

## Chapter 5.16

# Implementing Collaborative Problem–Based Learning with Web 2.0

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### ABSTRACT

Educators face the challenge of keeping classroom learning relevant for a generation of students who have never known life without computers, cell phones, and email. With Web 2.0 technologies educators can easily mediate student-centered learning experiences that engage students collaboratively in problem-solving and critical thinking. This chapter describes how Web 2.0 technologies can supply communication tools and information resources that facilitate the application of a robust set of instructional methodologies in the K-12 classroom. When the pedagogical features of Web 2.0 technologies are used with problem-solving methodologies, teachers can create powerful student-centered learning experiences for educating students for the 21st century.

### INTRODUCTION

*An 8th grade science teacher, Ms. S, retrieves her MP3 player from the computer-connected cradle*

*where it's spent the night scanning the 17 podcasts she subscribes to. Having detected three new programs, the computer downloaded the files and copied them to the handheld. En route to work, Ms. S inserts the device into her dash-mounted cradle and reviews the podcasts, selecting a colleague's classroom presentation on global warming and a NASA conference lecture about interstellar space travel...*

*Meanwhile, social studies teacher Ms. L scans through sites tagged genetics in the school's social bookmark service. Her students may need quick access to them as they discuss genetic engineering current events during class... All assignments in Ms. L's class are turned in via blogs because she finds that their conversational nature encourages students to think and write in more depth than traditional formal essays or short answer assignments. Another advantage of receiving assignments in blog format is that both she and her students can subscribe, which means all of the students' blogs appear in her aggregator, and students can reap the benefits of seeing each other's work.*

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*A few doors down the hall, veteran English teacher, Mr. P, is reviewing a new batch of student wikis. In an effort to help the students become better communicators, he never provides study guides for tests, instead relying on students to construct their own study resources using their team wikis. He rewards teams that create the most useful/popular study guides. Mr. P uses a wiki tool installed on the school's network...*

From *A Day in the Life of Web 2.0* by David Warlick

Over the past decade and a half since the creation of the Internet and the World Wide Web the use of information technology has significantly increased in K-12 classrooms. As the Web continues to evolve, new Internet and Web technologies become facts of life for today's students. And as David Warlick (2006) indicates in *A Day in the Life of Web 2.0*, teachers are using Web 2.0 technologies in K-12 classrooms because it is compatible with the technology many students use on a daily basis through popular websites such as MySpace, Wikipedia and Flickr.

According to Lee Rainie, Director of the Pew Internet and American Life project, "an American teen is more likely than her parents to own a digital music player like an iPod, to have posted writing, pictures or video on the Internet, to have created a blog or profile on a social networking website like MySpace, to have downloaded digital content such as songs, games, movies, or software, to have shared a remix or 'mashup' creation with friends, and to have snapped a photo or video with a cell phone." (Rainie, 2006). Because of this daily high-level interaction that youth have with technology, educators face the challenge of keeping classroom learning relevant for a generation of students who have never known life without computers, cell phones, and email. Baird and Fisher (2005-2006) note that "neomillennial students expect interactive, engaging content and course material that motivates them to learn

through challenging pedagogy." Thus, the bar has been raised seemingly beyond the technological expertise of many educators for providing learning experiences that keep today's students interested and engaged.

The good news for educators is that the latest expression of the World Wide Web, known as Web 2.0, provides online information resources and communication technologies that are easier to use and simpler to implement, requiring far less technological expertise than the preceding generation of Internet applications. With Web 2.0 it is far easier for educators to mediate student-centered learning experiences utilizing the pedagogical features of these new technologies. For example, the social networking capabilities of Web 2.0 familiar to most students can promote student engagement in learning because students actively participate in constructing a learning landscape based on social interactions and information exchanges with peers (Baird & Fisher, 2005-2006).

Web 2.0 is a term used to describe Web technologies used to harness collective intelligence, provide interfaces and services across multiple devices, and enhance collaboration. Although the term, Web 2.0, suggests a new version or generation of the World Wide Web, in reality it refers to a re-visioning of the Web—what Downes (2005) characterizes not as a technological revolution but as a social revolution. Thus, Web 2.0 relates to new ways to use the Web rather than an update to the technical specifications of the Web. According to Downes, Web 2.0 represents a shift from an information-consumption medium to an information-creation platform: "In a nutshell, what was happening was that the Web was shifting from being a medium, in which information was transmitted and consumed, into being a platform, in which content was created, shared, remixed, repurposed, and passed along. And what people were doing with the Web was not merely reading books, listening to the radio or watching TV, but having a conversation, with a vocabulary consisting not just of words but of

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