Tweeting the Night Away: Using Twitter to Enhance Social Presence

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ABSTRACT

To be truly effective, online learning must facilitate the social process of learning. This involves providing space and opportunities for students and faculty to engage in social activities. Although learning management systems offer several tools that support social learning and student engagement, the scope, structure, and functionality of those tools can inhibit and restrain just-in-time social connections and interactions. In this teaching tip, we describe our use of Twitter to encourage free-flowing just-in-time interactions and how these interactions can enhance social presence in online courses. We then describe instructional benefits of Twitter, and conclude with guidelines for incorporating Twitter in online courses.

Keywords: Social Presence, Teaching Presence, Cognitive Presence, Online Learning, Twitter, Social Interaction, Microblogging, Microsharing, Community Of Inquiry, Social Networking, Student Engagement

1. INTRODUCTION

Many online educators tend to design the scope, structure, and function of an online course based on the tools available within a learning management system (LMS); that is, an LMS (e.g., eCollege, Blackboard, WebCT, Moodle) can constrain how online educators design and develop their online courses (Lane, 2007; Morgan, 2003; Siemens, 2006). While adequate for some basic learning activities (e.g., information and document sharing, asynchronous and synchronous discussion, and assessment via quizzes), LMSs are modeled after classroom settings with drop boxes, grade books, announcements, and so on. What tends to be missing is the just-in-time, and sometimes playful, interactions that happen before and after class, during a break, and when students and faculty bump into each other between class meetings. Out-of-the-classroom interactions like these and many others have potential instructional value (Kuh, 1995) and can help strengthen interpersonal relationships between and among students and faculty that enhance the learning community inside the classroom.

In this teaching tip, we describe our use of Twitter—a Web 2.0, microblogging tool—to enhance social presence in an online course by providing a mechanism for just-in-time social interactions. We also touch on some other instructional benefits of using Twitter in online courses and conclude with guidelines to consider when using Twitter with students.

2. THE IMPORTANCE OF SOCIAL PRESENCE

> Learning is a very human activity. The more people feel they are being treated as human beings—that their human

> needs are being taken into account—the more they are likely to learn and learn to learn. (Knowles, 1990, pp. 129)

When we design and teach online, we build in authentic and relevant opportunities for our students to interact and connect not only with the content, but also with the instructor and each other (Dunlap, Dobrovolny, & Young, 2008; Dunlap, Furtak, & Tucker, 2009; Dunlap, Sobel & Sands, 2007). In fact, students see social interaction and connection as a foundational attribute of our courses. We attend to the "socialness" of the courses we design and teach because we subscribe to the theory that learning, as a human activity, occurs within a social context, with higher cognitive processes originating from social interactions (Vygotsky, 1978). We also believe that social interaction and connection has significant influence over student engagement.

A commonly used framework for "best practices" in undergraduate and graduate education, Chickering and Gamson's (1987) Seven Principles of Good Practice in Education, describes seven principles that faculty can embrace to improve education. Developed from a review of fifty years of educational literature, Chickering and Gamson's first principle is, "Encourages contact between students and faculty." This first principle is influenced by instructor immediacy behaviors and participant interaction, with both having a positive influence on student learning and course satisfaction (Arbaugh, 2001, 2005; Baker, 2004; Hiltz and Wellman, 1997; Swan, 2002). Contact between students and faculty in and outside of class is critical for student engagement because it influences student motivation and involvement. When faculty stay in touch with students through formal and informal communication and dialogue, students report that it helps them get through the rough times and keep on working. Knowing their instructors enhances students' intellectual commitment and encourages them to think about their own values and plans (Chickering and Ehrmann, 1996).

Social presence, along with cognitive and teaching presence, is well established in the online education literature as a way of thinking about social connection and interaction for student engagement in online courses. As a component of the Community of Inquiry framework (see Garrison, Anderson, & Archer, 2000), social presence refers to the "ability of participants in a Community of Inquiry to project their personal characteristics into the community, thereby presenting themselves to other participants as 'real people'" (Garrison, Anderson, & Archer, 2000, pp. 89). Originally developed to explain the effect telecommunications media can have on communication, social presence was used to describe the degree of salience (i.e., quality or state of "being there") between two communicators using a communication medium (Short, Williams, & Christie, 1976).

Social presence theory took on new importance with the rise of computer-mediated communication (CMC) and later online learning (Lowenthal, in press, 2009). Now a central concept in online learning, researchers have shown—to varying degrees—a relationship between social presence and student satisfaction (Gunawardena, 1995; Gunawardena and Zittle, 1997; Richardson and Swan, 2003), social presence and the development of a community of learners (Rourke, Anderson, Garrison, & Archer, 2001; Rovai, 2002), and social presence and perceived learning (Richardson and Swan, 2003). Because of results like these, researchers and practitioners alike continue to try out different ways to establish and maintain social presence in online courses. For instance, Aragon (2003) identified over a dozen different ways to create social presence in online courses (e.g., incorporating audio and video, posting introductions, frequent feedback). Others have looked at ways to create and maintain social presence by using tools outside of an LMS. For instance, DuVall, Powell, Hodge, and Ellis (2007) investigated using text messaging to improve social presence. Also, Keil and Johnson (2002) investigated using Internet based voice mail to increase social presence.

3. SOCIAL PRESENCE AND TWITTER

Although the typical LMS provides tools that—when used appropriately—can establish and increase social presence (e.g., asynchronous discussions, synchronous chat tools), the tools reside within the online system. Because students and faculty have to login and navigate to several different locations in the course to engage in discussion, collaboration, and sharing, the communication is sometimes forced and out of the context of day-to-day, hour-to-hour, and minute-to-minute experience. In other words, communication between and among students and faculty is scheduled based on when they have a moment to login to the LMS. This means that there are many lost opportunities during the day to interact and connect.

Another challenge of encapsulating all social interaction and connection opportunities within a LMS is that we tend to lose the informal, free-flowing, just-in-time banter and chit-chat that we have with students in our on-campus courses—the banter that helps us get to know each other, experience our personalities, and connect on a more emotional level. This sort of informal connection between and among students and faculty is one aspect of cultivating student engagement and social presence. Although we have tried to address this within the LMS by incorporating weekly fun activities (such as coming up with captions for goofy photos, or competing in online games), establishing discussion forums on non-academic topics, having students produce music playlists for the week, and the like, these strategies do not seem to do enough to enhance social presence. As a result, we have been looking for additional ways to enhance social presence.

And then came Twitter which immediately seemed like an additional way to enhance social presence. Twitter (see Twitter, n.d.) is a multiplatform Web 2.0, part social networking - part microblogging tool, freely accessibly on the Web (Stevens, 2008). Other popular Web 2.0 microblogging tools include Jaiku, Tumblr, MySay, and Hictu, and Edmodo. Twitter, however, is one of the most popular of these microblogging tools (Java, Finin, Song, & Teseng, 2007; McFedries, 2007) and, therefore, was our tool of choice because it is well-established, has a large and growing participant base, interfaces well with other Web 2.0 tools, and is easily accessible.

According to the Twitter website, *Twitter is a service for friends, family, and co–workers to communicate and stay*

connected through the exchange of quick, frequent answers to one simple question: ***What are you doing?*** (Twitter, n.d.) However, the people who participate in the Twitter community—people who are geographically distributed across all continents (with North America, Europe, and Asia having the highest adoption rate) (Java et al.,2007)—use it for more than providing updates on their current status.

In 140 characters or less, people share ideas and resources, ask and answer questions, and collaborate on problems of practice; in a recent study, researchers found that the main communication intentions of people participating in Twitter could be categorized as daily chatter, conversations, sharing resources/URLs, and reporting news (Java et al., 2007). Twitter community members post their contributions via the Twitter website (see Figure 1), mobile phone, email, and instant messaging—making Twitter a powerful, convenient, community-controlled microsharing environment (Drapeau, 2009). Depending on whom you choose to follow (i.e., communicate with) and who chooses to follow you, Twitter can be effectively used for professional and social networking (Drapeau, 2009; Thompson, 2007) because it can connect people with like interests (Lucky, 2009). And all of this communication happens in real-time, so the exchange of information is immediate (Parry, 2008a; Young, 2008).

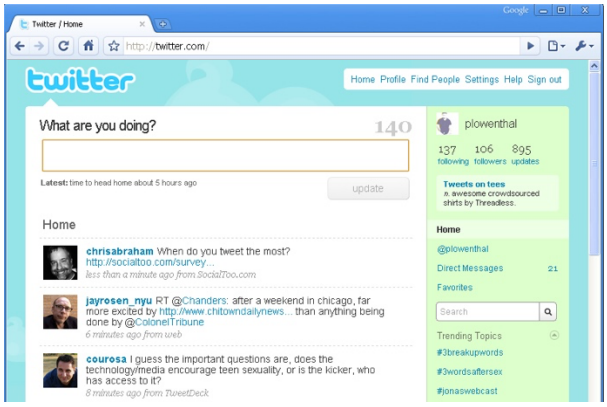

Figure 1. Twitter Website

4. TWITTER IN ACTION

Faculty have recently begun experimenting with how to use Twitter in the "classroom" (Parry, 2008a). Parry explains that despite his initial skepticism, he found that Twitter could be an effective tool in the classroom in part because of its ability to "blur the lines of the classroom" (Parry, 2008b). An example of how Parry uses Twitter in his classroom can be found online (see Parry, 2007).

Communication faculty are not the only one's using Twitter in the classroom. Twitter has also been used in public relations (Sweetser, 2008), project management (Keefer, 2008), medical education (van den Broek, 2009), language learning (Ullrich, Borau, Luo, Tan, L. Shen, & R. Shen, 2008), and information systems (Sendall, Ceccucci, & Peslak, 2008) courses, to name a few.

During the fall of 2008, we incorporated Twitter into our online instructional design and technology courses. We did not require students to participate, but invited them to join us in our Twitter adventure as we tested its instructional potential. Although not everyone chose to participate, most did with positive results. The following describes our students' typical experiences using Twitter:

- A student is reading something in the textbook and has a question about the chapter on multimodal learning. She immediately tweets (i.e., posts) her question to the Twitter community, and gets three responses within ten minutes)—two responses from classmates, and one from Joni (her professor). This leads to several subsequent posts, including comments from two practicing professionals.
- A student is working on an assignment and is wondering about embedding music into a slideshow presentation. He tweets a question to the group and gets a response from Patrick (his professor) and a practicing professional. Both point the student to different online resources that explain how to embed music and provide examples to deconstruct. Within a half hour, the student has embedded music in his slideshow presentation.
- A student sends a private tweet (i.e., a private message that only the named recipient receives) to Joni regarding a difficult situation with a project team member. While in the middle of a departmental meeting, Joni immediately tweets back, arranging a time to talk with the student outside of Twitter.
- A student cannot believe what she has just heard on the news regarding federal funding of higher education and needs to share. She tweets her comment, and immediately connects with others who cannot believe it either.
- A student finds a great video about storyboarding on YouTube and posts the URL to Twitter. Her find is retweeted (i.e., reposted) three times because others also think the video is great and worth sharing.
- Joni and Patrick, who are both away at conferences, tweet various updates about what they are hearing and seeing at the conference.
- Several of the students are posting comments to Twitter while they watch a political debate. They provide commentary, along with several thousand others who are also in Twitter while watching the debate.
- A student tweets that he just posted a new entry to his blog on how vision trumps all other senses during instruction and provides the URL. His classmates, as well as other practicing professionals, read his blog post. He receives three tweets thanking him for sharing his ideas.
- As part of a research project on legacy systems, a student poses a question to the Twitter community regarding the prevalent need for COBOL programmers. She receives responses from several IT professionals, some with links to helpful resources and contacts that can help her with research.
- A student tweets that she is tired and going off to bed. She receives two tweets back from classmates wishing her a good night.

Throughout the course, we used Twitter in this way. By using a tool that enables just-in-time communication with the local (our course) and global (practicing professionals) community, we were able to engage in sharing, collaboration, brainstorming, problem solving, and creating within the context of our moment-to-moment experiences. Because of Twitter's ability to enable persistent presence (Siemens, 2007), our social interactions occurred more naturally and immediately than when we have to login to the LMS, navigate to the appropriate discussion forum, post a message, and then wait for someone to respond (after we already moved on to other work, thoughts, and issues).

5. OTHER INSTRUCTIONAL BENEFITS OF TWITTER

Besides the benefit of enhancing the potential for positive social presence during online learning opportunities, Twitter has other instructional benefits.

5.1 Addressing Student Issues in a Timely Manner

Our students used Twitter for time-sensitive matters: to ask us for clarification on content or assignment requirements, notify us of personal emergencies, and alert us to issues that need our attention and action. Even though we log into the LMS several times a day, this immediate communication allowed us to attend to issues in a timely manner. On a few occasions, we were able to intervene before an issue spiraled out of control, as with a team that was having trouble meeting the requirements of a project. Twitter is a helpful tool for addressing student issues quickly.

5.2 Writing Concisely

Because a tweet is limited to 140 characters, this encourages students to write clearly and concisely. Although a very informal writing style, it is a professionally useful skill for students to develop, especially given the growing popularity of this category of communication tool.

5.3 Writing for an Audience

Although Twitter elicits open sharing and an informal writing style, it is nevertheless critical to know your audience and share accordingly. Participating in the Twitter community helped our students learn to be sensitive to their audience, and make professional decisions about what perspectives and ideas they should publically contribute and what perspectives and ideas should remain private.

5.4 Connecting with a Professional Community of Practice

A great benefit of participating in Twitter is that many practicing professionals also participate. In our courses, for example, a number of the textbook authors participate in Twitter. Besides the networking potential, students receive immediate feedback to their questions and ideas from practicing professionals, which serves to reinforce the relevance of Twitter participation and enhance their understanding of our course content and their enculturation into the professional community of practice.

5.5 Supporting Informal Learning

Informal learning involves "activities that take place in students' self-directed and independent learning time, where the learning is taking place to support a formal program of study, but outside the formally planned and tutor-directed activities" (Aspden and Thorpe, 2009). Twitter was one tool that students used to support their informal learning activities. Through their participation in the Twitter community, they discovered resources and tools that they effectively applied to their coursework.

5.6 Maintaining On-going Relationships

Student and faculty use of Twitter is not bound by the structure of an LMS or the timing of a semester. Twitter enables faculty and students to maintain on-going relationships after a course ends. Although the semester is over, we are still in daily communication with several students from the courses. This allows us to continue to advise students academically and professionally. It has also allowed for a much more natural and organic progression of our relationships; instead of severing our connections at the end of the semester, we are able to continue to be in community together, learning from each other and sharing our moment-to-moment experiences.

5.7 Possible Drawbacks of Twitter

Like most, if not all Web 2.0 tools, Twitter is not appropriate for all instructional situations. For instance, Grosseck and Holotescu (2008) identify a number of problems with using Twitter for educational purposes. For instance, Twitter can be time-consuming, addictive, and possibly even encourage bad grammar as a result of its 140-character limit (Grosseck and Holotescu). Further, while Twitter is free to use on a computer connected to the Web (whether accessed via a web browser or a Twitter client like Twirl), faculty and students might be charged texting or data fees if they access Twitter on their cell phone (depending on their cell phone plans). See Grosseck and Holotescu (2008) and Lavallee (2007) for a complete list of drawbacks of using Twitter for educational purposes.

Despite possible drawbacks like these, the instructional benefits encourage us to continue to incorporate Twitter in our online courses (as one more tool in our toolbox), and look at other Web 2.0 tools that may help us extend the instructional power of a LMS and further enhance the social-presence potential of the online learning opportunities we design and facilitate.

6. GUIDELINES FOR USING TWITTER WITH STUDENTS

Based on our experience using Twitter with our online students, we offer the following five guidelines:

6.1 Establish Relevance for Students

First and foremost, the use of Twitter in an online course needs to be relevant—have a clear purpose—for students to attend to it in personally, professionally, and academically meaningful ways. If students see using Twitter in a particular course as irrelevant then they will fail to participate in Twitter as hoped, and will fail to take anything of value away from the experience. Our strategy has been to show

students examples of the ways we have benefited from using Twitter, such as the resources we have discovered that support our work, writing, and course learning activities; professionals we have met and are now in consistent contact with; and the audience we have attracted to our various projects and products. We also share with students the fun (e.g., tweeting with a celebrity) and informative (e.g., receiving product updates or news items) networking opportunities available via Twitter. When students see the possibilities and how those possibilities can help them meet specific learning goals and objectives, they are willing to give it a try.

6.2 Define Clear Expectations for Participation
Regardless of your expectations for student participation in Twitter, expectations for participation have to be clearly articulated. Our preference has been to invite and strongly encourage students to participate instead of requiring their participation. In support of our invitation, we define our expectations as setting up a Twitter account, adding all class members and faculty as tweets, adding 2-3 professionals (usually our textbook authors) as tweets, and committing to logging into Twitter three times a day for two weeks. If after that point students determine it is not of value to them, then we do not expect them to continue participating. In fact, we post any important questions asked about the course on Twitter back in the LMS (in much the same way we do with questions asked via email) in an effort not to penalize students who do not continue to use Twitter. However, we have found that after those initial two weeks most students decide to continue to participate in Twitter for the duration of the course and beyond. Note: Related to expectations for participation, it is important to remind students that Twitter is a public forum, requiring them to exhibit decorum in all of their Twitter interactions.

6.3 Model Effective Twitter Use
We make every effort to model effective Twitter use for our students by being active participants in the Twitter community. Through our modeling, students are exposed to effective strategies for connecting with other professionals, asking and answering questions, sharing resources, and friendly networking. Enhancing social presence using Twitter requires being socially present in Twitter.

6.4 Build Twitter-derived Results into Assessment
We encourage students to use information and resources derived through Twitter participation—triangulated with other more conventional references—in research papers and presentations. We then assess students on the relevance and accuracy of their citations, including those derived from Twitter. In this way, we reinforce the value of Twitter as a professional resource, and give students credit—and points—for using Twitter to meet professional and academic goals.

6.5 Continue to Actively Participate in Twitter
We have made a commitment to continue to participate in the Twitter community after courses are completed. We believe that this commitment further encourages students to engage in Twitter, building their own valuable network of professional and academic contacts. Because they know they can count on us being available in Twitter, they continue to use Twitter as a just-in-time way to connect and interact with each other and us. This has been helpful for continued advising, coaching, and mentoring. Ultimately, following this guideline has helped us achieve the level of social presence we crave in support of on-going social learning and student engagement.

7. CONCLUSION

We set out to enhance the social-presence potential of our online courses using Twitter. That is, we believed that the synchronous just-in-time nature of Twitter could provide us and our students with opportunities to connect and be perceived as "real" in ways that traditional LMS contained tools could not. The feedback from our students suggests that Twitter accomplished just this for many of them:

> Twitter has been a great way for me to check in with everyone who is using it. I found out how other's were feeling about school, how life was treating them, how their jobs and families were doing. This is something much more intimate than mandatory weekly discussions, although they carry their own merit.

> I really LOVE twittering with everyone. It really made me feel like we knew each other more and were actually in class together.

> Twitter was a big part of my connected-ness, with course colleagues and with you. Even though I didn't post a lot of tweets, I watched the Twitter dialogue. It made the connections stronger and helped me learn more about folks in the course and you. And, Twitter led me to some great resources. Thanks, Joni, for being such a responsive Twitter-er.

We also and unexpectedly concluded that involving students in the Twitter community also helps us attend to the other two components of the Community of Inquiry framework: cognitive and teaching presence.

7.1 Cognitive Presence
Cognitive presence is "the extent to which the participants in… a community of inquiry are able to construct meaning through sustained communication" (Garrison, Anderson, & Archer, 2000, pp. 89). Interacting with us and other professional practitioners in Twitter, our students constructed meaning through sustained communication.

7.2 Teaching Presence
Teaching presence is the ability of a teacher or teachers to support and enhance social and cognitive presence through instructional management, building understanding, and direct instruction. Reflecting on the additional instructional benefits of Twitter, we clearly engaged in interactions with our students via Twitter that helped us attend to instructional

management issues and students' knowledge building.

We encourage others to begin experimenting with Twitter in their classroom. However, formal and systematic research is needed to truly assess the value of using Twitter in the classroom as well as its relationship to social presence. All in all, though, we have found Twitter to be a powerful tool for establishing informal, free-flowing, just-in-time communication between and among students and faculty, and with the professional community at large.

8. REFERENCES

Aragon, S. (2003) "Creating Social Presence in Online Environments." New Directions for Adult and Continuing Education. San Francisco, pp. 57-68

Arbaugh, J. B. (2001) "How Instructor Immediacy Behaviors Affect Student Satisfaction and Learning in Web-Based Courses." Business Communication Quarterly, Vol. 64, No. 4, pp. 42-54

Arbaugh, J. B. (2005) "Is There an Optimal Design for On-Line MBA Courses?" Academy of Management Learning & Education, Vol. 4, pp. 135-149

Aspden, E. J., and Thorpe, L. P. (2009) "'Where Do You Learn?' Tweeting to Inform Learning Space Development." Educause Quarterly, Vol. 32, No. 1. Retrieved April 10, 2009, from http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/WhereDoYouLearnTweetingtoInfor/163852

Baker, J. D. (2004) "An Investigation of Relationships Among Instructor Immediacy and Affective and Cognitive Learning in the Online Classroom." The Internet and Higher Education, Vol. 7, pp. 1-13

Chickering, A. W., and Ehrmann, S. C. (1996) "Implementing the Seven Principles: Technology as Lever." AAHE Bulletin, Vol. 49, No. 2, pp. 3-6

Chickering, A. W., and Gamson, Z. (1987) "Seven Principles for Good Practice in Undergraduate Education." AAHE Bulletin, Vol. 40, No. 7, pp. 3-7

Drapeau, M. D. (2009, February 2) "What is Twitter's Vision?" Retrieved February 2, 2008, from http://mashable.com/2009/02/02/what-is-twitters-vision/

Dunlap, J. C., Dobrovolny, J. L., and Young, D. L. (2008) "Preparing eLearning Designers Using Kolb's Model of Experiential Learning." Innovate, Vol. 4, No. 4. [Online journal – http://innovateonline.info/?view=article&id=490]

Dunlap, J. C., Furtak, T. E., and Tucker, S. A. (2009) "Designing for Enhanced Conceptual Understanding in an Online Physics Course." TechTrends, Vol. 53, No. 1, pp. 67-73

Dunlap, J. C., Sobel, D. M., and Sands, D. (2007) "Supporting Students' Cognitive Processing in Online Courses: Designing for Deep and Meaningful Student-to-Content Interactions." TechTrends, Vol. 51, No. 4, pp. 20-31

DuVall, J. B., Powell, M. R., Hodge, E., and Ellis, M. (2007) "Text Messaging To Improve Social Presence in Online Learning." Educause Quarterly, Vol. 30, No. 3, pp. 24-28

Garrison, D. R., Anderson, T., and Archer, W. (2000) "Critical Inquiry in a Text-based Environment: Computer Conferencing in Higher Education." The Internet and Higher Education, Vol. 2, No. 2-3, pp. 87-105

Grosseck, G., and Holotescu, C. (2008, April) "Can we use Twitter for Educational Activities?" Paper presented at the 4th International Scientific Conference, eLearning and Software for Education, Bucharest, Romania.

Gunawardena, C. N. (1995) "Social Presence Theory and Implications for Interaction and Collaborative Learning in Computer Conferences." International Journal of Educational Telecommunications, Vol.1, No. 2/3, pp. 147-166

Gunawardena, C. N., and Zittle, F. J. (1997) "Social Presence as a Predictor of Satisfaction Within a Computer-mediated Conferencing Environment." The American Journal of Distance Education, Vol. 11, No. 3, pp. 8-26

Hiltz, S. R., & Wellman, B. (1997) "Asynchronous Learning Networks as a Virtual Classroom." Communications of the ACM, Vol. 40, No. 9, pp. 44-49

Java, A., Song, X., Finin, T., and Tseng, B. (2007, August) "Why we Twitter: Understanding Microblogging Usage and Communities." Proceedings of the Joint 9th WEBKDD and 1st SNA-KDD Workshop 2007. Retrieved February 2, 2008, from http://ebiquity.umbc.edu/get/a/publication/369.pdf

Keefer, J. (2008, March) "How to use Twitter in Higher Education." Retrieved April 1,2008, from http://silenceandvoice.com/archives/2008/03/31/how-to-use-twitter-in-higher-education/

Keill, M., and Johnson, R. D. (2002) "Feedback Channels: Using Social Presence Theory to Compare Voice Mail to E-mail." Journal of Information Systems Education, Vol. 13, No. 4, pp. 295-302

Knowles, M. S. (1990) The Adult Learners: A Neglected Species (4th ed.). Houston, TX: Gulf Publishing Co.

Kuh, G. D. (1995) "The Other Curriculum: Out-of-class Experiences Associated with Student Learning and Personal Development." The Journal of Higher Education, Vol. 66, No. 2, pp. 123-155

Lane, L. M. (2007) "Course Management Systems and Pedagogy." Retrieved October 1, 2007, from http://lisahistory.net/pages/CMSandPedagogy.htm

Lavallee, A. (2007, March) "Friends Swap Twitters, and Frustration: New Real-time Messaging Services Overwhelm Some Users with Mundane Updates From Friends." Retrieved from April 1, 2007, from http://online.wsj.com/public/article/SB117373145818634482-ZwdoPQ0PqPrcFMDHDZLz_P6osnI_20080315.html

Lowenthal, P. R. (2009) "Social Presence," in Encyclopedia of Distance and Online Learning, 2nd Edition, P. Rogers, G. Berg, J. Boettcher, C. Howard, L. Justice, and K. Schenk (eds.), IGI Global, Hershey, PA, pp. 1900-1906.

Lowenthal, P. R. (in press) "The Evolution of Social Presence Theory and its Influence on Online Learning." To appear in T. T. Kidd (Ed.), Online Education and Adult Learning: New frontiers for teaching practices. IGI Global, Hershey, PA.

Lucky, R. W. (2009) "To Twitter or Not to Twitter?" IEEE Spectrum, Vol. 46, No. 1, pp. 22-22

Morgan, G. (2003, May) "Faculty Use of Course Management Systems." Research Study from the Educause Center for Applied Research, Vol. 2, pp. 1-6. Retrieved January 1, 2009, from http://net.educause.edu/ir/library/pdf/ERS0302/ekf0302.pdf

McFedries, P. (2007) "Technically Speaking: All A-Twitter." IEEE Spectrum, Vol. 44, No. 10, pp. 84.

Parry, D. (2007, November 1). Twitter away your weekend. Retrieved January 1, 2009, from http://outsidethetext.com/trace/38/

Parry, D. (2008a, January) "Twitter for Academia." Retrieved January 1, 2009, from http://academhack.outsidethetext.com/home/2008/twitter-for-academia/

Parry, D. (2008b, February) "Teaching With Twitter." The Chronicle of Higher Education. Retrieved March 1, 2008, from http://chronicle.com/media/video/v54/i25/twitter/

Richardson, J. C., and Swan, K. (2003) "Examining Social Presence in Online Courses in Relation to Students' Perceived Learning and Satisfaction." Journal of Asynchronous Learning Networks, Vol. 7, No. 1, pp. 68-88

Rourke, L., Anderson, T., Garrison, D. R., and Archer, W. (2001) "Assessing Social Presence in Asynchronous Text-based Computer Conferencing." Journal of Distance Education, Vol. 14. Retrieved January 1, 2008, from http://cade.athabascau.ca/vol14.2/rourke_et_al.html

Rovai, A. P. (2002) "Building a Sense of Community at a Distance." International Review of Research in Open and Distance Learning, Vol. 3, No. 1. Retrieved January 1, 2008, from http://www.irrodl.org/index.php/irrodl/article/view/79/15

Sendall, P., Ceccucci, W., and Peslak, A. (2008) "Web 2.0 Matters: An Analysis of Implementing Web 2.0 in the Classroom." Information Systems Education Journal, Vol. 6, No. 64. Retrieved February 2, 2008, from http://isedj.org/6/64/

Short, J., Williams, E., and Christie, B. (1976) The Social Psychology of Telecommunications. John Wiley & Sons, London, pp. 206.

Siemens, G. (2006) "Learning or Management System? A Review of Learning Management System Reviews." Retrieved January 1, 2009, from http://ltc.umanitoba.ca/wordpress/wpcontent/uploads/2006/10/learning-or-management-system-with-reference-list.doc

Siemens, G. (2007) "Connectivism: Creating a Learning Ecology in Distributed Environment," in Didactics of Microlearning: Concepts, discourses, and examples, in T. Hug, (ed.),Waxmann Verlag, New York, pp. 53-68.

Stevens, V. (2008) "Trial by Twitter: The Rise and Slide of the Year's Most Viral Microblogging Platform." TESL-EJ: Teaching English as a Second or Foreign Language, Vol. 12, No. 1. Retrieved October 1, 2008, from http://tesl-ej.org/ej45/int.html

Swan, K. (2002) "Building Learning Communities in Online Courses: The Importance of Interaction." Education Communication and Information, Vol. 2, No. 1, pp. 23-49

Sweetser, K. D. (2008, February) "Teaching Tweets." Retrieved March 1, 2008, from http://www.kayesweetser.com

Thompson, C. (2007, June) "Clive Thompson on How Twitter Creates a Social Sixth Sense." Wired Magazine, Vol. 15, No. 7, Retrieved January 1, 2009, from http://www.wired.com/techbiz/media/magazine/15-07/st_thompson

Twitter. (n.d.) *Twitter.* Retrieved May 1, 2009, from http://www.twitter.com

Ullrich, C., Borau, K., Luo, H., Tan, X., Shen, L., and Shen, R. (2008, April) "Why Web 2.0 is Good for Learning and for Research: Principles and Prototypes." Proceeding of ACM's 17th international conference on World Wide Web, Beijing, China. Retrieved February 2, 2008, from http://portal.acm.org/citation.cfm?id=1367497.1367593

van den Broek, W. (2009, January) "Twitter and Medical Education." Retrieved January 29, 2009, from http://www.shockmd.com/2009/01/14/twitter-and-medical-education/

Vygotsky, L. S. (1978). Mind In Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press

Young, J. (2008, February) "Forget e-mail: New Messaging Service has Students and Professors atwitter." The Chronicle of Higher Education, Vol. 54, No. 25, Retrieved December 1, 2008, from http://chronicle.com/free/v54/i25/25a01501.htm

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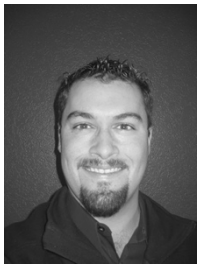

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