

WEB 2.0 IN SCHOOLS: STATUS, ISSUES, PROSPECTS

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The term “Web 2.0” first appeared in a paper by Darcy DiNucci in 1999, but use was not widespread until the first Web 2.0 conference in 2004, sponsored by O’Reilly Media. While there are Internet precedents for the types of applications that fall under the heading of Web 2.0, there has been a rapid proliferation of Web 2.0 type applications in the last few years. Web 2.0 can be defined as the set of Internet applications that allow participatory involvement, collaboration, and interaction among users. Web 2.0 provides formats that enable users to collaborate and to create and share content. The Web 2.0 applications most relevant to education include: [wikis](#), [blogs](#), [collaborative learning games](#), [social networking](#), [virtual reality](#), posting of [video/pictures/music/stories](#), [collaborative tagging](#), and [polling](#).

Surveys conducted by the [National School Boards Association](#) (NSBA) in 2007, the [Pew Internet and American Life Project](#) in 2009, and by [Common Sense Media](#) in 2009 reported that Web 2.0 is a pervasive feature in the lives of today’s children. The Pew survey found that 64% of all online teens use the Web as a venue for social interaction to share artwork, stories, video, create Web sites for groups they work with, blog, maintain an online journal, remix content, and to participate in networks of friends. The NSBA survey reported that 21% of teens with access to social networking site post messages daily,

and the Common Sense Media survey found that 22% of teens use their social networking site 10 or more times a day. These studies are several months to three years old; it is likely that current statistics would be higher. In the earlier days of social networking there were no social networking sites for kids younger than teenagers, but there are now commercially operated social networking sites for very young children, such as [Club Penguin](#) and [Webkinz](#).

["Living and Learning with New Media: Summary of Findings from the Digital Youth Project"](#), by Mizuko Ito and colleagues, provides a vivid picture of the use of Web 2.0 in the lives of children, as a result of hundreds of interviews, more than five thousand hours of observations, and numerous other data collection procedures. The opening words of the report describe its main finding succinctly:

Social network sites, online games, video sharing sites, and gadgets such as iPods and mobile phones are now fixtures of youth culture. They have so permeated young lives that it is hard to believe that less than a decade ago these technologies barely existed. Today's youth may be coming of age and struggling for autonomy and identity as did their predecessors, but they are doing so amid a new world for communication, friendship, play and self expression. (Pg. 1)

Applications such as My Space, Twitter, and Facebook have been the most conspicuous Web 2.0 applications, and initially their users were teenagers. However, the Pew survey reported that adult usage of social networks is now growing faster than teen usage. Far from being a "kid thing" Web 2.0 is having wide and deep cultural impact ranging across such fields as [health care](#), [science](#), [journalism](#), [politics](#), [business](#). Although the [Horizon Report](#) considers collaborative environments, social networking, and mobile

technologies to have critical implications for schooling, many school districts are wary or opposed to their use in their schools.

In his paper, "[Confronting the Challenges of Participatory Culture: Media Education for the 21st Century](#)" Henry Jenkins characterizes the culture that the use of new media has stimulated as "participatory culture." Barriers to artistic, intellectual expression and dissemination have been lowered, and opportunities for civic engagement, peer-to-peer learning, informal mentorship, and collaborative social engagement and problem solving have been significantly expanded.

New digital media has important implications for what, where, and how learning occurs in contemporary society, and there is a rich body of literature developing around this topic. In "[Learning: Peering Backward and Looking Forward in the Digital Era](#)" Weigel, James, and Gardner of Harvard's Project Zero contend that after millennia of thinking about teaching and learning in one way a new way of thinking about learning is emerging. "As the new digital era progresses, learning may be once more individual (contoured to a person's own style, proclivities, and interests) yet more social (involving networking, group work, the wisdom of crowds, etc.)." (Pg. 2) In Greenhow, et.al., "[Learning, Teaching, an Scholarship in a Digital Age: Web 2.0 and Classroom Research: What Path Should We Take Now?](#)", the authors describe the "digital disconnect" of today's students. They have "more choices about how and where to spend their learning time (e.g., in online settings or in private, public, or home school options) than they did ten years ago. They use Web 2.0 in their daily lives and believe that such use would enable them to be more engaged in their work at school." (Pg. 247). Highly effective informal out-of-school learning opportunities are proliferating.

Chris Dede describes [“A Seismic Shift in Epistemology”](#) that is causing a displacement of the “classical” perspective of the nature of knowledge with a “Web 2.0” perspective. In the classical perspective, knowledge is produced by credentialed experts and resides in authoritative sources. The Web 2.0 conception of knowledge challenges all of these features. Fundamental ideas about the nature of knowledge have critical implications for the content of the curriculum.

[A Survey of K-12 Educators on Social Networking and Content Sharing Tools](#) in 2009 found that 61% of teachers and 51% of principals were members of a social networking group. An overwhelming percentage of them (86%) were members of Facebook. (Page 6) Considerably fewer were familiar with social networking groups focused on education, such as edWeb (20%), Classroom 2.0 (18%), or Ning in education (8%). (Pg. 7) The perspectives of educators about social networking for teaching and learning may be formed, to a considerable extent, on their personal experience with Facebook rather than with social networking sites designed specifically for educational uses. Teachers and principals themselves recognize that “they are behind the times, that their students communicate with these tools and [that] educators need to learn how to integrate SN [Social Networking] and content-sharing tools into teaching.” (Pg. 15) Many reports and experts contend that more and better preservice and inservice professional development for teachers is needed.

A Consortium for School Networking (CoSN) Survey [“Leadership for Web 2.0 in Education: Promise and Reality”](#) conducted with support from the John D. and Catherine T. MacArthur Foundation found that superintendents, curriculum directors, and technology administrators overwhelmingly (77%) believed in the educational value of Web 2.0. Superintendents and curriculum directors agreed on the five top ways that Web 2.0 could help improve

learning. They were (in order of ranking): keep students interested and engaged in school; meet the needs of different kinds of learners; develop critical thinking skills; develop capabilities in students that can't be acquired through traditional methods; provide alternative learning environments for students.

Even though school district administrators acknowledged the critical need to use Web 2.0 to transform teaching and learning, few had begun to systematically research, plan, or implement effective uses of Web 2.0. Nor had they restructured their schools to enable participatory reform. More than 95% of district administrators said that Web 2.0 will require a new type of teacher training, 86% said that Web 2.0 will result in a blending between formal and informal learning, and 79% said that schools should take full responsibility for modeling Web 2.0 to deepen learning. To a considerable extent, the most effective uses of Web 2.0 are the province of individual pioneering teachers.

In ["Participatory Culture and Schools: Can We Get There From Here?"](#) I identified three themes to describe how school personnel approach the use of Web 2.0. The first is the "protect" theme. This orientation stems from concern over how to protect children from the deleterious consequences of the Web, such as sexual predators, inappropriate content, and cyberbullies. Another dimension of protection involves safeguarding instructional time from the distraction of students who text or check social networking sites during class. It is not unreasonable for school personnel, when they are operating *in loco parentis*, to protect kids or to be concerned about distractions. Yet, when protection becomes draconian prohibition, students are deprived of an array of valuable Web 2.0 learning resources.

The second theme is the “preserve” theme. This involves integrating Web 2.0 applications with the curriculum and pedagogy as they currently exist. For those who believe that teaching and learning in the schools is generally adequate, it is reasonable to see the task as integrating Web 2.0 into the existing program. Others may adopt this orientation because they believe natural evolutionary forces will lead to transformation change or because they believe major transformational change in schools is unlikely.

The third theme is the “progress” theme, or the discontinuous-change/disruptive-technology point of view, which has recently received lots of attention following last year’s publication of the book [*Disrupting Class*](#). This orientation does not derive from a sense that schools recently have become worse, but rather that schools need to adapt so that they will be compatible with a world changed by new media and the new ideas about the nature of schooling that new media has helped provoke. Discontinuous change does not entail a gradual evolutionary change, but rather a move that is more revolutionary. It entails a transformation of the structures, policies, practices, roles, and rules of organizations. Rather than moving further and faster along an existing path, disruptive change puts the organization on a new path.

While these three themes are not mutually exclusive, the disposition and actions of school personnel at the district, campus, or classroom level generally reflect one of these three themes as the dominant posture.

As the Ito et. al. report states, digital media/Web 2.0 is now a “fixture in youth culture.” This is undoubtedly the case for the lives of youths outside of school. Whether Web 2.0 will be a fixture in their learning at school is an open question. Among the issues that will play a part in how the saga of Web 2.0 unfolds in the schools are the following:

- [A 2008 report by the State Educational Technology Directors Association](#) indicates that most U.S. schools have inadequate bandwidth to accommodate new and increasing uses of new digital media and substantial improvements are needed.
- Cyberbullying, sexual predator activity, and other unwelcome personal encounters do happen and are problems that need to be addressed; however, the NSBA study, mentioned above, found that educational leaders considerably overestimate the prevalence of these problems.
- [“Web 2.0 Weds the Cell Phone”](#) describes the increasing use of small, powerful wireless digital appliances with Web 2.0 applications by young children and teens. Kids will use these devices in the same ways as they have used the malls, the telephone, and IM—to “hang out”—but these handheld wireless devices will also offer rich learning opportunities, as the paper developed by the John Ganz Cooney Center, [Pockets of Potential](#), describes in detail.
- While individuals entering teacher education programs will have considerable Web 2.0 experience, there is little reason to assume that they will be *de facto* competent in using Web 2.0 effectively in their teaching.
- A lot has been said and written about the need for teacher professional development in the use of Web 2.0. There is less said about the need for professional development of administrators, but the CoSN Web 2.0 report makes it clear that this is also much needed.
- There is no reason to expect that the use of Web 2.0 in schools throughout the U.S. will occur in a uniform way. The wide range of postures now taken by schools will likely continue into the foreseeable future. If present trends continue, some kids will have a richer learning environment before and after the school bell rings than while they are in the classroom.
- Peter Albion describes the two elements needed in teacher education: “applications to enhance learning in the process of teacher preparation or professional development and applications to classrooms where teachers will be expected to use Web 2.0 with learners.” There is little evidence that either of these elements is prevalent or mainstream in teacher education.

Key Questions

1. What actions need to be taken to make Web 2.0 enabled participatory/collaborative learning mainstream in preservice teacher education, both in pedagogical coursework as well as in the content areas?
2. Is it realistic to expect new teachers to be change agents for expanding the effective use of Web 2.0 applications in their schools? If so, what does that imply for competencies that new teachers need to acquire in their teacher education experience?
3. What can national or state professional teacher education organizations do to promote more and better use of Web 2.0 by teacher education faculty for use in their own professional growth and development?
4. Can sponsorship be found to provide a comprehensive national research project on the deployment and use of information and communications technologies in general, and for Web 2.0 in particular, in teacher education institutions in the U.S.?
5. How does the use of Web 2.0 in teacher education in the U.S. compare with its use in teacher education elsewhere in the world?