environments. In doing so, we question whether informal learning has changed things so profoundly that traditional approaches are becoming irrelevant, and we conclude by suggesting that educators should embrace a multiplicity of roles and, with our students and the general public, recognize and participate in dynamically and collaboratively constructed formal and informal personalized learning environments.

Part 1: Are we experts and amateurs, audience and authors, learners and educators — all at the same time? Perhaps Web 2.0 and our “role(s)” in distance education are causing us to reinvent ourselves.

Imagine the expert and the amateur
In the not-too-distant past, if we needed to learn something, we would almost certainly interact with an expert, either directly with a teacher,
indirectly through a text document, or, less likely but also indirectly, through other forms of media. In any of those scenarios, the source of information was filtered before it reached us (e.g., our teachers had to have received a set of credentials, the newspaper or book would have been edited by someone with recognized expertise, etc.). Shirky (2008b) refers to this idea as the “filter then publish” model. If we eventually acquired enough information and received the appropriate degrees, we were then deemed as recognized experts ourselves, ready to be sought out by others.

Today, with many of us immersed as contributors and consumers of collaborative sources of information such as blogs, wikis, social networks, virtual worlds, and citizen journalism websites, the traditional notion of expertise is being questioned. Is it possible to ever acquire “enough” information? Which sources are to be trusted? The information supply from the Web 2.0 world has not, by definition, been vetted in any conventional sense of the word. Shirky calls this idea the “publish then filter” model (2008b).

Is the concept of expertise changing, or vanishing entirely? People without formal qualifications can contribute to the online information environment as easily as those who are recognized as experts; although it is almost a cliché to state that there is an explosion of online content, it probably bears repeating that with so much additional digital information being added daily. During a random four-day period in October 2009, Wikipedia added more than 4,000 articles, 6,500 pages, and a million edits (Wikipedia:About, n.d.); between May 2008 and May 2009, Facebook experienced a 97 percent increase in unique visitors and Twitter a 2,681 percent increase (Singer, 2009); and YouTube reports that every minute, twenty hours of video is uploaded to its site (YouTube, 2009), there is no guarantee that, when searching the Web, we will find information that has authoritative weight to it. Is this a problem for us as educators, or for education in general? If so, when is it a problem and when does it become a problem? What, if anything, can be done to address it?

Another feature of the not-too-distant past is that it was often difficult to acquire any degree of proficiency in areas outside of one’s
own field. We may have had the desire, but it was unlikely that the information was available to us. Hobbies were possible, but in-depth niche learning was only for the individual who had enough time and/or money to fully pursue an area of interest. Additionally, geographic, occupational, and socio-economic boundaries meant that a person was probably isolated from any community that could support his or her growth. Today, to use a phrase coined by Leadbeater (2005), a “passionate amateur” can easily engage with hobbies, interests, and academic and leisure pursuits in a way that is far beyond “dabbling,” because (a) information is widely and cheaply accessible, and (b) the participatory nature of Web 2.0 means that a two-way information flow is available to all. Both amateurs and experts, and all those in between, can access information, collaborate, and network online with others who share similar interests/passions. Learning can be reciprocal, with experts learning from and building upon the ideas generated by non-experts. Examples are plentiful, from the recent story (Celizic, 2008) of a parent putting his child’s medical records online to connect with researchers who might be able to work with him to help solve the puzzle of brain injury, to stories of citizen journalism exposing events that would have been otherwise hidden to the point where law enforcers, politicians, and others can never assume that anything is “off the record” (Slocum, 2008). Amateurs are contributing in ways that were impossible a few years ago. Shirky uses Linux as an early open-source case study, demonstrating the potential for enormous success through the “global talent pool.” If participation is cheap, even for amateurs, then it’s easy to experiment with a multitude of ideas. A small but dedicated group of people can easily find each other and cooperate on projects of common interest

**Imagine the audience and the authors**

Prior to Web 2.0, there was usually a clear distinction between an audience and a recognized author. The author was the rare individual who had enough information or talent to make it worthwhile financially to create an expensive publication; the audience was the rest of us who received that publication (or film, play, etc.). In contrast, Web
2.0 has also been referred to as the “read-write web” (O’Hear, 2007) where very cheap publication can ensue: the participatory capabilities of the most recent Internet tools such as wikis, blogs, etc., allow content to be contributed and viewed by anyone who has Web access. This means that small bits of information, generated by huge numbers of individuals, can be easily published to form vast information sources (e.g., Wikipedia). Shirky (2008b) poses the vision of a world where large numbers of people contribute massive amounts of knowledge to online collaborative projects (e.g., Wikimedia projects), even when their contribution takes up only small portions of their time, drawn from what he calls the cognitive surplus (for instance, time that may have previously been spent watching television commercials). To an extent, large amounts of information are already abundant and easily and freely accessible. If we are not able to find the information we are searching for, we can request it (e.g., in a blog or micro-blogging platform) and it is possible that it will be generated for us (examples of such requests are presented in chapters 1 and 6). We can share our interpretations, we can comment, question, and critique information in a public sphere, and generate further conversations. Wikipedia is a clear example of how the author and the audience are one and the same, since everyone who reads Wikipedia articles is also provided with the ability to edit and write them, as well as make comments and engage in discussion with other participants.

Certain features of our widely used technologies are enabling us to have continuous access to information. Our cell/mobile phone is an Internet browser, and our computer is a telephone; we can send pictures and video clips instantaneously with the prospect of being viewed by millions, and we are easily able to listen to more voices than we’ve ever heard before. At our fingertips, at all times, the potential exists to be audience and author. It is therefore easy to become enthused if we know that it is simple to contribute, and that our small contributions can potentially be valuable. What questions could be solved with such vast intellectual capital directed towards them?
Imagine the learner and the educator

Like expert/amateur and audience/author, the roles of learner and educator are increasingly becoming intermingled in the Web 2.0 environment. Teachers may have always felt the pressure of keeping up-to-date in their field, but it is a profound change that both the learner and the “teacher” have identical access to the same vast set of resources. Even more of a dilemma is the possibility that the learner may have a potential advantage by being more familiar with the social networking aspects of information sharing (e.g., posing questions to online forums), and using skills acquired through gaming or sites such as Facebook. Downes (2008) discusses how such technologies have led to a more informal type of learning “based on a student’s individual needs, rather than as predefined in a formal class, and based on a student’s schedule, rather than that set by the institution.” He goes on to describe how this informal learning involves “no boundaries; people drift into and out of the conversation as their knowledge and interests change.” In our personal experiences with educators, we have noted that after their formal education has ended, they often tend to learn in a similar, “just in time” fashion, based on what is needed and drawing upon a range of relevant, but not predefined sources.

Oblinger and Oblinger (2005) refer to students who have grown up with technology as the “Net Generation.” Whether Net Gen learners are truly different from previous generations has since been debated. (For instance, see the 2009 OECD report at http://www.nml-conference.be/wp-content/uploads/2009/09/NML-in-Higher-Education.pdf.) However, whether we apply the Net Gen label or not, an overall increase in access to technology cannot be disputed. A much-circulated Michael Wesch YouTube video (2008), “A Vision of Students Today,” shows the viewpoint of learners (in their own words) within the traditional four-wall classroom and explores how the structured environment does not connect with their desire for informal learning and how the concept of categorized information does not fit with their ways of freely accessing what they need to know. These learners explicitly state that they hate school but love learning, they access social networking sites in class, they often don’t read textbooks
or assigned readings, they find school has a lack of relevance to life, and they don’t see how multiple-choice questions will help them solve complex societal problems or allow them to succeed in a job that doesn’t even exist yet; in the words of Perelman (1993), “school plods where human imagination naturally leaps.”

As distance educators we are both part of, and separate from, the traditional education environment. However, like almost all of today’s educators, we have arrived here through a system that embraced neither the notions of informal learning nor of the expert, amateur, audience, and author in the relationships described above. As Garrison and Anderson stated in 2003, “unfortunately, the transmission model that still dominates education has changed little” (p. 1), and Robinson (2009) and Liston, Whitcomb, and Borko (2009), among others, note that there is still a reliance on this model wherever standardized testing is emphasized.7 We have, however, likely used some technology, and perhaps even created online resources through a learning management system (LMS). Are we confident that we are on the right path, or are we apprehensive?

Do we fear that some learners have expectations that do not match what we want to provide? How does our curriculum match student expectations, if our learners expect informal learning? Should we even attempt to meet student expectations? Do we think we are the experts and they are the students who have come here to learn and that we should be the ones deciding what it is that they need to know? Or does informal learning prepare students for the future better than formal learning does? Will breadth and immediacy replace depth and analysis? What are the implications for the learning experiences we wish to create? Is the concept of the structured LMS still valid, or has it become obsolete? (See chapters 6, 9, and 10.) Should we be developing learning environments at all? Does our structured approach simply represent outdated views of how learning should take place, which should be abandoned in favour of a democracy of information composed of many small pieces from a range of sources (rather than a few large pieces from a small number of authoritative sources)? If and when an unstructured, student-led approach to teaching is preferable, what
is the role of the educator? Are there situations where the structured approach is preferable and if so, how do we identify them?

A new responsibility seems to be upon us: to ensure that our learners have the opportunity to develop skills and literacies that are appropriate for deep learning from (or in spite of) the published but unfiltered information they are currently encountering. How do we fulfill this responsibility? How do we design in a way that anticipates what our learners will encounter in their futures? How do we ensure, as Siemens (2005) asked in his introduction of the concept of connectivism, that our learners develop the core skill of being able “to see connections between fields, ideas, and concepts?”

Part 2: What is the plan? How do we reinvent ourselves? How much will be different?

The participatory Web has elicited polar opposite views with respect to education and learning.

Some critics:
> Andrew Keen (2007), whose The Cult of the Amateur: How Today’s Internet is Killing Our Culture expresses his concern regarding the watering-down of the concept of expertise and the flood of misinformation.
> Nicholas Carr (2008), whose article “Is Google making us stupid?” argues that hyperlinked reading on the Web has led us to be unable to focus on lengthier ideas, such as those in books.
> Christine Rosen (2008), whose article “The myth of multitasking” describes her concerns about multitasking with references to neurological changes and loss of productivity.

Some enthusiasts:
> Clay Shirky (2008b), whose book Here Comes Everybody can be summarized as: how Web 2.0 finally allows us to contribute collectively for the improvement of all by better using our cognitive surplus.
> John Seely Brown and Richard Adler (2008), in whose article “Minds on fire: Open education, the long tail, and learning 2.0” the
supply-push model (a factory model that relates older teaching strategies as building up inventory in students’ heads) is compared to the demand-pull model (which is learning 2.0 or learning on demand) or “passion-based” learning. These authors argue that understanding is socially constructed and that meaning is created “by what one person produces and others build on—a remix.”

Stephen Downes (2008), whose article “The future of online learning: Ten years on” shares his continuing vision of self-directing and self-motivated learners and education as an act of liberty, possible only because collaborative technologies now allow fully participatory worldwide learning communities.

How do we find guidance in this diversity of opinion, especially when the evidence surrounding the use of emerging technologies in education is limited (chapter 1), and, as is often the case in educational research, mixed? The authors of this chapter work in an environment of distance educators and designers who are inspired by the enthusiasts who see the collective knowledge pool as an advancement in human culture. But we also recognize that others are concerned about over-optimism and have viewpoints similar to those expressed by Keen and Carr with regards to the indiscriminate blending of author and audience and the potential confusion that may result. If we accept that there is some validity in both points of view, we should feel compelled to explore the ways in which educators can work with (rather than fight against) what learners bring to educational pursuits so that their formal learning experiences afford them with an improved ability to evaluate and contribute at a more meaningful level. Perhaps now the challenges are:

1. how to find ways to embed or scaffold critical thinking through the use of technology in general, and Web 2.0 tools and emerging technologies in particular;
2. how to best assist our learners to be effective participants in the participatory society and to add value to the world they are living in; and
3. how to advance distance education and enhance practice.
Shirky (2008a) states that “the physics of participation is more like weather than gravity. All the forces combine.” It’s a quote that evokes images of chaos: powerful but complicated patterns with unpredictable global consequences, compared to what he seems to see as our previous “what goes up must come down” way of looking at the world. Applied to distance education, if even a small part of what Shirky is imagining about this change is true (for instance, if we see a truth in his observation that the online world has flipped us from “filter then publish” to “publish then filter”), then it seems clear that teaching and learning must also be in transition. Wesch (2008) goes as far as to say that his every assumption about information and learning was shattered because of 2.0. *Shattered* is a very strong word, implying destruction, yet it is clear that in his own work, he has found a way to pick up the pieces. As distance educators, can we see any shattered pieces and find delight that some of our constraints have been lifted so we can refocus, rebuild, and reinvent?

The Wesch (2008) lecture at the University of Manitoba, “A portal to media literacy,” is an excellent place to start thinking about reinventing ourselves within the distance education context. Wesch speaks in a lecture hall and bases his discussion of traditional education on that physical environment. He describes the hall as a place designed to fit a model of learning that incorporates the following beliefs:

1. To learn is to acquire information.
2. Information is scarce (so a place must be created where an expert can convey information to a large group).
3. The authority of the expert must be followed (that is why the expert is at the front of the room with everyone else facing him/her).
4. Authorized information is beyond discussion (so the chairs are in fixed positions and learners don’t turn to talk to each other).

Wesch then describes varying interactions with learners, including using discussions and wikis to solicit their opinions, and his findings that learners no longer believe in the above assumptions. He concludes that there is a serious crisis of significance. His answer is to encourage
learners to work on collaborative projects, and to use media tools for the making of meaningful connections with personal relevance. Assessment should be based on a view of whether and how learners have made those personally relevant connections rather than on the recitation of factual information.

Looking at the problems Wesch identifies, viewed in the context of the potential of Web 2.0 Distance Education, gives us a hopeful perspective regarding much of what is disengaging to lecture-hall learners in the information era. Distance Education has already taken important steps towards providing rich and relevant learning environments through the new tools.

Table 3.1

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<th>Wesch describing the lecture hall:</th>
<th>Contrasting concepts from our online Distance Education experience:</th>
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<tr>
<td>To learn is to acquire information.</td>
<td>To learn is to achieve learning outcomes, which may include gathering, analyzing, and evaluating ideas and building upon them to create new ideas and products.</td>
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<tr>
<td>Information is scarce (so a place must be created where an expert can convey information to a large group).</td>
<td>The online instructor is a facilitator, but does not lecture. Readings, videos, cases, etc., are provided, but there is an expectation that learners will find and share additional sources of information.</td>
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<tr>
<td>The authority of the expert must be followed (that is why the expert is at the front of the room with everyone else facing him/her).</td>
<td>There is no physical space so the attention is focused on whoever is providing the most relevant information at any given point in time.</td>
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<tr>
<td>Authorized information is beyond discussion (so the chairs are in fixed positions and learners don’t turn to talk to each other).</td>
<td>There are no chairs, but we have provided online discussion forum areas, wikis, chat rooms, etc., for learners to share ideas.</td>
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How are we transitioning to a new model of distance education? Largely through the use of online media with appropriate pedagogies and ways of thinking about education and learning. To Wesch, media literacy is an important key to effective education in the Web 2.0 learning environment. He states, “There are no natives.” Given that the online media environment is largely new to both educators and learners, Wesch suggests that we must not assume students are media literate. As an example, he mentions that a large proportion of his students did not know that Wikipedia was editable and many had never edited a wiki of any sort. And since emerging media and new tools are appearing nearly every day, media literacy strategies are more important than specific details about specific platforms. Other authors agree: Alexander (2008) argues that higher education must rethink the definition of literacy, “if we want our students to engage the world as critical, informed people, then we need to reshape our plans as that world changes” (p. 200). Wesch (2009) speaks of critical analysis and metacognition and of ways in which he engages students to create notes collaboratively, all related to his view that it’s important to prepare students to create content in and for a world that is both “download and upload.” Based on what his students are telling him, he believes that discussion (in our view, critical discussion or true dialogue; see chapter 14), rather than information transmission, is a key factor for engagement, and states that “the focus is not on providing answers to be memorized, but on creating a learning environment more conducive to producing the types of questions that ask students to challenge their taken-for-granted assumptions and see their own underlying biases” (paragraph 28).

How does the key idea of critical discussion, of engaged learning through posing questions and discussing ideas, position distance education? The early history of distance education was often a story of isolation (Sherry, 1996). Many who lived in areas too remote for schools to be accessible, were too ill, or could not afford to attend regular classes could learn alone, with workbooks and assignments exchanged through postal mail. An occasional telephone conversation with an instructor might have been included, but solitary learning was a fundamental and central feature of the early “correspondence” model. It seemed
that the correspondence model was accepted as satisfactory and generally seen as second-best when compared to face-to-face learning. For instance, Garrison wrote in 1990 that the quality of the educational process depended upon two-way communication and he asserted that without connectivity, distance learning “degenerates” into the correspondence course model of independent study. The earliest distance education technologies were unidirectional and asynchronous (e.g., radio and broadcast television) and did not incorporate interaction (see chapter 2). When technologies able to diminish isolation and provide interaction opportunities became available (e.g., Scardamalia & Bereiter, 1994), distance learners and educators felt excited. Distance education may be well positioned to be at the forefront of learning via Web 2.0, simply because there is little nostalgia for the early ways of teaching, studying, and learning in isolation. Having few compelling reasons to hold on to old methods does not mean that we don’t face substantial hurdles in learning to harness the new possibilities; rather, it means that we need to envision new solutions for the current and future challenges.

There are more ways than one to achieve a learning outcome

Those distance educators familiar with the newer LMS environments (e.g., Moodle, BlackBoard) have probably incorporated discussion forums and collaborative assignments into their courses and may believe that our environments are (a) better than correspondence courses, and (b) not as limiting as a lecture hall. Hopefully, many of us are looking for ways to capitalize on this, to exploit the potential of the technology even further. Does our curriculum allow for utilizing technology to engage learners? Curricula may not always explicitly utilize technology in such ways, but there are more ways than one to achieve a learning outcome. Are we engaging learners by ensuring their learning is personally relevant? If not, could blogging or building a wiki for a real audience assist with this? Or, would it seem relevant for teams of learners to contribute to their favourite topic on Wikipedia, after researching the history trail on that topic to see how it has evolved? Do we assess on the basis of meaningful connections? Or would it make sense to ask
our learners to create an online portfolio that demonstrates how they connect ideas? Should we view our learners’ preparatory work done in collaborative bookmarking sites as evidence of a process used for connecting ideas? By the end of their distance education experience, will learners internalize and exhibit an enhanced ability to contribute to what John Seely Brown (2008) would call an “open-source culture,” or create more of what Putnam (2000) would refer to as “social capital”? Or should we ask learners to launch a campaign on a social networking site to solve a complex societal problem as proof of the concept that online engagement can make a difference in the real world?

What about the risks suggested by the critics?

Shirky (2007) counters Carr’s argument (that we are not reading as deeply in the era of abundance) by stating that “every past technology I know of that has increased the number of producers and consumers of written material, from the alphabet and papyrus to the telegraph and the paperback, has been good for humanity.” Although Shirky sees Web 2.0 and information abundance as providing an opportunity for us to create and solve problems using collective cognitive surplus, Keen worries that we will falter by having too much freedom and too much access to information not created by recognized experts. Without sarcasm, Shirky agrees that Keen poses a hard question that must be answered: “What are we going to do about the negative effects of freedom?” Andy Carvin (2008) makes a similar suggestion when asking educators to avoid the “wide-eyed cheerleader” point of view and recognize the challenges.

Part of the solution may come from the technology itself. In the near future, there may well be technologies that evolve to provide authority to certain information. For example, Internet founding father, Tim Berners-Lee (2008, interviewed by Ghosh) is working on a project to provide scientific websites with reliability ratings, something he sees as being crucial for particular types of content (e.g., medical information/advice). But in general, as Keohane (2008) notes about Wikipedia, and by association Web 2.0, user-generated content is largely self-correcting. This point is profoundly important to the discussion.
In many ways the critics are calling for critical thinking and a type of virtual “street smartness.” What is required are ways to ensure that user self-correction is ongoing and that users keep track of where any particular piece of information might be in that self-correction process (e.g., the first iteration of a Wikipedia article may be suspect; after a thousand edits, it may well be a highly reliable source). Without that awareness, the perils are indeed real. With awareness, the potential, in the view of all but the harshest critics, could be truly amazing. Whatever the case, there is probably no turning back. While recognizing and respecting the concerns of the critics, we should move forward with a spirit of adventure, applying our imagination and inventiveness to authentic questions.

It has long been discussed in K–12 education that learning should be authentic (e.g., Brown, Collins, & Duguid, 1989). Instead of merely studying history, learners should become historians, emulating the research techniques used by experts. They should learn science by doing science, and so on. We believe that authentic learning is increasingly made possible by the participatory nature of the Web 2.0 environment. If, as critics such as Carr, Keen, and others suggest, the inability to filter is one of the greatest arguments for avoiding Web 2.0 sources of information (thus staying with the model of “experts only” as content providers), then authentic learning provides a strong counterargument. When a consumer knows what’s involved in creation, and is, in fact, a creator able to use the same techniques that experts use, there is a much smaller possibility that he or she will ever be misled. Authentic learning requires critical thinking based on experience. A simple example relates to image editing software. If you’ve ever used a digital image editing tool to delete, add, and replace people’s heads and bodies, you know how easy it is to create a pictorial illusion; thus, you may be much more skeptical when you see images on the Web. Critical thinking skills become even more important in a world where professionals can create illusions such as those used in the food and fashion industries (e.g., http://tinyurl.com/56uefl).

Downes (2008) notes that the focus of the personal learning environment (chapter 9) “is more on creation and communication than
it is consumption and completion…. We have seen the emergence of a new model, where education is practiced in the community as a whole, by individuals studying personal curricula at their own pace, guided and assisted by community facilitators, online instructors and experts around the world.” These views are echoed by Brown (2008), who states that “social learning concerns not only ‘learning about’ the subject matter but also ‘learning to be’ full participants in the field.” If you have been part of a community on a social networking site, asked or answered a question in an online forum, or built something in a virtual world, you’ve engaged in authentic learning and interactions that may help you interpret and filter information from similar contributors. You have harnessed your own personal learning environment.

Conclusion
Years ago, we heard about young people in China using fax machines to get information out beyond national borders (May, 1999). In recent years we have seen numerous examples where the combination of purpose or need with the use of social media and new Internet-based collaborative tools have significantly impacted world events and ways that people perceive these events.

The historic election of Barack Obama, whose successful campaign was driven by a Web 2.0 engine (an innovative Internet fundraising system that eventually attracted more than three million donors [Lister, 2008]), is one example. The fact that social software generated an unprecedented broad base of small donations indicates a new democratization of how political messages are given and received, and we are convinced that it reflects something truly disruptive about the core of Web 2.0 that confirms our belief regarding its impact in education and beyond.

News of the 2009 Iranian elections and the subsequent protests permeated Twitter for weeks. Hashtags were created and circulated, Twitter avatars were given a green tint to show solidarity with and support for the protesters, and some people even changed their Twitter profiles, claiming to be in the Iranian timezone in hopes that would
make it more difficult for Iranian authorities to use tweets to identify protest organizers.

Web 2.0 technologies serve to easily and democratically connect people who may have previously had little or no opportunity to connect with each other, and this can occur regardless of the level of expertise of the participants. Such connections, based on interest and passion, foster new roles for learning, teaching, knowledge creation and knowledge consumption, supporting the social learning described by Brown and Adler (2008), who observe that “we participate, therefore we are” (p. 18) and describe projects such as the Faulkes Telescope project, which allows distant learners to “access scarce high-level tools” and “collaborate with working scientists” (p. 24).

As distance educators we can take on multiple roles through Web 2.0. Our learners, and the general public, can also take on multiple roles. Perhaps Web 2.0 and whatever comes next will enable us to reinvent our learning environments so that they are dynamically constructed with our learners and can include the greater public to become engaging and collaborative places of ongoing formal and informal personalized learning. We have exciting and fulfilling times ahead if we can adjust and participate.

NOTES

1 Regarding television, Shirky notes that U.S. television viewers spend “100 million hours every weekend, just watching the ads.” (http://www.shirky.com/herecomeseverybody/2008/04/looking-for-the-mouse.html). A similar calculation based on the time a Canadian audience of 100,000 (probably only a portion of the total) spends watching commercials during a single hockey game would yield twenty-five full-time employees working for an entire year.

2 Linux is open-source software that was developed based on suggestions solicited through an early bulletin-board style discussion forum, and in Shirky’s words it has “single-handedly kept Microsoft from dominating the server market” (p. 238).

3 Regarding television, Shirky notes that in the U.S., it’s [What is? Need a clear subject and a more precise verb. Should be “an audience of 100,000 spends” or something?] “100 million hours every weekend, just watch
ing the ads." (http://www.shirky.com/herecomeseverybody/2008/04/looking-for-the-mouse.html). A similar calculation based on the time a Canadian audience of 100,000 (probably only a portion of the total) spends watching commercials during a single hockey game would yield twenty-five full-time employees working for an entire year.

4 Dede (2008) also views the new learning styles as having some profound differences that need to be accommodated, while also noting that oversimplification is possible when considering these learners.

5 Mark Bullen maintains a blog called Net Gen Skeptic (http://www.netgenskeptic.com) where he references the recent OECD report, stating “there is not enough empirical evidence yet to support that students’ use of technology and digital media is transforming the way in which they learn, their social values and lifestyles, and finally their expectations about teaching and learning in higher education.”

        And in the blog, Bullen mentions that “the report does conclude that students in higher education are heavy users of digital media and that they favour the use of technology but that they value technology use in education for its ability to improve access, convenience and productivity, not to radically change teaching and learning.”

6 The distinction between face-to-face and distance education is becoming narrower. Integration of technology in the traditional classroom has allowed traditional classes to move to a hybrid model while distance educators have increasingly incorporated synchronous sessions.

7 Sir Ken Robinson says that “all the schools I know that are great have something in common — they all have great teachers and they have a commitment to the personal development of each of the pupils in the school. And that’s easily lost in a culture of standardizing.” (TEDBlog. http://blog.ted.com/2009/08/ted_and_reddit_1.php)

        Liston et al. (2009) refer to teachers working in the context of the U.S. No Child Left Behind Act, stating “greater emphasis is placed on preparing teachers who can get students to pass states’ high-stakes assessments. Teacher preparation time is limited, and credit hours sometimes drastically reduced. Time spent has to be justified carefully and usually with an eye to K–12 student test scores” (p. 108).

8 One of the authors of this article has a personal recollection of the excitement of attending a training session showcasing Scardamalia and Bereiter’s (1994) CSILE project as a model for what was possible in K–12 distributed learning.
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