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ABSTRACT

Recent studies have shown that using social media such as blogs and wikis in classroom can enhance student learning. In this paper, we briefly introduce constructivist and social learning theories, blog technology and the use of blogs in education, and different design architecture of educational blogs. We then present a case study of using blogs in an undergrad level management information systems course in a university setting. The study aims to evaluate the effectiveness of blog-mediated learning, knowledge discovery and creation within the scope of information systems education. The study also aims to investigate the design and usability issues of classroom blogs. Relevant data collected over the course of a semester include students' blog posts, classroom presentations and interactions, survey questionnaires (including five-Liker scale and open-ended questions), and instructional materials. Analysis of the data examines student goals, motivations, system usage, and perceived effectiveness and value of using blogs in classroom.

Keywords

Blog, Constructivist Learning, Social Learning, Web 2.0.

INTRODUCTION

Today's students are "digital natives" who have grown up immersed in the uses and etiquette of computers, digital cameras, cell phones, text messaging, weblogs (blogs), and the like (Prensky, 2001). Many of them use rapidly expanding collaborative, social networking, and/or multimedia sharing web sites such as MySpace, Facebook, Twitter, Wikipedia, di.licio.us, Digg, Flickr and Youtube in their daily lives. A collection of user-centered web technologies that provide these dynamic services and applications that support online collaboration and sharing among users was referred to as Web 2.0. Today's students' experience with digital technologies and the emergence of Web 2.0 based social media presents immense opportunities to educators who are seeking innovative ways to enhance teaching and learning.

CONSTRUCTIVIST AND SOCIAL LEARNING

The connection between social media and learning can be supported by the application of constructivist and social learning pedagogy in higher education. "Learning is the process of direct and indirect experience and observation", and "knowledge is an internalized result of learning through individual efforts and social interactions" (Pollard, 2006). Human beings learn in different ways: concrete experience, observation and reflection, abstract conceptualization, and active experimentation (Kolb, 1984). One's knowledge of everyday life is structured in terms of relevance, is socially distributed, and "is possessed differently by different individuals and types of individuals" (Berger and Luckmann, 1967). Thus, the social distribution of knowledge of certain elements of everyday reality can become highly complex and even confusing to outsiders (pp. 45-46). Constructivist learning theories (Bruner, 1966; Piaget, 1950; Vygotsky, 1978; Wood, 1998) also support that learning is an active, social process. Constructivist learning theories (Bruner, 1966; Piaget, 1950; Wood, 1998; Vygotsky, 1978) suggest that learning is an active, social process; learners develop or construct their knowledge more effectively through their own experiences (personal) and/or interaction with others (social) than through traditional objectivist methods, such as lectures. Examples of active learning processes promoted by constructivist learning theory include hands-on experiments and field studies. Students also learn through interacting, collaborating, or exchanging information with people in school, at home, in public, or online.

BLOGS AND THE USE OF BLOGS IN EDUCATION

What is blog

Blog is a web application platform originally designed for publishing personal website meant to be like a online diary or journal, and has been extended to a variety of uses including organizational web sites and content management systems.

Blogs in Education

Educational blogs support both personal constructivist and social constructivist learning activities. For example, every student creates and manages his/her own blog posts, categories, and pages; at the same time, students share their public posts, make comments, and collaborate. Recent studies have shown that using social media platforms such as blogs, wikis and podcasts in classroom can enhance student learning (Richardson, 2006). Many universities and schools have either using or beginning to use blogs to teach.

Design Architecture of Educational Blogs

There are various options of design architecture available to educators in terms of designing and implementing educational blogs.

Do-It-Yourself vs. SaaS Model of educational blogs

Educators can choose from a variety of open source blog software (e.g., Wordpress, Movable Type, TypePad) that are not only free to download and use, but also easy and fast to implement and customize. These blog software also provides plenty plugins and widgets (modules) that can help enhance the media richness in blogs, and support specific learning needs. If educators choose to implement blogs on their own, they will need a either a web server that is co-located at an Internet Service Provider or a web hosting service provider, and domain name for the blog web site. The benefit of choosing a web hosting service provider is that the web server (often Apache) and database (often MySQL) and programming language (often PHP or Perl) environment is pre-configured and ready to use, they also provide user support, maintenance and backups. In addition, they often provide free one-click blog installation.

Software as a service (SaaS) is a model of software deployment whereby a provider licenses an application to customers for use as a service on demand. SaaS software vendors (such as blogger.com or edublogs.org) host the blog application on their own web servers, back up both data and system configuration, and provide a basic level of user support . These services are often free and can be upgraded for advanced features such as dedicated pro support, massive media space, no advertising on the blogs, premium themes and plugins with a reasonable fee. Such on-demand SaaS model is best suited for educators who do not have much IT experience or simply want to reduce the overhead involved in creating and managing blogs by themselves.

A collection of individual blogs vs. one class blog site

Educators can choose between setting up a collection of individual student blogs and setting up one aggregated class blog site. Each approach has its own benefits and limitations. A collection of individual blogs approach gives students ownership and democracy. Students can determine and customize their own blog site including theme/skin, plug-ins, pictures, and pages. Students can use the blog in the future for other courses, educational, or personal purpose. Students can also follow favorite classmates' blog sites. However, because each blog is set up differently, it is difficult for educators to support or manage them. In addition, each individual blog has a unique URL, hence it is not convenient for students to find others' blog sites or share their own with others. Even though with the compromising on customization, the aggregated class blog approach eliminates several problems that a collection of individual blogs approach posts – it is easier for the instructor to support and manage single blog site, and more importantly, it is much easier and intuitive to share information across the class. Every time students go to site and post something they will notice others' posts. Furthermore, such class blog can be shared across different sections or even class year.

Stand-alone blog vs. Blog as an Integrated Tool in Learning Management Systems

Seeing the potential benefits of communication, knowledge sharing and collaboration that social media brings to education, recent design and development in commercial (e.g., WebCT, Blackboard) and open source (e.g., Sakai, Moodle) Learning or Course Management Systems have added new tools such as discussion forums, blogs, and wikis to support these activities as

well. However, access to these tools in these e-learning systems is usually limited to students, instructors, and teaching assistants within one course. A class blog in this study was designed with open registration: as the student makes his/her blog posts public, they can be viewed and commented on by any registered users (e.g., students and instructors from other courses or universities).

A CASE STUDY: CLASSROOM BLOG FOR A MIS COURSE

To examine the use of blogs in classroom, particularly, student goals, motivations, system usage, perceived effectiveness and value of blog-mediated learning, a study was conducted in an undergraduate level Management Information Systems class in the U.S. in the Fall 2009 semester.

The Class

A total of 75 students from two sections of the course participated in this study. Students met in class twice per week over a semester. The 3-units MIS course aimed to introduce business students to the various strategic, technological, and management issues associated with the effective use of information systems (IS). Through a blend of lectures, case studies, and series of constructivist and social learning activities (classroom exercises, assignments, individual projects, and group projects), students explored the various strategic and organizational challenges facing the successful design, development, and implementation of information systems and technologies in organizations.

The Blog

Students were trained in the beginning of the class to use blogs to construct and submit individual assignments weekly. The goal of the assignments was to help the students understand the textbook readings and relate the concepts and theories to external materials such as articles in journals, magazines, or websites. Each week student posts at least one blog entry in which they reviewed an article that they found from a journal, magazine, or a website that is related to the topic(s) of the week. They were also encouraged to blog about other relevant learning experience. For example, the week the class learned about Chapter 10. - Collaborative Systems, some student reviewed an article she found on CNN web site about Facebook chat, a feature she argued that could be used for corporations to online meeting, project collaboration, and project management. In a blog post, students were asked to summarize the article in their own words, explain why it is related to the topic(s) of the week, and what they liked about it, and anything that they could relate to previous experience or knowledge. Students were also asked to give meaningful names and categories to each blog post to facilitate and ease search and browsing, and properly cite the reference of the article following APA standard. The students were encouraged to comment on each others' blog posts – ask questions, discuss assignments, or exchange ideas. Instructor and teaching assistant also provided feedback to students by commenting on their blog posts; sometimes these comments led to further conversation in the classroom. Each time the class met, four to six students volunteered or were chosen by the instructor to present their blog posts to the class. Each student presented for about 5 minutes, and the class was encouraged to ask questions or provide feedback anytime during the presentation.

Based upon the instructor's experience and technical skills, Wordpress open-source blog platform was chosen to implement and develop the class blog, and godaddy.com (one of the most popular web hosting companies and largest ICANN-accredited registrar) was chosen to host the web site and the domain name. WordPress is an open source blog publishing / content management application built on Apache, PHP, and MySQL. WordPress is the most popular blog software in use today. The interface of the class blog was designed by customizing an open source Wordpress theme called "Ahimsa 3.0". The blog site uses a collapsible sidebar on the left column of the home page, and the contents of the blog posts are ordered by date in the right column. The sidebar consists 4 sections: 1) Meta features including admin and user login; 2) Categories – one category was created for each textbook chapter so it provides an option to browse posts by chapters/topics; 3) Achieves – it provides an option to browse posts by date; 4) Users – Listing users and the number of posts made by the user in the sidebar provides an option to browse posts by users. Although the blog site is viewable by public, the registration to the blog site is restricted to the students who enrolled in the class (enforced by validating email address submitted via the registration form and administrator's moderation). Student users were granted the "author" role, so they could publish and manage their own blog posts without editor or administrator's approval, they can also comment on other users' blog posts. Over the period of fall semester, 739 blog posts (by students), 21 Comments (by students, instructor and teaching assistant), and 15 Categories (by instructor) were created on the class blog. Google analytics was used to monitor the site traffic: 382 visits came from 13 countries/territories were tracked (mostly from U.S. – 368/382 or 96%), a total of 1129 page views, with an average of 2.96 pages per visit and each visitor spent an average of 5 min 12 seconds on site.
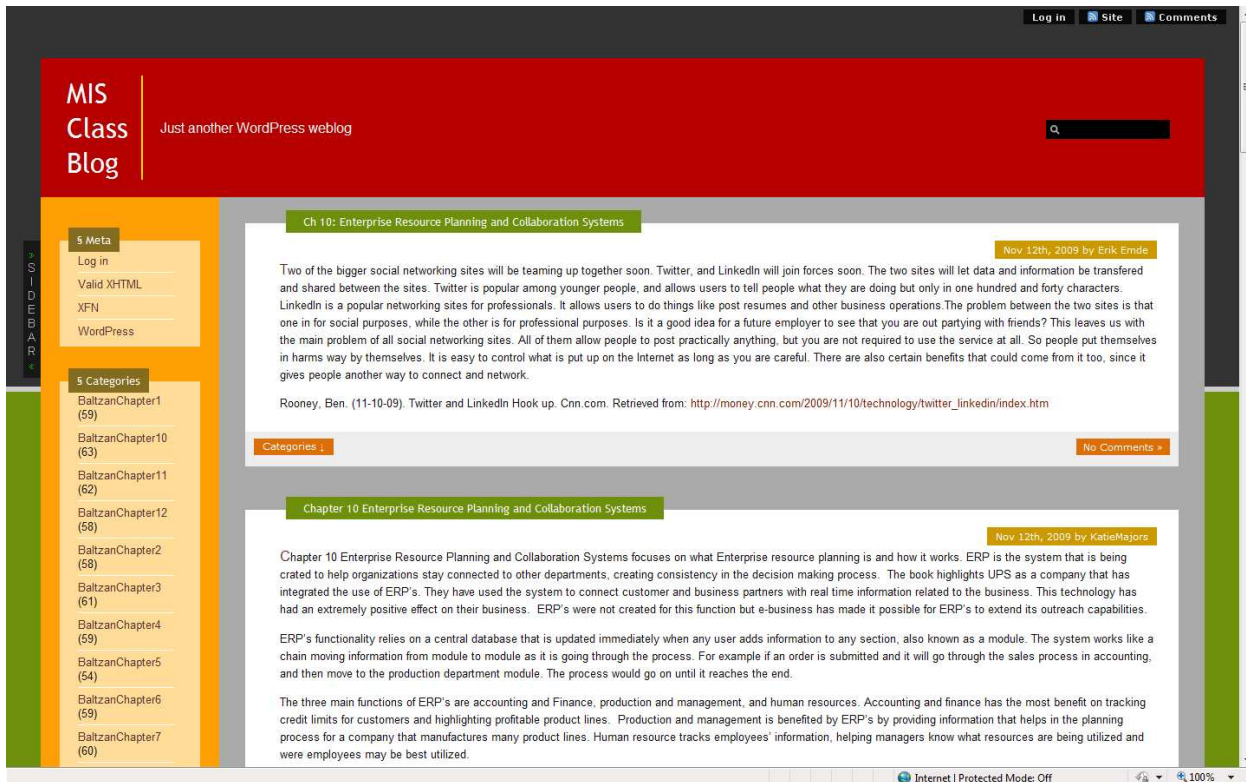
Figure 1. MIS Class Blog

Evaluation

Students completed a survey questionnaire at the end of the semester. The goal of the survey was to examine students' perceptions of using the blogs in classroom. The survey contains 5-likert questions (*SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree) and open-ended questions.

Qualitative Data Analysis

A total of 48 valid survey questionnaires were collected. A majority of the students were between 21 and 30 years old (44/48 or 92%). There were 21 (44%) female students and 27 (56%) males. All students were seeking bachelor degrees, majoring in accounting (14/48 or 29%), management (9/48 or 19%), finance (8/48 or 17%), marketing (7/48 or 15%), and other business areas. When asked to rate their expertise as a user of computer technology, most students answered "neutral" (27/48 or 56%) or "somewhat an expert" (16/48 or 33%). Most students considered themselves "expert" or "somewhat an expert" in Microsoft Office (42/48 or 88%), web surfing (41/48 or 85%), Multimedia such as Flickr and YouTube (29/48 or 60%), and blogs or online profiles such as mySpace and Facebook (28/48 or 58%). The students considered themselves "novice" or "somewhat a novice" in podcasting (27/48 or 56%) and social bookmarking such as del.icio.us and dig (25/48 or 52%).

The survey results are shown in Table 1. A majority of students (37/48 or 77%) found blogs software (Wordpress) easy to use. Interestingly, even though some students commented that they felt resistant to using the software in the beginning, their opinions changed the more they used it and started to see its benefits. Most students agreed or strongly agreed that by using blogs in class, they created and found more new ideas and research concepts (35/48 or 73%), learned more in this course (31/48 or 65%), and improved their skills level in information technologies (25/48 or 52%). Most students also agreed or strongly agreed that they learned the most from creating blog posts (27/48 or 56%), sharing and discussing their blog posts with the class (25/48 or 52%). On the other hand, students generally remain neutral or more leaning towards disagreement about learning from reading others' blog posts (15 disagree, 24 neutral, 9 agree), or reading comments, receiving feedback, suggestions, or answering questions either on their own (19 disagree, 18 neutral, 11 agree), or others' (19 disagree, 18 neutral, 11 agree) blog posts. One reason explaining this could be that commenting on others' blog posts was neither required nor used as class participation measurement. Already spending significant amount of time in completing the weekly assignments

and quizzes, the students made very few comments on the class blog. A majority of students (27/48 or 56%) preferred to submit assignments through blogs than through traditional file formats, such as Microsoft Word documents. And most students (30/48 or 63%) agreed or strongly agreed that it would be a good idea to use blogs in other courses.

Item	*SD	D	N	A	SA	Total
1. The blog software was easy to use.	0	4	7	25	12	48
2. Because of using blogs in class, - I learned more in this course.	0	4	13	24	7	48
- I am more motivated in this course.	2	8	22	13	3	48
- I improved my skill level in information technologies.	1	3	19	21	4	48
- I created and found more new ideas and research concepts.	0	3	10	28	7	48
- I can access to and manage knowledge better.	0	3	23	18	4	48
- There were better discussions and idea exchange in the class.	2	7	17	19	3	48
- I got to know my classmates better and communicated with them more.	0	11	28	6	3	48
3. I learned a lot from: - Creating blog posts.	0	5	16	24	3	48
- Sharing and discussing my blog posts with the class.	3	7	13	20	5	48
- Reading comments and feedback on my blog posts.	6	13	18	10	1	48
- Reading others' blog posts.	6	9	24	8	1	48
- Commenting, providing feedback on others' blog posts.	7	8	26	6	1	48
4. I prefer to submit assignments in traditional file formats such as MS Word documents rather than in blog posts.	8	19	16	4	1	48
5. It would be a good idea to use blog posts in other courses as well.	1	3	14	18	12	48

Table 1. Survey Results – Frequencies

Qualitative Data Analysis

Qualitative data are collected through the open-ended questions and comments on the questionnaire.

Students were asked "what did you perceive the instructor's objectives to have been in using the blogs in this course?" Student responses pertaining to this question are summarized as follows:

- To improve students' information technology skills and to encourage discussion and idea exchange in the classroom;

- To practice and exposure to another form of web-based software. There was greater structure and organization in the utilization of these applications.

Students were asked "Can you give some specific examples of how using the blogs (and class discussion and presentation involved) enhanced your learning compared to other classes where you did not use them?" The following summarized the students' responses:

- Makes learning more active and interesting;

- Encourage students to engage more with the material;

- More fun and relaxed than just printing and turning in the assignment in MS Word;

- Makes knowledge and feedback easier to access and share;

- Instant feedback not only from instructor but also classmates;

- Helps to bring "new" knowledge and ideas to classroom, and gain a different perspective or insight the students' hadn't previously recognized.

The students also suggested several critical success factors to be considered in using the software in academic settings: learning and training how to use blogs, guidance and help from the instructor and classmates, and constant communication within the class. The majority of the students were interested in using the software for learning in the future, or downloading the blog posts from the class blog site and transfer to their own web sites or blogs. Several of them even suggested to the instructor to use their blog posts as examples for students in other or future courses.

Limitation of the Case Study

There are several limitations in our case study. Even though the instructor encouraged the students to blog about other learning events or reflections in addition to their individual assignments, such as an IS conference they went to or work experience that relates to IT, there were not many such blog posts. One reason explaining this could be that the students had limited time thus only focused on the assignments that would be graded. As a result, limited contents generate limited learning experience. Second, even though the instructor encouraged students to review and comment each other's blog posts, there were not many comments made to the class blog site. As a result, we didn't fully utilize the benefits of blogs, such as the commenting features, to stimulate deeper level of sharing and interaction. Future study should consider creating more incentives to motivate students, such as giving extra credits to active bloggers, or factoring the blogging activities into the class participation grades. Another limitation is that we only measured perceived value in the evaluation process. As a result, the findings may lack a more objective standard. Future studies should consider using more objective measures such as grading or a combination of self, peer, and instructor evaluation.

CONCLUSION

This study shows that Web 2.0 based social media platforms such as blogs can be designed and implemented to meet the learning needs of a new generation of students, and enable cutting edge constructivist and social learning environments. The findings in this study demonstrate that blogging, sharing and presenting blog posts in classroom benefit students' learning in many aspects – not only they learned about more emerging information technologies and their applications that relate to the course materials, but also they developed strong and independent research skills, and created and found more new ideas and research concepts. The classroom environment became more fun, relaxed, and interactive. In addition, the process of learning to use the blog software itself helped improve the students' IT skills. The findings also reveal that the design and usability of the blogs matters – the students found it easier to share and manage posts in an aggregated class blog compared to discrete individual blogs. While there presents many opportunities to bring social media tools like blogs to classroom, educators must also recognize the challenges involved, such as the assessment of learning, the monitoring of student participation, and the need for user support.

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