

10

This chapter describes how Web 2.0 technologies, especially social software, can be used to support student self-regulated learning in higher education contexts. Selected examples that demonstrate how instructors can integrate social software into course design to facilitate student self-regulation are provided.

The Role of Web 2.0 Technologies in Self-Regulated Learning

Anastasia Kitsantas, Nada Dabbagh

Recent research shows that Web 2.0 technologies are not only shaping how college students connect to the world and each other but also are affecting their learning and performance (Smith, Salaway, and Caruso, 2009; Solomon and Schrum, 2007). For example, Web 2.0 social software tools, such as weblogs, wikis, and social networking sites, are enabling the creation of personal and social learning experiences that support knowledge building through social knowledge contexts and learning communities (Alexander, 2006). Additionally, some research evidence suggests that faculty can use social software tools to facilitate student self-regulated learning processes, such as goal setting, self-evaluation, and help seeking (Kitsantas and Dabbagh, 2010). However, purposeful differentiation among personal, social, and academic use of Web 2.0 technologies remains a challenge for both students and faculty, particularly in higher education contexts.

The EDUCAUSE Center for Applied Research (ECAR) study reports that while undergraduate students are simultaneously learning and using Web 2.0 technologies, they are not intentionally using them for academic goals (Smith and others, 2009). Additionally, the ECAR study revealed that only 33.8 percent of the students surveyed reported that their instructors provide them with adequate training regarding the effective use of technology for coursework. This finding suggests that there exists a need to inform instructors on both the benefits of Web 2.0 technologies and how to integrate them effectively into their teaching. Johnson, Levine, Smith, and Stone (2010) reaffirm this need by observing that digital media literacy

continues to be an important skill in every discipline and profession and that technology training is rare in academic programs, which does not help students develop the skills needed to use technology strategically for learning. Given this recent evidence, the purpose of this chapter is to describe how Web 2.0, particularly social software, can be used to enhance student self-regulated learning and to provide examples for how instructors can integrate social software in course design in order to promote these important self-regulatory skills.

What Is Self-Regulated Learning?

Self-regulated learning refers to the degree to which students are active and responsible participants in their own learning process (Zimmerman, 2008). Several processes are involved in effective self-regulated learning. *Goal setting*, one of the key processes of self-regulation, refers to specifying intended actions or outcomes. Setting long-term goals is important, but they must be linked to short-term goals to enhance student learning and motivation. Short-term goals provide the learner with direction and specific feedback. *Task strategies* are explicit and valuable methods for learning and influence learners' attributions of outcomes because attributions to strategy use imply that success and failure to learn is dependent on use of effective strategies rather than on other uncontrollable factors such as ability. *Self-monitoring* refers to observing and tracking performance and outcomes; *self-evaluation* refers to using standards to make self-judgments. Unsystematic self-monitoring prevents learners from adjusting their strategies optimally and from comparing self-monitored outcomes with their own standard or goal. Instead, learners may self-evaluate their outcomes using social comparative criteria, which lead to uncontrollable attributions. Finally, *adaptive help seeking* involves recognizing when help is needed to accomplish a task as well as being able to identify effective sources of help. Overall, engaging in these self-regulatory processes enhances students' motivational beliefs, learning, and performance (Zimmerman, 2008; Zimmerman and Kitsantas, 2005).

These self-regulatory processes are embedded into three sequential and cyclic phases: *forethought processes* (which precede performance, such as goal setting and planning), *performance processes* (which occur during the performance and include task strategies and self-monitoring), and *self-reflection processes* (which come after performance, such as self-evaluation and attributions). They are sustained cyclically by a self-regulatory feedback loop with self-reflection processes influencing forethought as a learner is attempting to master a goal. For example, self-regulated learners first would set strategic goals and then select appropriate task strategies to meet their goals. They also would systematically self-monitor and evaluate their progress toward achieving those goals. Depending on the self-evaluative judgments, they would then revise or continue using their previous task

strategies to facilitate the desired outcome. By engaging in these cyclical self-regulatory phases, students become more interested in the task and feel self-efficacious in their abilities to meet those goals successfully (Zimmerman, 2008).

What Is Web 2.0?

Web 2.0, also known as Read-Write Web, is the evolution of Web 1.0, which was a platform for *presenting* information. Web 2.0, however, has evolved into a platform for both presenting information and *participating* in creating information. Specifically, Web 2.0 is a collection of technologies and software applications that allow people to interact, collaborate, create, and share information with others. Although some debate about the overall definition of Web 2.0 exists, Norton and Hathaway (2008) suggest that it is important for the term to be understood as a concept as well as a set of tools. Namely, Web 2.0 encompasses concepts or themes such as openness, personalization, social networking, social presence, user-generated content, the people's Web, wisdom of the crowds, and others (Jones, 2008). It also is perceived as a set of tools or applications that support the dynamic nature of Web 2.0. The classification or categorization of these tools is continuously evolving. However, for the purpose of this chapter, we focus on social software applications of Web 2.0. *Social software* is defined broadly as software that supports group communication and interaction (Shirky, 2003). Educationally, social software is defined as software that supports community building, mentoring and personal learning assistance, collaborative learning, and complex group functions (Anderson, 2005).

Social software can be classified into three categories (Dabbagh and Reo, 2011): communication tools, experience- and resource-sharing tools, and social networking tools. Examples of *communication tools* include Web 2.0-enabled applications such as Google Wave and Gmail, Web conferencing tools including Adobe Connect, and VoIP (Voice over Internet Protocol) applications such as Skype. Examples of *experience- and resource-sharing tools* include applications such as WordPress and Twitter that enable blogging and microblogging; GarageBand and iTunes that enable the creation and publication of podcasts; Wiki software such as PBworks and MediaWiki that enable collaborative workspaces; media-sharing tools such as Flickr and YouTube; and online bookmarking tools such as Delicious. Examples of *social networking tools* include social networking applications such as Facebook, LinkedIn, Plaxo, Ning, and MySpace. Each of the applications or tools in these three categories has features that support social interaction through various processes, such as expressing individual identity, gaining awareness of the presence of others, establishing meaningful relationships, forming purposeful groups, and sharing experiences and resources publicly (Dabbagh and Reo, 2011). These categories

are not mutually exclusive. Instructors can select a mixture of social software tools that can help students become proactive learners.

Supporting Student Self-Regulation with Social Software: Selected Examples

Web 2.0 social software tools have significant potential to support student self-regulatory processes; however, empirical research in this area is very limited. Generally, social software tools allow students to interact with peers, which provide them with opportunities to give and receive social feedback as well as provide instructors with opportunities to model how a task should be performed. This information allows students to refine their performance efforts systematically, especially during the initial stages of learning a new task (Kitsantas and Dabbagh, 2010). Social software also allows instructors to guide students in online forums and help them track their progress toward mastery of tasks, which is critical in supporting student self-regulation. In order to demonstrate how instructors can use social software tools deliberately to support student self-regulation in their courses, we provide selected examples from each of the three social software categories: communication tools, experience- and resource-sharing tools, and social networking tools.

Communication Tools. Skype is a Web 2.0 communication tool that supports social interaction by enabling users to establish relationships and share experiences. More specifically, Skype turns a personal computer into a phone that allows users to make digital recordings of phone conversations that are useful for teaching and learning purposes. Faculty can develop assignments that require students to conduct and record interviews with domain experts from around the world for later analysis. This gives control of the learning experience to the students, motivating them to learn. Skype also can be used as a Web conferencing tool with both audio and video, enabling students in a classroom to participate in an interview, take notes, and ask questions (EDUCAUSE Learning Initiative, 2007). In terms of self-regulated learning, instructors can use Skype to provide one-on-one modeling, coaching, procedural guidance, and advice on how to complete specific learning tasks or assignments. Skype can also support student help seeking (Kitsantas and Dabbagh, 2010).

Experience- and Resource-Sharing Tools. With respect to experience- and resource-sharing tools, weblogs and wikis are two of the most prominent applications in this category. Weblogs and wikis support social interaction by enabling users to engage in identity building and to share experiences and resources publicly. Specifically, weblogs or blogs are a structured Web-based medium for creative expression and journaling. Writers can use blogs to reflect on or write viewpoints about whatever topic they choose and allow readers to comment on those reflections and opinions (Rosen and Nelson, 2008). From an educational standpoint, blogs

enable students to publish learning tasks and to receive feedback prompting revision through self-reflection (Jarvela, Naykki, Laru, and Luokkanen, 2007). Blogs also can be used to enhance understanding of learning content by capturing students' chronological reflections on readings and course topics, which enables self-monitoring and self-evaluation. For example, faculty can guide students to think about their learning processes by encouraging them to blog about what they have learned, how they have learned, and how to increase or improve their learning. This approach to learning not only encourages students to think about themselves as learners but also may prompt them to adopt more effective learning strategies. Specifically, when students perform guided reflections on their learning, they become more aware of their progress or pitfalls and begin to make attributions on what caused those outcomes. As a result, the instructor can encourage students to reflect on what other learning strategies to employ that may be more beneficial in increasing their chances of accomplishing a goal or task successfully. Blogging software also can be used as a platform for the development of electronic or digital portfolios, which have become an important performance-based assessment tool in all levels of education. *Digital portfolios* refer to a collection of electronic files and artifacts assembled by a student to demonstrate evidence of achievement and reflective practice.

A Wiki is an extremely flexible Web 2.0 technology that enables anyone with an Internet connection and a Web browser to create, access, and edit a Web site (Rosen and Nelson, 2008). Wikis typically evolve into a collection of Web sites and have a versioning capability that allows authors to retrieve older versions of the content if needed (EDUCAUSE Learning Initiative, 2007). In higher-education contexts, wikis have become an increasingly accepted instructional technology and can impact or support student learning, motivation, collaboration, and perceptions of technology. Overall, faculty can use wikis to engage students in collaborative projects that support the creation, editing, and management of content and enable peer and expert feedback. Wikis also can be used as a vehicle for integrating and elaborating on class notes in a course, which is an important task strategy for self-regulated learning (Hazari, North, and Moreland, 2009). Some research suggests that the use of weblogs and wikis can enhance students' learning experience as they plan, reflect, and design messages to publish (Norton and Hathaway, 2008). The processes of planning, reflecting, and performing are closely linked to self-regulated learning because students are prompted to think ahead about their task goals and to reflect on their progress.

Another Web 2.0 experience- and resource-sharing technology that supports the use of task strategies, particularly organizational strategies, is online bookmarking (Solomon and Schrum, 2007). For example, Delicious is a Web 2.0-enabled social software tool that allows users to store their bookmarks on the Web rather than on the desktop browser. This is

Table 10.1. Mapping Self-Regulatory Processes to Social Software Categories: Selected Examples

<i>Social Software Category</i>	<i>Instructional Examples</i>	<i>Self-Regulatory Process</i>
<i>Communication Tools</i> (e.g., Google Wave, Adobe Connect, Skype, and online office tools such as Google Calendar)	Use Web conferencing tools to help students set goals and provide feedback on assignments and course activities. Use online calendar-sharing tools such as Google Calendar to provide students a timeline of events, activities, and required course outputs.	Goal setting and help seeking Task strategies and self-monitoring
<i>Experience- and Resource-Sharing Tools</i> (e.g., WordPress, Twitter, PBworks, Flickr, YouTube, Delicious, GarageBand, and iTunes)	Encourage students to use blogging software such as WordPress for journaling. Encourage students to use online bookmarking tools such as Delicious to organize learning resources for an assignment. Encourage students to create a podcast using GarageBand or a video using YouTube to interact meaningfully with course content.	Self-monitoring and self-evaluation Task strategies
<i>Social Networking Tools</i> (e.g., Facebook, LinkedIn, MySpace, Plaxo, Ning)	Create a learning community using a social networking tool such as Facebook to sustain students' interest in the task by providing opportunities for students to connect with experts in the field. Encourage students to use the gift feature on Facebook to reward themselves after completing a specific goal.	Task interest Task strategies

important because users can access their bookmarks anywhere and anytime by using the Internet. Additionally, users can organize, categorize, and classify information in new ways using tags (e.g., keywords or descriptors), and they can share their bookmarks and search other people's bookmarks using these tags (Schachter, 2008). These processes support the Web 2.0 characteristic of filtering and remixing content dynamically and organically, which was not possible with Web 1.0 technology.

Social Networking Tools. Social networking tools, the third category of social software, includes applications such as Facebook and LinkedIn,

which also are known as social networking sites (SNS). SNS do much more than help users build a network of friends. They enable a connection among knowledge, community, and learning (Alexander, 2006). SNS have put more power into the hands of users, enabling them to create and share online identities, establish a social presence, determine what they can do with their information and who can see it, and collaboratively define standards for interaction within the different communities and networks generated (EDUCAUSE Learning Initiative, 2007). In terms of self-regulated learning, faculty can create informal learning groups using SNS such as Facebook and ask students to join these groups to collaborate on learning topics and relevant issues and build resources. Doing this creates a supportive learning environment that promotes students' motivational beliefs and task interest (Kitsantas and Dabbagh, 2010). Additionally, students can join several existing groups on SNS that align with their course topics, majors, or professions. Faculty also can encourage students to become members of such groups to expand their knowledge of the field of interest, interact with peers and experts, and become members of a community of practice that has lifelong learning implications. Table 10.1 provides specific instructional examples of how social software tools can be used to support student self-regulation.

Conclusion

Web 2.0 technologies and social software tools provide innovation in college teaching and learning contexts, particularly with regard to supporting student self-regulation. Although more research is needed in this area, it is clear that there exist unique instructional opportunities for each type of social software tool or application. However, identifying effective educational applications for these technologies is a challenge that higher education institutions must address through careful observation and monitoring of outcomes while ensuring that faculty have the training and resources to create learning environments that promote and support student self-regulation.

References

- Alexander, B. Web 2.0: A new wave of innovation for teaching and learning? *EDUCAUSE Review*, 2006, 41, 32–44.
- Anderson, T. Distance learning—social software's killer app? *Open and Distance Learning Association of Australia*. 2005. Retrieved July 2, 2008, from: http://auspace.athabascau.ca:8080/dspace/bitstream/2149/2328/1/distance_learning.pdf
- Dabbagh, N., and Reo, R. Back to the future: Tracing the roots and learning affordances of social software. In M.J.W. Lee and C. McLoughlin (eds.), *Web 2.0-based e-Learning: Applying Social Informatics for Tertiary Teaching*. Hershey, Pa.: IGI Global, 2011.
- EDUCAUSE Learning Initiative. *The seven things you need to know about*. . . . 2007. Retrieved January 15, 2010, from: www.educause.edu/7Things

- Hazari, S., North, A., and Moreland, D. Investigating pedagogical value of wiki technology. *Journal of Information Systems Education*, 2009, 20(2), 187–198.
- Jarvela, S., Naykki, P., Laru, J., and Luokkanen, T. Structuring and regulating collaborative learning in higher education with wireless networks and mobile tools. *Educational Technology and Society*, 2007, 10(4), 71–79.
- Johnson, L., Levine, A., Smith, R., and Stone, S. *The 2010 Horizon Report*. Austin, Tex.: New Media Consortium, 2010.
- Jones, B. *Interviews with 20 Web 2.0 Influencers: Web 2.0 Heroes*. Indianapolis, Ind.: Wiley, 2008.
- Kitsantas, A., and Dabbagh, N. *Learning to Learn with Integrative Learning Technologies (ILT): A Practical Guide for ACADEMIC Success*. Greenwich, Conn.: Information Age, 2010.
- Norton, P., and Hathaway, D. On its way to K-12 classrooms, Web 2.0 goes to graduate school. *Computers in the Schools*, 2008, 25, 163–180.
- Rosen, D., and Nelson, C. Web 2.0: A new generation of learners and education. *Computers in the Schools*, 2008, 25, 211–225.
- Schachter, J. Del.icio.us. In B. Jones (ed.), *Web 2.0 Heroes: Interviews with 21 Web 2.0 Influencers* (pp. 169–176). Indianapolis, Ind.: Wiley, 2008.
- Shirky, C. *Social Software and the Politics of Groups*. 2003. Retrieved from: www.shirky.com/writings/group_politics.html
- Smith, S. D., Salaway, G., and Caruso, J. B. *The ECAR Study of Undergraduate Students and Information Technology*. EDUCAUSE Center for Applied Research. 2009. Available from: www.educause.edu/ecar
- Solomon, G., and Schrum, L. *Web 2.0: New Tools, New Schools*. Washington, D.C.: International Society for Technology in Education, 2007.
- Zimmerman, B. J. Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, 2008, 45(1), 166–183.
- Zimmerman, B. J., and Kitsantas, A. The hidden dimension of personal competence: Self-regulated learning and practice. In A. J. Elliot and C. S. Dweck (eds.), *Handbook of Competence and Motivation* (pp. 204–222). New York: Guilford Press, 2005.

ANASTASIA KITSANTAS is a professor and coordinator of the Educational Psychology Program at George Mason University in Fairfax, Virginia.

NADA DABBAGH is an associate professor of instructional design and technology and chair of the Academic Technology Advising Committee at George Mason University in Fairfax, Virginia.