Comparing Blogs, Wikis, and Discussion Boards as Collaborative Learning Tools

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Introduction

Along with the prevalence of distance education and increasing use of electronic elements in the traditional classroom, educators are realizing that human interaction has become as important in the virtual classroom as it is in the actual one. To respond to that need, a variety of software — commonly called *social software* — has been developed to facilitate student-teacher and peer-to-peer interaction. In its simplest sense, social software supports the desire of individuals to be pulled into groups to achieve goals (Boyd, 2003).

A recent review of literature on the subject revealed that social software is a technological development that is still in its formative years that clearly offers great promise in many areas of education as well as for society at large (Connell, 2004). However, even for the most willing participant, rapid developments and the proliferation of the software and its variants make it difficult to keep track of available technologies, how to best to use them, and the most fitting contexts for use. When implementing new technologies it is important that instructors chose appropriate technology that meets pedagogical goals with minimum disruption (Longhurst & Sandage, 2004), but determining what is appropriate can be a daunting task.

Newer generations of social software have made it more commonplace for educators to publish course descriptions and syllabi on the Internet as well as build professional development communities. However, the use of Web-based publishing tools to share student work is not yet as widespread (Kennedy, 2003). Oravec has pointed out that weblogs can be used to enhance students' critical thinking, literacy skills, and ability to use the Internet for research purposes (Oravec, 2002). They allow for instant publishing, sharing, and collaboration among multiple students in a format that can be used in a many settings and for a variety of subjects (Weller, 2003). Educators have also found a variety of creative applications for the wiki format based on

a constructivist foundation including: quick informational website publishing, collaborative website posting, student assignments with peer review capabilities, problem solving, focused discussions, interdisciplinary projects, community building among students, collaboration practice, and more (Synteta, 2002).

Although use of the 'original' social software — e-mail — has become ubiquitous and various forms of discussion boards are becoming increasingly common, adoption of the newer tools has not been as widespread, used more on an experimental or exploratory basis and often not widely understood by educators. In 2003, there were an estimated 4.1 billion weblogs on blog-hosting sites alone (McFedries, 2003) while one popular wiki site, Wikipedia.org, claims to have more than 312,572 English language articles and receive more daily hits than the venerable Britannica.com. Yet academia has been moving at a somewhat slower pace to fully embrace these new components of information technology for reasons relating to access, budget, understanding, and intellectual property questions, (Gurak & Duin, 2004) as well as simple human factors like lack of time or motivation to learn about new software (Wrede, 2003).

While there is no shortage of literature about the general topic of social software or the various individual software tools available, there appears to be no research that provides a comparative overview of these tools that would assist educators in developing guidelines and best practice recommendations. This study will explore three of the most common and easy-to-use social software applications — blogs, wikis, and discussion boards — in the context of a series of collaborative online assignments for adult learners.

Questions to be addressed in the context of online undergraduate courses for adult learners in social studies and writing will include:

1. Which of the three software tools demonstrates the highest levels of participation?
2. Does the level of participation have any correlation to final grades in the course?

3. How much did the students use each type of software in similar assignments in two different types of courses (social studies and English?)?
4. Did demographics, computer type, previous computer experience, and preferred learning styles affect reaction to each type of software?
5. What was the student response to each type of software in terms of enjoyment of use, ease of use, perceived learning and fostering a sense of community among students in disparate locations?

Research Procedures

This study will analyze quantitative data regarding levels of participation by online university students in various collaborative assignments incorporating social software and will also include a brief qualitative summary of student impressions of their experience with each type of software. The study will compare two classes in different disciplines — social studies and English — to assess whether participation varies based on subject matter. The software to be studied will comprise blogs, wikis and discussion boards. Participation levels will be determined by measuring word count and number of entries, links and images posted by each student in each activity. As an option, total time spent online for each student may be used if those statistics are readily available from the web sites hosting the respective assignments.

Researchers will work with the instructors to adapt written assignments for use in a collaborative manner with each of the three types of software for use in each class. In other words, each class will be given three written assignments, one to be delivered with each type of software. Students will be provided with passwords and brief written instructions on how to use each type of software. They will be instructed to post a minimum of two entries of at least 100 words plus two short posts including two or more complete sentences (which can include

responses to other students' entries) for each assignment. They will be encouraged to include links to relevant web sites or include appropriate images in their entries.

Settings and Participants

Participants will consist of at least 30 students in each of two online undergraduate classes — one an English class and one in a social science. It will, of course, be necessary to identify professors in each of these courses who are interested in cooperating with this research by coordinating three assignments during one semester with the researchers. Selecting students in online classes assures that the subjects have access to the Internet and at least a basic level of computer literacy. Additional information about age, race/ethnicity and educational background will be collected at the beginning of the study and tied to a unique identifier. Because this study is intended to assess participation among online college or university students, this type of less-than-random selection of subjects reflects a purposive sampling that should be reflective of the intended population. The research could also be conducted in conjunction with on-campus classes where it the study might focus more on using computers to enhance information exchange rather than enhancing participation and fostering a sense of community.

Data Collection

Data will be collected using pre- and post-surveys to be completed online by students. The pre-survey questionnaire (see Appendix A) will provide demographic information as well as details about computer experience and operating systems. The post-survey (see Appendix E) will supply affective data based on responses to a Likert scale type questionnaire that will supply student impressions about using the social software with a 5-point scale for each question. It will also have a spot for the instructor to record the student's final grade for the course.

Quantitative data about participation in each type of activity will come from measurements of word count and other factors for each assignment. Since each assignment has

the same minimum word count requirement, levels of participation will be determined by counting the actual number of entries, words per entry and added features included in the form of links or graphics. Since students must log in to contribute to each assignment, counting total entries, words per entry, links and included images for each student will be a relatively simple (if somewhat tedious) manual operation using the instruments in Appendices B, C, and D. To facilitate counting words, entries, and totals the entries could be exported into a program such as FileMaker Pro at the conclusion of each assignment.

Data Analysis

Data collected for this study can be analyzed in a number of ways. At the most basic level, total number of entries and words per entry can be ranked on an ordinal scale to determine which assignment generated to greatest response. Results can be compared between the two classes to determine if any significant differences exist for the two different subjects.

After using descriptive statistics to determine whether the number of entries exhibit a normal distribution, the researchers can perform the appropriate correlational tests (Spearman or Pearson, depending on distribution) to determine if there is any relationship between a number of factors and use of each of the software tools. These can include demographic factors collected in the pre-survey such as age and race as well as factors such as previous computer use, computer operating system or even preferred learning style.

Using the post-survey data, researchers can rank which activities were most preferred by the students. This information can also be correlated with data collected from the pre-survey. In addition, researchers can determine whether students' impressions of the class actually correlate to their level of participation in the assigned activities. Researchers can also review possible correlations between post-survey data about student impressions of enjoyment, understanding, ease of use, confusion, and sense of community with their usage levels for each software tool. In

addition researchers can compare the post-survey data for the two classes to determine if there are any significant differences between the English class and the social studies class in terms of their preferences.

Project Timeline

1. October — Contact instructors to find one in each discipline interested in participating during following semester.
2. November — Work with instructors to adapt assignments to blog, wiki and discussion board formats.
3. January – Collect pre-survey data.
4. February-April — Collect participation data from each assignment.
5. May — Collect post-survey Likert scale data and final grade information.
6. May-August — Perform statistical analyses of data collected and develop preliminary reports.

Significance of Study

Collaborative work requires a complex balance of skills in the best of circumstances and is made even more complicated when face-to-face interaction is not possible or practical. Yet in both academia and industry, the requirement to collaborate is becoming more commonplace. Identifying technologies and techniques that can facilitate various types of collaboration and promote active participation can contribute greatly to the exchange of knowledge within a department, a corporation, an entire academic discipline, or even to the world at large.

This study will present an important first step towards providing educators comparative data that can suggest best uses of each type of technology. In addition, it is hoped that providing an informational foundation for this subject will start the process of demystifying it for those educators who have thus far been fearful of incorporating the use of social software in their

classes — both online and in the classroom. The methodology for this study might also be used as a basis for further study on the uses of social software in different academic disciplines, with varying age groups and of different learning goals.

The world outside of academia is becoming more familiar with and enthusiastic about using these forms of software as tools for collaboration and exchange of ideas (Smolkin, 2004). It is time that educators have access to information that will enable them to incorporate these tools in the most effective possible manner.

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Appendices

Test Instruments

Appendix A. Demographic Information

Appendix B. Blog Participation

Appendix D. Wiki Participation

Appendix D. Discussion Board Participation

Appendix E. Student Follow-up Survey

Appendix A. Pre-Survey/Demographic Information

Unique Identifier:			**Course #/Department:**		
Age:	16-18	19-21	21-24	25-35	Over 35
Gender:	Male	Female			
Years of Education:	Less than 12	0-1yrs college	2-4 yrs college	Some grad school	Graduate degree
Race/Ethnicity:	Caucasian	Hispanic	Asian/ Pacific Islander	African-American	Other:
Learning Preference:	Verbal	Visual	Kinetic	Combination	
Computer Operating System:	Windows	Mac	Unix	Other	
Hours/Week Internet Use:	1-4 Hrs	5-10 Hrs	10-15 Hrs	More than 15 Hrs	
Previous Use of:	Blogs	Wikis	Discussion boards	Other Social Software	

Appendix B. Blog Participation

Identifier	
Number of Blog Entries	
Aggregate Number of Words for All Blog Entries	
Number of Links Included	
Number of Images Included	
Number of Times Visiting Blog Site	
Amount of Time Spent on Blog Site	

Appendix C. Wiki Participation

Identifier	
Number of Wiki Entries	
Aggregate Number of Words for All Wiki Entries	
Number of Links Included	
Number of Images Included	
Number of Times Visiting Wiki Site	
Amount of Time Spent on Wiki Site	

Appendix D. Discussion Board Participation

Identifier	
Number of Discussion Board Entries	
Aggregate Number of Words for All Discussion Board Entries	
Number of Links Included	
Number of Images Included	
Number of Times Visiting Discussion Board Site	
Amount of Time Spent on Discussion Board Site	

Shaded items optional, depending on availability of access data from the respective web sites.

Appendix E. Student Follow-up Survey

Identifier			**Grade in Class**		
	Agree Strongly	**Agree**	**Not Sure**	**Disagree**	**Disagree Strongly**
Generally enjoyed using the online software tools in this class					
Enjoyed contributing to the **Blog**					
Enjoyed contributing to the **Wiki**					
Enjoyed contributing to the **Discussion Board**					
Reading the **Blog** helped me understand the subject matter					
Reading the **Wiki** helped me understand the subject matter					
Reading the **Discussion Board** helped me understand the subject matter					
I found it easy to use the **Blog**					
I found it easy to use the **Wiki**					
I found it easy to use the **Discussion Board**					
Some aspects of using or reading the **Blog** were confusing					
Some aspects of using or reading the **Wiki** were confusing					
Some aspects of using or reading the **Discussion Board** were confusing					
Using the **Blog** fostered a sense of community in the class					
Using the **Wiki** fostered a sense of community in the class					
Using the **Discussion Board** fostered a sense of community in the class					