

Future Learning Landscapes: Transforming Pedagogy through Social Software

by Catherine McLoughlin and Mark J. W. Lee

In both mainstream society and education, [Web 2.0](#) has inspired intense and growing interest, particularly as wikis, weblogs (blogs), really simple syndication (RSS) feeds, social networking sites, [tag-based folksonomies](#), and peer-to-peer media-sharing applications have gained traction in all sectors of the education industry (Allen [2004](#); Alexander [2006](#)). Also referred to as the "Read-Write Web" (Richardson 2006) because it goes beyond the one-way provision of downloadable content by allowing users to become contributors, Web 2.0 allows customization, personalization, and rich opportunities for networking and collaboration, all of which offer considerable potential for addressing the needs of today's diverse student body (Bryant [2006](#)).

Many higher education institutions are discovering that new models of teaching and learning are required to meet the needs of a generation of learners who seek greater autonomy and connectivity as well as opportunities for socio-experiential learning. In contrast to earlier e-learning approaches that simply replicated traditional models, the Web 2.0 movement with its associated array of [social software](#) tools offers opportunities to move away from the last century's highly centralized, industrial model of learning and toward individual learner empowerment through designs that focus on collaborative, networked interaction (Rogers et al. [2007](#); Sims 2006; Sheely [2006](#)). Such developments are providing the foundations for and shaping the contours of a new learning landscape, which we call *Pedagogy 2.0*. Pedagogy 2.0 integrates Web 2.0 tools that support knowledge sharing, peer-to-peer networking, and access to a global audience with socioconstructivist learning approaches to facilitate greater learner autonomy, agency, and personalization.

Teaching and Learning in the Web 2.0 Era

Traditional approaches to teaching and learning are typically based on prepackaged learning materials, fixed deadlines, and assessment tasks and criteria defined by teachers. Such characteristics often continue to inform course design even when instructors employ online technologies such as learning management systems ([Exhibit 1](#)). The reality, however, is that today's students demand greater control of their own learning and the inclusion of technologies in ways that meet their needs and preferences (Prensky [2005](#)). In their use of the Internet and the World Wide Web, these students are no longer passive consumers but active producers of knowledge (Klamma, Cao, and Spaniol [2007](#)). As members of the open culture of Web 2.0, they are finding new ways to contribute, communicate, and collaborate using a variety of tools that empower them to develop and share ideas. [The Pew Internet & American Life Project](#) reports that approximately 50% of U.S. teens—12 million youth—create their own online content through blogs, personal Web pages, and remixing (Lenhart and Madden [2005](#)). The most popular and fastest growing Web sites on the Internet, such as [YouTube](#) and [MySpace](#), can attribute their success to this generativity.

The proliferation of these tools and technologies provokes us to consider how new modes of community-based sharing and content creation might be applied to the more formal learning spaces of colleges and universities (Berg, Berquam, and Christoph [2007](#)). Tools like blogs, wikis, media-sharing applications, and social networking sites can support and encourage informal conversation, dialogue, collaborative content generation, and knowledge sharing, giving learners access to a wide range of ideas and representations. Used appropriately, they promise to make truly learner-centered education a reality by promoting learner agency, autonomy, and engagement in social networks that straddle multiple real and

virtual communities by reaching across physical, geographic, institutional, and organizational boundaries.

New Forms of Participation: How Social Software Tools Empower Users

The inventor of the Web, Tim Berners-Lee, foresaw the development of an active suite of tools that would allow much more than passive consumption of downloaded information: "I have always imagined the information space as something to which everyone has immediate and intuitive access, and not just to browse, but to create" (2000, 216). Social software tools make it easy to contribute ideas and content, placing the power of media creation and distribution into the hands of "the people formerly known as the audience" (Rosen 2006). This potential for generativity and connectivity prompts us to think carefully about how we conceptualize the dynamics of student learning and about what learning outcomes are relevant in the context of the broader societal changes that form the backdrop of the Web 2.0 revolution.

Social software tools can be effectively integrated into both face-to-face and online environments; the most promising settings for a pedagogy that capitalizes on the capabilities of these tools are fully online or blended so that students can engage with peers, instructors, and the community in creating and sharing ideas. In this model, some learners engage in creative authorship, producing and manipulating digital images and video clips, tagging them with chosen keywords, and making this content available to peers worldwide through [Flickr](#), MySpace, and YouTube. Others engage in "personal publishing" (Downes 2004, 18), writing blogs and creating wiki spaces where like-minded individuals comment on, share, and augment material, creating a new genre of dynamic, self-published content. Such activities are less controlling and enable greater student autonomy than models of learning in which prepackaged content dominates.

Student-centered tasks designed by constructivist teachers reach toward this ideal, but they too often lack the dimension of real-world interactivity and community engagement that social software can contribute. The challenge is to enable self-direction, knowledge building, and learner control by offering flexible options for students to engage in learning that is authentic and relevant to their needs and to those of the networked society while still providing necessary structure and scaffolding.

Pedagogy 2.0: Teaching and Learning for the Knowledge Age

In striving to achieve these goals, educators need to revisit their conceptualization of teaching and learning ([Exhibit 2](#)). Educators need to engage meaningfully with the world in which students live and strive to integrate technologies and tasks that are meaningful and relevant to the demands of today's networked society (NMC 2007). The connectivist model is particularly promising in the context of Web 2.0.

[Connectivism](#) describes learning as a process of creating a network of personal knowledge, a view that is congruent with the ways in which people engage in socialization and interaction in the Web 2.0 world—a world that links minds, communities, and ideas while promoting personalization, collaboration, and creativity leading to knowledge creation. Such processes lead to an interdependence of ideas, individuals, communities, and information networks, all supported by technology; a Web 2.0 pedagogy will capitalize on this interdependence. We call this approach Pedagogy 2.0. Pedagogy 2.0 is defined by:

- Content:** [Microunits](#) that augment thinking and cognition by offering diverse perspectives and representations to learners and learner-generated resources that accrue from students creating, sharing, and revising ideas
- Curriculum:** Syllabi that are not fixed but dynamic, open to negotiation and learner input, consisting of bite-sized modules that are interdisciplinary in focus and that blend formal and informal learning;
- Communication:** Open, peer-to-peer, multifaceted communication using multiple media types to achieve relevance and clarity;

- **Process:** Situated, reflective, integrated thinking processes that are iterative, dynamic, and performance and inquiry based;
- **Resources:** Multiple informal and formal sources that are rich in media and global in reach;
- **Scaffolds:** Support for students from a network of peers, teachers, experts, and communities; and
- **Learning tasks:** Authentic, personalized, learner-driven and learner-designed, experiential tasks that enable learners to create content.

With this learner-based, communal, media-rich, flexible approach, Pedagogy 2.0 uses social software tools to enable the development of dynamic communities of learning through connectivity, communication, and participation.

A growing number of educators at postsecondary education institutions worldwide have already begun integrating Pedagogy 2.0 practices into their teaching ([Exhibit 3](#)). These exemplars illustrate how the principles of Pedagogy 2.0 can be applied in face-to-face classroom settings as well as in fully online, supplemented, and blended e-learning environments. The learning processes invoked in such examples demonstrate how the metaphor of learning as both participation and knowledge creation can be realized in practice and linked to connectivist theory.

What distinguishes these exemplars from activities in which students might participate in more traditional classroom settings is that in these instructors' courses, learners use social software tools to engage deeply with peers, instructors, subject-matter experts, and the community. Lee, Chan, and McLoughlin (2006), for example, describe how podcasts improve upon existing student-centered approaches like peer mentoring or tutoring by allowing students to express themselves through different modalities, to acquire digital literacy skills, and to exercise a greater degree of personal autonomy. The tasks depicted differ from prepackaged learning materials characteristic of traditional pedagogies because they allow personalization. Students use the tools to choose and create content by collaborating with peers and to connect their learning to a wider, often global, audience. Pedagogy 2.0 adds a further dimension to student-centered approaches by increasing the level of collaboration with experts and peer groups and by connecting students to an emerging global network or "architecture of participation" that transcends the walls of the institution (O'Reilly [2005](#), ¶2; see also Barsky and Purdon [2006](#), 65).

Challenges in Implementing of Pedagogy 2.0

While Pedagogy 2.0 offers much promise in achieving truly student-centered learning, there are a number of challenges facing its widespread adoption. For example, a number of issues are apparent in the production and use of learner-generated content. Prescribed content supplied by teachers or available online may have limitations, particularly if it limits active student involvement in the construction of their knowledge, but it does have a place in the learning process. Not all student-generated content, even if creative or innovative, will be valid and reliable. Instructors implementing Pedagogy 2.0 principles will need to work collaboratively with learners to review, edit, and apply quality assurance mechanisms to student work while also drawing on input from the wider community outside the classroom or institution (making use of the "wisdom of crowds" [Surowiecki 2004]).

Such practice is aligned with the principles of established student-centered pedagogical strategies, such as self and peer assessment (Boud, Cohen, and Sampson 1999). In support of these principles, Boettcher ([2006](#)) maintains that the key benefit of learner-generated content lies in the processes of creation, knowledge construction, and sharing as opposed to the end product itself:

A small portion of student performance content—if it is new knowledge—will be useful to keep. Most of the

student performance content will be generated, then used, and will become stored in places that will never again see the light of day. Yet . . . it is still important to understand that the role of this student content in learning is critical. The textbook content is the external body of knowledge; the student performance content is the content that shapes and molds the learner's *unique knowledge structures*. (¶2, emphasis added)

This understanding of student-generated content is also consistent with the constructivist view that acknowledges the learner as the chief architect of knowledge building. From this perspective, learners build or negotiate meaning for a concept by being exposed to, analyzing, and critiquing multiple perspectives and by interpreting these perspectives in one or more observed or experienced contexts. In so doing, learners generate their own personal rules and knowledge structures, using them to make sense of their experiences and refining them through interaction and dialogue with others.

Another issue that has been the subject of debate is the digital and generational divide between students and educators, characterized and perhaps exaggerated by the phrase "digital natives, digital immigrants" (Prensky 2001). The former group, referred to as "Millennials," "Net Generation," and "Generation Y," are portrayed by many authors (Prensky 2001; Oblinger and Oblinger 2005; Tapscott 1998; Howe and Strauss 2000) as a fully wired generation of students who expect an always-on learning environment and unlimited information technology services (Davis and Morrison 2007; Frand 2000). Other divides are evident. For example, the social networking site [Facebook](#) is now the most heavily trafficked Web site in the United States with over 8 million university students connected across academic communities and institutions worldwide. The majority of Facebook participants are students, and teachers may not feel welcome in these communities. Moreover, recent research has shown that many students perceive teaching staff who use Facebook as lacking credibility as they may present different self-images online than they do in face-to-face situations (Mazer, Murphy, and Simonds 2007). Further, students may perceive instructors' attempts to coopt such social technologies for educational purposes as intrusions into their space. Innovative teachers who wish to adopt social software tools must do so with these attitudes in mind.

Yet another divide can be seen in the rise of personal publishing media, free Web-based services, and open-source software tools. This is the era of "mix, rip, and burn," a phrase that implies that traditional models of scholarship, centered around peer review and evaluation by an elite hierarchy of experts, are no longer compatible with emerging forms of collaborative scholarship and self-expression. This situation has a number of consequences for both the production and consumption of content for educational purposes. As Hilton (2006) notes, "students want to be able to take content from other people. They want to mix it, in new creative ways—to produce it, to publish it, and to distribute it" (60). Such practices raise questions about originality versus academic integrity and give rise to concerns about copyright, ownership, and intellectual property.

Furthermore, although the advent of Web 2.0 and the open-content movement significantly increase the volume of information available to students, many higher education students lack the competencies necessary to navigate and use the overabundance of information available, including the skills required to locate quality sources and assess them for objectivity, reliability, and currency (Katz and Macklin 2007). A recently published EDUCAUSE Learning Initiative (ELI) white paper recommends that students develop sound information literacy skills in effectively finding, evaluating, and creating information (Lorenzo and Dziuban 2006). Beyond searching for and retrieving information, users need to employ strategies of contextualization, analysis, visualization, and synthesis that involve complex critical thinking skills (Lorenzo and Dziuban 2006). In combination with appropriate learning strategies, Pedagogy 2.0 can assist students in developing such critical thinking and metacognitive skills (Sener 2007; McLoughlin, Lee, and Chan 2006).

In describing the wave of social and technological changes affecting higher education, Hilton (2006) uses two competing metaphors to depict the Web 2.0 era: ". . . a perfect storm, born from the convergence of numerous disruptive forces . . . [and] the dawn of a new day, a sunrise rife with opportunities arising from

these same disruptive forces" (59). Taking the positive view, we believe that productive change is imminent. Student needs and demands in the networked society coupled with a new approach to pedagogy that leverages the flexibilities and creative options of Web 2.0 and social software tools can make the teaching and learning process much more dynamic, creative, and generative.

Conclusion

We envision that social technologies coupled with a paradigm of learning focused on knowledge creation and community participation offer the potential for radical and transformational shifts in teaching and learning practices, allowing learners to access peers, experts, and the wider community in ways that enable reflective, self-directed learning. The directive for the teacher to be a "guide on the side" as opposed to a "sage on the stage" (King 1993; Doolittle 2003) has been with us for many years, but Web 2.0 equips us with new ways in which to realize this goal while continuing to recognize the role of the teacher as an expert.

Eventually, teachers and administrators will have difficulty defending traditional pedagogies from the challenge of new perspectives toward learning. We believe that the concept of Pedagogy 2.0, inspired and underpinned by the knowledge-creation metaphor of learning and the theory of connectivism, signals a movement away from a teacher-centric pedagogy to one emphasizing learner-directed activity and content creation. This is of key significance in a postsecondary education climate where there is likely to be continued blending and merging of informal and formal learning, where the value of textbooks and prescribed content is already being questioned (Fink 2005), and where the open-source and open-content movements, exemplified by projects like MIT's [OpenCourseWare](#) and [MERLOT](#), are finally being recognized, supported, and accepted (Beshears 2005). By capitalizing on personalization, participation, and content creation, existing and future Pedagogy 2.0 practices can result in educational experiences that are productive, engaging, and community based and that extend the learning landscape far beyond the boundaries of classrooms and educational institutions.

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Note: This article was originally published in *Innovate* (<http://www.innovateonline.info/>) as: McLoughlin, C., and M. Lee. 2008. Future learning landscapes: Transforming pedagogy through social software. *Innovate* 4 (5).
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