Chapter 7
Teaching and Learning Information Technology through the Lens of Web 2.0

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ABSTRACT
Recent advances in Internet technologies, combined with a society that relies upon them, have brought about a new toolset for working and sharing on the World Wide Web. The term “Web 2.0” suggests an updated version of the Web, but really names a new genre of web applications, along with the technologies they rely on and the social content contain. Web 2.0 marks the evolution from a “one-way” Web filled with static content to a dynamic “read/write” Web that has become a platform promoting collaboration and communication, linking people as well as the digital information they share. This chapter applies a connectivist learning approach to creating authentic learning spaces for teaching Web 2.0 concepts in a first-year college information technology course. It suggests best practices for fostering learning by using Web 2.0 tools to create connections with people, ideas, and technology.

INTRODUCTION
Today’s “digital natives” grew up with the Internet; they embrace the social networking features that Facebook, MySpace, text messaging, and instant messaging provide (Prensky, 2001; Palfrey & Gasser, 2008; Tapscott, 1998; see also Chapter 16 in this book). Students today are always online, confident with using computers, and able to find what they need on the World Wide Web.

Advances in technology have changed the way many students learn. Siemens (2005) claims that in recent decades, “technology has reorganized how we live, how we communicate, and how we learn. Learning needs and theories that describe learning principles and processes, should be reflective of underlying social environments” (p. 3).

Many of today’s students have the basic media literacy skills required to participate in a Web 2.0 world. What some of them lack, however, is an understanding of the underlying foundations that make their everyday web activities possible.
The simple act of creating and sharing a video on YouTube requires basic skills in editing audio and video, understanding the need for data compression and appropriate file formats, file transfer protocol (FTP), and the notion of a web server to store multimedia on the Internet.

Web 2.0 technologies have changed the way students and their teachers use the Web, and they have also impacted how to teach about the Web. Drawing on experiences from an introductory information technology (IT) course, IT 101, at Bentley University in Waltham, Massachusetts, USA, where a connectivist approach was applied to create a learning space for teaching Web 2.0 concepts, this chapter describes several trends, technologies, and applications and how they may be used to foster student learning both using and about Web 2.0.

**CONNECTIVIST LEARNING AND WEB 2.0**

Siemens (2005) defines connectivist learning as learning “driven by the understanding that decisions are based on rapidly altering foundations. New information is continually being acquired” (p. 7). It is important to be able to distinguish between what is important and what is not, and understand how changes in information and technology may impact earlier learning and decisions. These are precisely the skills required of tomorrow’s knowledge workers. The culture of participation fostered in a rapidly changing Web 2.0-oriented environment supports such a style of learning required in this digital age.

Siemens (2006b) states that a decentralization of knowledge contributes to the enrichment of learning, giving more control to the end-user, so that learning becomes a process of gathering, adapting, and creating knowledge. This results in a challenge to authority, a need to be connected, and ultimately a desire to be able to make change. To fill this gap, Siemens proposes the theory of connectivism, which views learning as occurring in the process of creating connections between new ideas and experiences, an idea that is consistent with and appropriate in a Web 2.0 world.

Siemens (2006b, p. 31) identifies nine principles for connectivist learning:

1. Learning and knowledge require diversity of opinions to present the whole … and to permit selection of best approach.
2. Learning is a network formation process of connecting specialized nodes or information sources.
4. Knowledge may reside in non-human appliances, and learning is enabled / facilitated by technology.
5. Capacity to know more is more critical than what is currently known.
6. Learning and knowing are constant, ongoing processes (not end states or products)
7. Ability to see connections and recognize patterns and make sense between fields, ideas, and concepts is the core skill for individuals today.
8. Currency (accurate, up-to-date knowledge) is the intent of all activities.
9. Decision-making is learning. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

O’Reilly (2005) coined the term “Web 2.0” in recognition of new patterns in the ways people use the World Wide Web. According to him, the Web has become a platform for supporting applications that promote collaboration and sharing, providing rich user experiences on multiple devices. These have become possible because of increased availability of bandwidth and Internet access, advances in networking technologies,