Creating a Sense of a Collaborative Learning Community with Google+

Claire Ikumi Hitosugi
University of Hawai'i West O'ahu
hitosugi@hawaii.edu

Abstract

This study explored the use of the Google+ social networking site as part of an asynchronous learning network developed for a Management Information Systems (MIS) course. It aimed to see if Google+ is a viable tool to promote a sense of community and social presence among undergraduate students in an online course. Social presence is one way to measure sense of community. The community of inquiry model stipulates that the social presence that a participant projects socially and emotionally as a "real" person in the online medium is a critical component in an online course's success. The study found that Google+ Community was well received by the students. Many students had not been familiar with Google+, nor had they created a website prior to this class. Student feedback indicates that using Google+ and creating their own websites generated a positive synergistic effect that contributed to a sense of a collaborative learning community in this online MIS course.

1. Introduction

There is no doubt that online courses have made inroads into mainstream higher education. Arizona State University (ASU), a prestigious university in the western United States, now offers undergraduate online degrees in 49 subjects including a BS in Information Technology [1]. Allen and Seaman reported in 2014 that, in US higher education, the number of students taking at least one online course had reached 7.1 million, and enrollment in online courses continued to grow at a rate far greater than that of overall enrollment [2]. It seems clear that online higher education will only grow in the future, but we have not yet answered the question of how we can ensure the quality of online courses [3].

Various scholars have pointed out that improving the sense of community among learners has a positive impact on students' learning experiences, and how we can create a sense of community in our online classrooms has been a recurring theme for the last two decades in the online teaching and learning literature

[4]–[6]. McMillan and Chavis define "sense of community" as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (p. 9) [7].

How to measure and promote that beneficial sense of community is still unclear [8]. Ellis suggests four approaches to measuring community within a classroom: 1) semi-structured direct interviews, 2) content analysis of text interaction among participants, 3) indirect measurement of some aspects of communication patterns, and 4) survey instruments. This study takes the survey instrument approach suggested by Ellis to measure sense of community. The survey in this case was an anonymous end-of-semester course evaluation that elicited the students' qualitative feedback.

The online community of inquiry (CoI) model describes social presence as a critical component in promoting a sense of a learning community [9]. Some researchers have demonstrated that social interaction is positively related to online course satisfaction, while also pointing out that it is not uncommon for students in online courses to feel isolated and to desire more social interaction [10]–[12]. The findings reported in these studies confirm the author's experience as an instructor that, while an online course usually has sufficient cognitive and teaching presence – the two other key elements of the CoI model – it often lacks sufficient social presence. To address this issue, this qualitative study primarily focuses on how best to create social presence in an online course.

The study was conducted at a public regional college in the US that offered about 30% of its courses entirely online for Fall 2014, and projected offering more online courses in the future. The college offers distance learning programs to both remotely located students and regular students on campus, as well as online bachelor's degrees in several disciplines. The average age of the college's students is 26.5, and many of them work full time and have families. Twenty-seven percent of the students are from the historically underserved indigenous group of the region, and another 61% are from other ethnic minorities [13].

IEEE computer society

Located in a newly developing suburban area, the college grew by 12% over the previous year and is projected to continue to grow rapidly. More online courses are expected to be offered to meet growing demands in the coming years. Yet how the online courses are taught is largely left to the individual faculty members.

This paper describes how the author, as a newly hired instructor, designed and delivered a fully online Management Information Systems course using an asynchronous learning network that incorporated the Google+ social networking site in order to facilitate social presence, and it reports the students' responses to the course. Previous research on the use of Google+ Community in online teaching is limited. Existing literature has looked into the use of the video conferencing features of Google+ [14], the use of Google+ Circle in graduate online educational technology courses [15], and the use of Google+ in a nursing graduate mentor program [16]. To the author's best knowledge, no studies have been conducted on the use of Google+ Community in an undergraduate online business course. This study is a preliminary report that aims to lay the ground for subsequent studies on the topic.

2. Social presence and the community of inquiry (CoI) framework

Social presence is one of the three elements of the online community of inquiry (CoI) framework proposed by Garrison, Anderson, and Archer [9]. They analyzed texts generated in computer conferencing to identify what supports a worthwhile educational experience, based on which they proposed that "learning occurs within the Community [of Inquiry] through the interaction of three core elements" (p. 88): cognitive presence, social presence, and teaching presence (Figure 1). Their seminal article had been cited 2,869 times on the Google Scholar database as of August 31, 2015, and their proposed CoI framework has been extensively discussed in the distance education literature. The effectiveness of the community of inquiry for learning has been empirically supported by various studies [17]–[20].

Garrison et al. (1999), who take a social constructivist position, developed their online learning community of inquiry model based on Dewey's (1933) concept of reflective inquiry [21], Lipman's community of inquiry (CoI) theory [22], and Bandura's social cognitive learning theory [23]. Garrison et al. argue that a community of inquiry is essential for deep and meaningful educational experiences; that learning happens in a social context; and that a person's ability to function in a given environment depends on continuous interactions between cognitive, behavioral, and contextual factors resulting in a person's ability to function in a given environment. In this view, learning is not the fixed regurgitation of facts delivered by an authoritative figure such as a teacher in a classroom. Rather, learning takes place as a product of all the factors involved in the learner's environment, and learners create meaning by interacting with each other and with their environment, while mutually influencing each other.
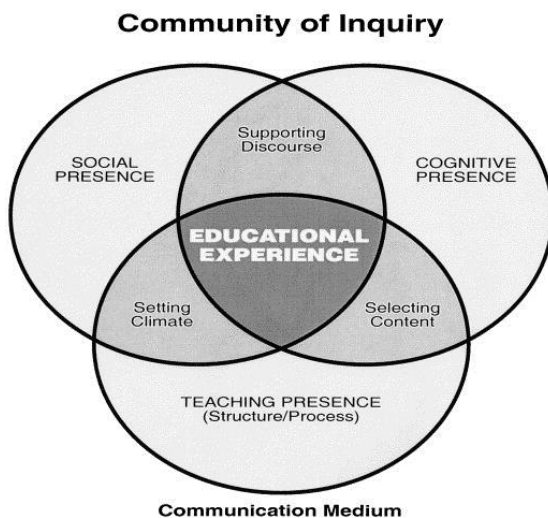

Figure 1: Elements of an educational experience (Garrison et al., 1999, p. 88)

Social presence, the focus of this study, concerns how participants in the CoI can project and present themselves as "real people" and develop personal and affective relationships. This is an important element, especially for an online community, as they interact in a virtual world where physical presence is absent. Garrison et al. ([9], p. 99) identified three categories of social presence: *emotional expression*, *open communication*, and *group cohesion*. The three categories are closely related to the learners' task motivation and persistence. When participants find the CoI more enjoyable and personally fulfilling, the chances of their remaining in the community will be higher. From this perspective, social presence directly contributes to the satisfaction and the success of the CoI's participants [18], [20]. Social presence may be developed through discussion, encouraging positive mutual feedback among participants (emotional expression), working toward a common goal such as a group project (group cohesion), and sharing knowledge (open communication). Such collaborative experiences are expected to deepen the participants' understanding of the subject matter.

Garrison et al. emphasize the importance of collaboration in learning [9]. Today, as we move away from the industrial-age learning and teaching model that subscribes to the notion of knowledge transfer from one entity to another, collaborative learning and making space for knowledge creation are taking on pivotal roles in education. The authors cite Schrage [24] to make this point:

Schrage states that the "act of collaboration is an act of shared creation and/or shared discovery" (p. 4). …The difference between collaboration and common information exchange is: "the difference between being *deeply involved in a conversation* and lecturing to a group. The words are different, the tone is different, the attitude is different, and the tools are different" (p. 5). (italics added)

In order to create a meaningful collaborative space, the design of online courses needs to choose a platform where participants can become *deeply involved in conversation*. The construction of meaningful collaborative knowledge will occur only if this type of discourse is in a safe space, where participants' existing knowledge can be freely expressed and shared, and further developed through interactions with other participants. Table 1, which draws on the work of Garrison et al. [9] and Garrison and Arbaugh [25], shows elements, categories, and indicators of communities of practice.

3. Management Information Systems (MIS) course design

The MIS course is an introductory information systems (IS) course required for all business majors at the college, and it aims to prepare students to successfully participate in IT-enabled, rapidly changing business environments. The instructor/author explored how best to facilitate meaningful discourse interactions between teacher and students, students and students, and students and content in online learning spaces, and how to best design an easy-to-use, dynamic, interactive learning environment whose cost would be low and whose use could be learned quickly by both the instructor and the students.

Table 1. Community of inquiry elements, categories, and indicators

Elements	Categories	Indicators (examples only)
Social presence	Emotional/Affective Expression Open communication Group cohesion	Risk-free expression Encouraging collaboration Emotions/Emoticons
Cognitive presence	Triggering event Exploration Integration Resolution	Sense of puzzlement Information exchange Connecting ideas Applying new ideas
Teaching presence	Instructional management Building understanding Design and organization Facilitating discourse Direct instruction	Defining and initiating discussion topics Setting curriculum & methods Sharing personal meaning Focusing discussion

Many of today's students are members of "Generation Facebook" [26], whose social lives are deeply influenced by the pervasive popularity of social platforms such as Facebook, YouTube, Instagram, Snapchat, Pinterest, and Twitter. Online learning spaces should be in line with the communication modes to which these students are accustomed. The instructor's exploration resulted in the decision to integrate the Google+ Community social networking site (SNS) into the MIS course. The instructor judged that Google+ had the potential to provide a platform that affords such interactions; that it would create more dynamic, interactive, two-way communication among participants; and that it would contribute to building a user-friendly, interactive, multi-media learning environment.

The course was conducted asynchronously and used four different platforms: the existing Sakai-based course management system (CMS), which is called Laulima; a newly developed MIS course website; Google+ Community; and Pearson's MyITLab. Among these four tools, the course website and Laulima are considered to be Web 1.0 technology that simply disseminates information. Interactions between users and other websites are limited on these platforms. Pearson's MyITLab provides simulation exercises and involves no interaction among students. In contrast, Google+ is Web 2.0 technology and the only platform used in this course that allowed dynamic interactions among students and the teacher.

The instructor decided to design the course materials and the virtual classroom by assigning distinct functions to each of the four different platforms. Laulima was the entry point for students to access all relevant sites for the course. It is the college-wide official CMS, and the students are most familiar with this platform. In this course, the Laulima platform was primarily used for unit tests and grade posting, and official and important announcements. The course website was developed as a course organizer; lecture videos, syllabus, course schedule, assignment details, and resources were posted on it. Pearson's MyITLab was used in order to give students access to hands-on tech components and to maintain continuity with previous courses. The site allows students to independently learn how to use Excel spreadsheets at their own pace.

The Google+ Community was where students engaged in class discussions, made links to their web pages for their reflection blogs, made announcements of group projects, and presented their collaborative group work. Table 2 shows the relationships between the four platforms (and the student websites), each type of course assignment, and the three elements of the CoI model.

Managing multiple platforms was expected to be a new and perhaps challenging experience for many of the students. However, the instructor decided that the use of four platforms was appropriate and justifiable for this MIS tech-oriented course, with its focus on technology and the intersection of technologies with organizations and society. Deploying different platforms exposes students to more diverse learning experiences than using only one platform. In order to facilitate the students' ability to meet the possible challenge, the course schedule website included hyperlinks to allow easy navigation of the four platforms. The first two weeks of the course were spent building and populating the Google+ Community. Each student created a personal Gmail account and joined the Google+ Community. Each student also created a website. Their website URLs were linked to from Google+ Community. The student websites were used as platforms where they posted their seven blog entries on the course materials over the semester.

4. Google+ Community

Google+ Community is a social networking site released in 2012 by Google, Inc. The site is conducive to collaboration with features such as Hangout, which is for video chat, and Circle, which allows users to easily form groups. Google+ also allows users to create a community that is private and not searchable. The Google+ site for the MIS course was made an invitation-only private community. Only the instructor and students could become members of the course's Google+ Community. The Google+ site was used for discussions, the links to the students' websites, students' questions and thoughts related to the lecture videos, group project–related postings, and announcements of a social nature such as internship opportunities and workshops. They posted their subsequent bi-weekly blog entries on their individual websites.

Five main discussion topics were introduced in the course. Students watched a video on a topic and answered guiding questions pertaining to the video. Also, they were encouraged to write about any thoughts associated with the topic. All members of the community could freely post comments and respond. Furthermore, as soon as a post was made, all members received notifications in the Gmail social inbox. This function turned out to be particularly useful for the instructor, facilitating her ability to give as much feedback as possible on students' postings in a timely manner.

5. Results

Sixty-two students in two sections started the MIS course, and fifty-seven successfully completed the course. The first assignment was to join the Google+ Community and to create a website using Weebly.com. Sixty students completed the website creation assignment by the third week of class and made a link to their website on Google+ Community. On their websites, all sixty students wrote a self-introduction.

A thread was created in Google+ for comments on every student's website. Students were asked to make comments on a minimum of two classmates' websites that were created after their own. The instructor commented on every student website. Many students indicated that this was the first time they had made their own website, that the process was enjoyable, and that they were amazed at how easy it was to create a website. Writing about themselves on their website established their identity in this online learning community. Each student became a "real" person by posting about him/herself. They wrote about their likes, dislikes, families, pets, jobs, and experiences. It showcased who they were beyond being merely a student. This website assignment truly helped set the stage for their social presence, making the online class into a cohesive community and a place where students could freely express their opinions.

Five discussion topics were posted over the semester. The instructor also posted YouTube video clips of related interest with pertinent questions for students to respond to. One of the discussion topics was how radio-frequency identification (RFID) is used in our lives. They learned that RFID is most commonly used in ID cards, especially in the military, through the discussion and sharing their experience and knowledge on Google+. Such aspects of the students' new findings or new knowledge could only have been constructed by the collaborative nature of the discussions in the Google+ Community. Google+ Community was populated by the students' and the instructor's postings. Participants shared their thoughts and experiences, and exchanged questions there.

Table 2. MIS course assignments and CoI elements

MIS assignments (Platform)	Elements of community of inquiry (CoI)		
	Cognitive presence (reflection, critical thinking)	Social presence (affect, communication, cohesion)	Teaching presence (design & facilitation)
Tech hands-on Creating a website Excel exercises (Pearson's website)	Tech skill building	Establishing online identity	Selection & guidance feedback
Reflection blogs (Student websites)	Critical thinking	Sharing thoughts	Providing criteria feedback
Discussions (Google+)	Stating opinions Collaborative knowledge creation	Sharing opinions & knowledge	Topic selection feedback
Group project (Google+)	Goal-oriented collaboration Knowledge creation	Online team building Mutual encouragement cohesion Developing online communication, social, & presentation skills	Providing criteria Guidance Feedback
Unit tests (Laulima CMS)	Performance		Assessment Feedback
(MIS course website)	Interacting with & acquiring new knowledge	Teacher's welcome video, campus and class mascot pictures	Syllabus, schedule, Lecture videos, resources

The number of discussion comments posted by students on Google+ over the 15-week semester was 655, which means that every student posted about eleven comments on average. An online learning community was indeed formed in this way.

Furthermore, most students exceeded the instructor's expectations for the length of their blog posts. Many wrote more than the 400-word minimum in order to finish a narrative, and some inserted pictures and links to other websites into their blogs, which was not required. It was as if they had much to tell and wanted to show off how much they knew about the subject. What the instructor witnessed in the Google+ comments and blog postings on their websites was a strong social presence, just as Garrison et al. [9] described with open communication, emotional connections, and group cohesion around the subject matter. Students' comments on end-of-semester course evaluations also point to the positive contributions of Google+ (Figure 2).

(What I find most affirming or helpful is)

"Active use of Google+ page. I like that we have that space to communicate with each other."

"Feedback during interaction on google plus"

"Also, appreciated is that by allowing the use of G+, I am able to read the responses at my leisure and react in real time or at a later time. Having so many students put out their ideas on a specific topic allows for a more well rounded/deeper understanding/consideration of the material."

"Comments left on (G+) posts are encouraging"

"When my classmates and instructor provide feedback. They encourage me to communicate with them as if we were in a normal classroom setting."

"I like our interactions within google plus and I like the websites as well."

"I really enjoyed the use of Google+, Weebly, and the online course website. … I also love that I am now more familiar with Google+ and Weebly, they're both such useful apps."

"The discussion questions on Google+ is helpful because everyone includes something from their personal life and it makes it easy to relate what we are learning to our personal lives."

Figure 2: Verbatim feedback from student course evaluations

6. Discussion and future research

This study demonstrated how the Google+ social networking site can be effectively used to promote students' social presence and sense of community in an undergraduate online course at a US regional college. The use of Google+ enhanced participants' open communication, created positive affect in the learning space, and gave participants a strong sense of cohesion as a learning community. Furthermore, the students' websites and Google+ had synergistic effects on their social presence.

Social presence is one of the three elements of the community of inquiry framework (CoI). In the CoI framework, these three elements – cognitive, social, and teaching presence – are the theoretical pillars of a successful online course. The course outcomes demonstrate that an MIS course can be successfully designed and delivered online based on the CoI model.

The use of Google+ Community is promising as a way to nurture interaction among participants and build a sense of community. After the initial learning curve, many students felt comfortable with and could relate to the Google+ platform. The communication venue seemed to be compatible with their cultural norms, which may have enabled them to express their opinions and feelings more freely. Google+ seems to be a technology that fits the particular task of creating a sense of community among a group of learners [27].

It is worth pointing out, however, that not every student is a member of the Facebook generation, regardless of age; not all of them are familiar with all of the popular technologies. This is especially true of students from underserved communities. For this reason, it is critical for the success of the students that the instructor and the institution provide a variety of resources where students can find the answers they need, including access to the instructor in different modes, such as face-to-face office hours, telephone appointments, chat hours, video-conferencing, and email.

Because of the unique demographics of this study's participants, the results may have limited generalizability. The preliminary report presented in this paper shows this technology's effectiveness in building engagement and positive affect among undergraduate business majors from minority groups, and suggests the technology's promise in other contexts. Interviews and a classroom survey focusing on SNS would allow researchers to develop further insight into how to create social presence in online courses. In addition, text analysis of participants' SNS discourse could shed new light on how the three elements of CoI interact with one another to ensure the quality of an online course. Moreover, experimental

research might offer new findings on the optimal mix of the three elements of the CoI model. Future follow-up studies should collect and analyze more substantive quantitative data, as well as more in-depth qualitative data.

In conclusion, this study showed that the students' creation of social presence was strongly supported by the carefully designed use of Google+ Community in an online undergraduate MIS course. Introducing themselves on their newly created websites seemed to have synergistic effects with the use of Google+. Their depiction on their websites of who they were beyond being students established their online identity, which contributed to their strong social presence, that is, "the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (i.e., their full personality), through the medium of communication used" ([9], p. 94). Participants shared their experiences and collaboratively created new knowledge on the discussion sites. This in turn engendered a strong sense of a learning community, where open communication, emotional connections, and group cohesion around subject matter were present.

7. References

[1] Arizona State University, "ASU Online Undergraduate online degree programs," 2015. [Online]. Available: http://asuonline.asu.edu/online-degree-programs/undergraduate.

[2] I. E. Allen and J. Seaman, "Grade change: Tracking online education in the United States." [Online]. Available: http://www.onlinelearningsurvey.com/reports/gradechange.pdf.

[3] D. Chalmers and S. Johnston, "Quality assurance and accreditation in higher education," in *Quality assurance and accreditation in distance education and e-learning: Models, policies and research*, F. Lockwood, A. . Bates, and S. Naidu, Eds. New York: Routledge, 2012, pp. 1 – 12.

[4] J. M. McInnerney and T. S. Roberts, "Online learning: Social interaction and the creation of a sense of community," *Educ. Technol. Soc.*, vol. 7, no. 3, pp. 73–81, 2004.

[5] A. P. Rovai, "Development of an instrument to measure classroom community," *Internet High. Educ.*, vol. 5, no. 3, pp. 197–211, 2002.

[6] M. A. Drouin, "The relationship between students' perceived sense of community and satisfaction, achievement , and retention in an online course," *Q. Rev. Distance Educ.*, vol. 9, no. 260, pp. 267–284, 2008.

[7] D. W. McMillan and D. M. Chavis, "Sense of community: A definition and theory," *J. Community Psychol.*, vol. 14, pp. 6 – 23, 1986.

[8] T. J. Ellis, "The impact of time on sense of community in an asynchronous learning network," in *2013 46th Hawaii International Conference on System Sciences*, 2013, pp. 60–67.

[9] D. R. Garrison, T. Anderson, and W. Archer, "Critical inquiry in a text-based environment: Computer conferencing in higher education," *Internet High. Educ.*, vol. 2, no. 2, pp. 87–105, 1999.

[10] F. Ke, "Examining online teaching, cognitive, and social presence for adult students," *Comput. Educ.*, vol. 55, no. 2, pp. 808–820, 2010.

[11] N. Hara, "Student distress in a web-based distance education course," *Information, Commun. Soc.*, vol. 3, no. 4, pp. 557–579, 2000.

[12] H.-J. So and T. A. Brush, "Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors," *Comput. Educ.*, vol. 51, no. 1, pp. 318–336, 2008.

[13] University of Hawaii West Oahu. Office of Institutional Effectiveness, "UHWO Quick Facts 2014," 2015. [Online]. Available: http://www.uhwo.hawaii.edu/default/assets/File/oie/UHWO_Quick_Facts.pdf. [Accessed: 20-Aug-2015].

[14] C. Clark, N. Strudler, and K. Grove, "I see you: Using the affordances of Google+ to increase social and teaching presence in an online undergraduate teacher education course," in *Paper presented at the Annual Meeting of the International Society for Technology in Education (ISTE)*, 2013.

[15] P. Taylor and C. Penny, "Class in circles: designing an online course using google+," in *Proceedings of Society for Information Technology & Teacher Education International Conference*, 2014, pp. 475–476.

[16] J. Yensen, "Mentoring and performance support for graduate students using Google+," *Online J. Nurs. Informatics*, vol. 16, no. 3, 2012.

[17] Y. J. Joo, K. Y. Lim, and E. K. Kim, "Online university students' satisfaction and persistence: Examining perceived level of presence, usefulness and ease of use as predictors in a structural model," *Comput. Educ.*, vol. 57, no. 2, pp. 1654–1664, 2011.

[18] L. Rourke, T. Anderson, D. R. Garrison, and W. Archer, "Assessing social presence in asynchronous text-based computer conferencing," *Int. J. E-Learning Distance Educ.*, vol. 14, no. 2, pp. 50–71, 2007.

[19] K. Swan, "Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses," *Distance Educ.*, vol. 22, no. 2, pp. 306–331, 2001.

[20] K. Swan and L. F. Shih, "On the nature and development of social presence in online course discussions," *J. Asynchronous Learn. Networks*, vol. 9, no. 3, pp. 115–136, 2005.

[21] J. Dewey, *How we think: A restatement of the relation of reflective thinking to the educational process*. 1933.

[22] M. Lipman, *Thinking in education*, 2nd ed. New York: Cambridge University Press, 1991.

[23] A. Bandura, *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall, 1986.

[24] M. Schrage, *No more teams!: mastering the dynamics of creative collaboration*. Broadway Business, 1995.

[25] D. R. Garrison and J. B. Arbaugh, "Researching the community of inquiry framework: Review, issues, and future directions," *Internet High. Educ.*, vol. 10, no. 3, pp. 157–172, 2007.

[26] K. Koroleva, F. Brecht, L. Goebel, and M. Malinova, "'Generation Facebook' - A cognitive calculus model of teenage user behavior on social network sites.," in *Proceedings of the 2011 AMCIS*, 2011.

[27] I. Zigurs and B. K. Buckland, "A theory of task/technology fit and group support systems effectiveness," *MIS Q.*, vol. 22, no. 3, pp. 313–334, 1998.