

Electronic Social Networks, Teaching, and Learning

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This paper explores the relationship between electronic social networks, teaching, and learning. Previous studies have shown a strong positive correlation between student engagement and learning. By extending this work to engage instructors and add an electronic component, our study shows possible teaching improvement as well. In particular, enthusiastic teachers and learners have a more positive attitude toward their work and studies.

Introduction

There is distinct evidence that students learn better when they are engaged (Zhao & Kuh, 2004). Similarly, teachers teach better when they are engaged (Hakanen, Bakker, & Schaufeli, 2006). Concurrently there is a strong, possibly economic, push in academia to distance education and e-learning with technologies such as WebCT and Blackboard. On this basis, we became interested in investigating the potential benefits of electronic social networks in teaching and learning.

Our research was motivated by the more than 200,000,000 active Facebook users as of May 2009. For the purposes of our work, we defined electronic social networks broadly to include many technologies, such as telephone, text messaging, electronic mail, instant messaging, chats, discussion boards, Facebook, Myspace, LinkedIn, and Internet

telephones, including webcams. These electronic social networks can be very effective tools, allowing us to simplify and improve teaching and learning and simultaneously have fun. Also, instructors and students will be less likely to object to the use of technologies if we can show that scholarship is not diminished through electronic means.

Our research goals were to develop a better understanding of electronic social networks in teaching and learning, to examine their effects on teaching and learning, and to incorporate active electronic social network components into an existing course. We formed three research questions:

1. What are the benefits and drawbacks of electronic social networks in education?

2. How can electronic social networks improve teaching?
3. How can electronic social networks improve learning?

Social Networks and Electronic Social Networks

Social networks imply regular daily, weekly, or monthly activities. There must be interaction with two-way communication. Individuals can draw on resources from other network members (Paxton, 1999). In a teaching context, this means active contact or connection with peers, professors, and course content. The addition of electronic connections must continue the interactivity, allowing students to connect with each other, the professor, and course content.

A study of social networks and dementia risk showed that engaging in activities that cover more than one of the mental, physical, or social components seems to be more beneficial than to be engaged in only one type of activity (Karp et al., 2006). Even small contributions of the mental, physical, or social components mattered when accumulated (Karp et al., 2006). Keeping the brain active and engaged is key, whether the research is studying dementia risk or education. Carini, Kuh, and Klein (2006) investigated social engagement in the classroom finding that the lowest-ability students benefit more from engagement than classmates.

The literature has clearly shown that social networks are good for personal well-being (Bargh & McKenna, 2004; Helliwell & Putnam, 2004; Paxton, 1999). If social networks are good, then shouldn't electronic social networks be just as good? This conclusion is counter-intuitive, however, if one considers that people who spend too much time on computers are considered to be anti-social and often prefer to be alone. Are we then creating isolated social outcasts?

There is conflicting literature on the social benefit of technology. On the negative side, Internet use detracts from face-to-face time with others, so it reduces social capital (Nie, 2001). Positively, however, online interactions may supplement or replace

in-person interactions, mitigating loss from time spent online (Wellman, Haase, Witte, & Hampton, 2001). Successful electronic social networks were able to leverage existing offline networks for stronger social ties between members (Ellison, Steinfield, & Lampe, 2007; Landqvist & Teigland, 2005). There is a positive relationship between use of Facebook and social capital (Ellison et al., 2007) – the resources accumulated through the relationships among people (Coleman, 1988).

Online social networks allow users to gather or share information. Some networks provide emotional support, particularly for health, companionship, and friends. The depth and breadth of relationships impact benefits: the more you put in, the more you get out (Bambina, 2007; Paxton, 1999).

Electronic Social Networks in Education

Several studies have linked Facebook and academics with conflicting results. One study of college students found improved psychological well-being, suggesting that Facebook might provide greater benefits for users experiencing low self-esteem and low life satisfaction (Ellison et al., 2007). Research by Cho, Gay, Davidson, and Ingraffea (2007) reported that central players in evolving collaborative social networks tended to get higher final grades. Another study, however, suggested that Facebook use might be related to lower academic achievement in college and graduate school (Karpinski & Duberstein, 2009). Conversely, Pasek, More, and Romer (2009) concluded that Facebook use is more common among individuals with higher grades. A final study concluded that Facebook users were no different from non-users in terms of changes in academic performance (Pasek et al., 2009). Clearly, the jury is still out!

Electronic social networks in teaching and learning are defined broadly to include discussion forums and threads, chat rooms, interactive videos, games, Facebook, MySpace, Twitter, and other virtual teaching techniques. Social software also includes blogs, wikis, trackback, podcasting, and video blogs. Hyperlinking, tags, and concept maps

can organize the array of electronic data. This technology has been shown to be good for both distance education and in-class learners. Discussion boards can develop an online community of learners and support these learners in their studies (Sheard, 2004). This is especially valuable for distance learners (Benbunan-Fich & Hiltz, 2003). Reading and searching (and teaching and learning) are significantly different in this world.

Web 2.0 is the concept of interaction with the Internet, using social Internet technologies, such as listservs, Usenet groups, discussion forums, and groupware. Web-based communities grow up around common interests like teaching and learning. eLearning 2.0 is computer-based communication, information sharing, inter-operability, and collaboration to support learning. This can include standard ideas of social networks (Facebook, Twitter), video sharing (YouTube), video and audio podcasts, wikis, blogs, and social bookmarking.

Collaborative software and groupware enable group projects online through shared documents, files, comments, and PowerPoint. Students can consolidate the multiple parts of a group report, for example, into one cohesive whole electronically. Work can be done without having to physically meet or be in the same location or time zone. Students can practice talks online in preparation for an in-class presentation. This group software is available free online with Google Apps as well as integrated with many teaching systems. Google provides a suite of free online collaboration tools.

At least 10 Canadian educational institutions use Second Life, a virtual learning environment, in their teaching. Teachers can set up virtual visits to car company headquarters, for example, as a case study teaching tool. Teachers can also have virtual office hours. Students can meet and practice presentations in the virtual environment or use a virtual reading room with 3D encyclopedia. Simulation of complex situations is one of the most popular uses of the site.

Taking IT Global (www.takingitglobal.org) is a social network for youth interested in global issues. The site includes Action Tools to start a group or petition about a cause of interest. Virtual classrooms are established with blogs, maps, video chats,

and discussion boards about global issues – all secure and teacher-controlled.

Empirical Study

We chose to combine the use of electronic social networks for engagement with course internationalization initiatives in a fourth-year computer science course. Course internationalization – adding international components to an existing course – is being promoted widely as education becomes more globally focused. The course had 48 students in January 2009. Students developed an international database; an industry visitor spoke about off-shoring in India; students participated in international research and presentations, in-class and online discussions, debate and Jeopardy games; and international student perspectives were sought throughout the term.

We conducted 23 informal interviews, gathered 121 archival e-mails from 36 student correspondents over four months, and documented 60 discussion posts. We recorded written reports, PowerPoint presentations, international examination answers, class attendance, and in-class participation. Data was analyzed for engagement and international elements, engagement in small group work in class, quality and quantity of discussions, research, and class attendance. Written material was evaluated for student understanding of international concepts as evidenced in research papers, presentations, and examinations.

Results showed that international knowledge, student learning, and engagement improved, as measured by quality and quantity of discussions, research, and class attendance. Student papers showed a broader focus, multiple viewpoints, and higher marks overall than the previous year's class. Students said that they enjoyed doing research and enjoyed learning from each other's presentations. Finally, contrary to expectations, class participation increased, not decreased, with the use of electronic social networks!

Papers showed more depth of understanding of international issues and included more international reference points and examples. Final report marks increased from 78% in 2008 to 89% in 2009.

Class participation increased from 58% to 77% based on increased numbers of online discussions. Numbers of students participating in in-class discussions also increased from 78% to 92%. Grading and other evaluations were done by the same instructor in both years.

Since the thesis of this research was that *both* teaching and learning should improve with electronic social networks, it is interesting to note that teaching evaluations improved in a few key areas as well. More students perceived the course to be “very interesting” and the “overall effectiveness” of the teacher improved. The technology was time-consuming initially, but was simple to maintain once the plans had been made and work was organized for both students and teaching assistants.

Conclusions

Our research questions were:

1. What are the benefits and drawbacks of electronic social networks in education?
2. How can electronic social networks improve teaching?
3. How can electronic social networks improve learning?

The literature identified benefits of electronic social networks primarily for those students who had special needs or required distance education, such as those who are sick, disabled, or in remote areas. Those who are shy or introverted may be more comfortable with technology than a live classroom. Those who are home schooled or who cannot afford tuition can take advantage of free education on television. As well as these generic benefits, we saw that our students were more engaged and participated more online and in class.

Drawbacks of electronic social networks from the literature suggested low online participation, low class attendance, and that the instructors may not be taken seriously. None of these issues were a problem for our class. One other major drawback in the liter-

ature was that e-discussions need monitoring. In our experience, the instructors and teaching assistants enjoyed monitoring the discussions because they were able to see student progress through the term. Students were much more aware of international issues and better able to express themselves and support their arguments in an online forum at the end of the course. The monitoring is time-consuming, which can be an issue, but is rewarding in the long run.

Electronic social networks can improve teaching by monitoring or tracking student and teacher activity. Both quantity and quality of participation can be measured through electronic marking and feedback. Overall, there is less work for the teacher once the initial technical set-up is done. Recommendations for the inclusion of electronic social networks in teaching include the following ideas:

1. Organize *online communities* or groups. Students love the social connections.
2. Allow *marks* for both quantity and quality of online comments and discussion. Even minimal marks, such as 5%, encourage active participation.
3. Include *pictures*, audio, video, and text for sensory excitement.
4. Provide *immediate feedback* – answer questions in the discussion forum promptly and automate online testing and feedback.

Electronic social networks can improve learning by offering a safe, non-intimidating environment for student contributions. Students often write more thoughtful comments and more robust responses since they can take time to answer and since they know that others may be reading their work. Our students showed higher participation online and in class, which led to higher grades overall.

This work combined elements of student engagement and internationalization and incorporated active components into an existing course. Both engagement and marks improved for many students. Our results showed that electronic social networks do not appear to have the isolation problems of some computer work, perhaps because of their interactive

and communicative nature. There was no evidence of isolation, introversion, or lack of social skills with our students. Overall class participation increased, not decreased.

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Biography

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