Using Online Office Applications

Collaboration Tools for Learning

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INTRODUCTION

At one time, completing a team assignment in the traditional college setting meant holding a meeting at the library or someone's dorm room. The assignment was usually sectioned off and assigned to each team member who would then take his or her respective assignments home to research and complete. The finished product would consist of several sections of information synthesized into one report. The final document was usually generated with the help of a word processor as the writer of each section would deliver their contribution on a storage device, such as a floppy disk, to the editor of the team. The editor would then assemble the final document.

Later, with the arrival of the Internet, the process to complete group assignments was facilitated through the use of e-mail accounts. Each contributor of the assignment could deliver his or her document electronically. Copies of the documents could be e-mailed back and forth in order

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for the team members to make comments and forward changes.

In the secondary school environment, teachers and students are also confronted with challenges when a group project is assigned. Documents (which for this article include word processing, spreadsheets, and presentation software) are often created by individual students at their own computer. Sharing the documents with each other can be cumbersome on a school network when certain rights prohibit students and teachers from accessing the document from another student's folder. The final copy is often produced with a lot of copying and pasting between individually created documents.

Unable to access the saved network document from home, students are forced to e-mail the document home or save it to a portable storage device. Multiple roadblocks abound once the document leaves the school network. It is not uncommon for the teacher to hear that the student "forgot" to return e-mail the document, that the e-mail attachment document did not go through, that the portable storage device was lost, that a team member with the needed document is absent, and so on.

The examples listed above describe methods of student communication that were originally intended to serve as an exercise in teamwork and collaboration. Until now, the tools available for learners to collaborate did not always provide a realistic collaboration experience. This article will showcase the technologies that facilitate collaboration using Web-based office applications. We will first provide some background information on the role of collaboration and learning. This will be followed by a section on the development of communities for an online class. The next section will highlight the emerging online office applications. We will conclude with our personal experience both teaching with and using one of the online office applications, Google docs.

The Need for Collaboration

Alluri and Balasubramanian (2006) define collaboration as "a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem" (para. 1). Collaboration has been recognized as a necessary and fundamental success factor in many organizations (Sonnenwald, Iivonen, Alpi, & Kokkinen, 1999). To compete in a global environment, government, non-government, and academia use teams to find solutions to complex problems. Collaboration has also been designated as a necessary component for active learning.

Given the research on the benefits of collaboration, students are often encouraged to collaborate in both online and traditional classrooms. Benefits of collaboration include developing critical thinking skills, discussion and consideration of ideas, and social skill development. Collaborative learning environments can be designed to account for different learning styles, increase relationships between the student and the teacher, and reduce classroom anxiety.

Many current pedagogies incorporate collaboration. Engagement theory and constructivism are two just two examples that advocate for collaboration. Kearsley and Shneiderman's engagement theory is founded on collaborative team learning. In *Engagment Theory: A Framework for Technology-based Teaching and Learning*, Kearsley and Shneiderman noted that student activities should "involve cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation" (para. 3). They further noted that students learn when "meaningfully engaged in learning activities through interaction with others and worthwhile tasks" (para. 3).

Social constructivism theory emphasizes the importance of collaboration in the learning process. Learning is social and requires participation in a social process of knowledge construction. Knowledge occurs through a web of interactions, and

is distributed and mediated by the people and the tools that they use for interacting (Kaplan, 2002).

Collaboration and Online Learning

Collaborative learning in an online environment is different than traditional classroom learning and requires a different kind of instructional design for teachers and a different type of work on the part of the student. There are a variety of strategies and tools that may be used to encourage collaboration in an online environment. Sonnenwald et al. identified a broad framework synthesizing three main approaches needed to create an engaging collaborative online environment. These three approaches focus on people, process, and technology. The following summary of these three approaches is intended as a starting point when creating online or blended collaborative environments.

For Sonnenwald et al., the people approach refers to strengthening the bond between the students in the class by defining roles, creating subgroups, and supporting individuality. This can be done by describing the different roles and relationships in the community, detailing responsibilities and interdependencies. Providing a way for learners to create personal profiles that include photos or links to personal Web sites, bloggers or wikispaces would support student individuality.

The process approach establishes the protocols for collaboration to occur by establishing operating norms, clearly defining the goals and objectives of the course, aligning goals and objectives with the learner's expectations, and creating a buddy system to build a support structure. Asking each student community member to log in once a week and post one question and one response is one example of establishing an operating norm. Clearly defining goals and objectives of the course and aligning goals with objectives helps to create an open and sharing environment and will help foster trust.

The third approach used to create an engaging collaborative online environment is the technology approach. The technology approach requires that technology be easy to use and transparent in the learning process. Simple, user-friendly access is the most important characteristic to consider.

According to Kearsley and Shneiderman, technology allows for engagement not possible by other means. Online learning must be designed on the framework of engagement for technology-based learning and teaching (Kearsley & Shneiderman, 1999). Opportunities for collaboration that are integrated into an online course design engage the learner with the subject material and with other students to enrich the learning experience.

Online Office Applications

One of the hurdles faced in distance education is the creation of a document on which two or more people collaborated. Students are often faced with having to separately compose, share, and combine separate writings into one final document. Too often, the technology gets in the way of learning due to compatibility issues such as proprietary software or the incompatibility of different software programs. Valuable time and energy is spent on resolving software related issues. When collaboratively editing a document, team members must find a way to circulate the document amongst themselves. This process is cumbersome process, often involving the document to be e-mailed as an attachment from one team member to the next, each individually revising the document. Each team member is forced to wait upon the editing and schedule of another team member.

Emerging Web-based office application programs allow users to create documents, spreadsheets, presentations, and databases

online. Common Web-based office application programs include Google docs, Zoho, and ThinkFree. Accessing and using these Web-based office applications require just a few easy steps: create an account, create the document, and share the document with others. These applications allow the creator to share the document with others by granting them the rights to be a collaborator or a viewer. Multiple people are able to access the document for viewing and editing at the same time. Google docs allows for synchronous and asynchronous viewing and editing. Generally, the online office applications support most common files, such as .doc, .xls, .odt, .csv, and .ppt. Created documents are stored and saved online, alleviating the need for local storage and providing access anytime from any location. A definite bonus to cash-strapped school and students is that these programs are available for free. Table 1 offers a comparison of the three online office programs.

Web-based office application programs also help the instructor to monitor plagiarism by making it possible to go back and trace the revisions made by each student. Instructors are also able to determine which members of the team contributed to the creation of the document and which members did not contribute to the document.

Reflection: Using Google Docs

Our personal experience with online office applications has been with Google docs. We have both experienced using Google docs from two perspectives: from the perspective of a teacher using Google docs in a secondary classroom setting and from the perspective of using Google docs to create documents for our postgraduate coursework. As secondary classroom teachers, Google docs made it possible for our students to collaborate on various projects. For example, the marketing class worked in teams to create business letters seeking sponsorship ads from local businesses. Each team shared a document on Google docs with each other and with the teacher. This provided synchronous monitoring of student work and opportunities

Table 1. Features of Online Office Applications

Feature	Google docs	Zoho Writer	ThinkFree
File types supported	Text, images	Text, images	Text, images
Software/Web-based	Web-based	Web-based	Web-based (Java)
Public/private collaboration	Public/private	Public/private	Public/private
Text chat	Yes	No	Unknown
Ability to track revisions	Yes	Yes	Yes
Support for RSS feeds	Yes	No	Unknown
Email updates	No	Yes	No
Real time co-editing	Yes	No	No
Ability to add comments	Yes	Yes	Yes
Spell check	Yes	Yes	Yes
Export/file formats	doc, xls, pdf, html, text, rtf, odt	doc, pdf, html, rtf	doc, docx, pdf, html, xml, txt
Price	Free	Free	Free

Source: Adapted from VanderMolen (2008).

for immediate feedback as the students worked. The revision feature provides a mechanism to monitor participation and monitor the thought process of the students. Having the document available online made it easy to access from home or any other remote location. Another great advantage was that production was not slowed down by one student's absence.

Google docs also enabled students to engage in shared note taking. Students shared a document to record the notes for a class. Collaboration about notes taken in class helped those who were poor note takers and those with poor keyboarding skills. Students were provided time during the class to reflect on the notes and make necessary changes and clarifications. Again, using Google docs aided students who were absent from class by making the class notes easily accessible.

Our second perspective, and perhaps a bit more insightful, comes from our experience using Google docs for collaborative writing. In fact, this entire article was created using Google docs. Separated by 60 miles, we brainstormed, collected and shared resources, composed the rough draft, made revisions, and produced a final document without having to personally meet. Since Google docs allows for synchronous and asynchronous viewing and editing, we were both able to edit the document at the same time or sign-in and work at a time that was convenient. Wait time for a revision or change was eliminated because changes were automatically saved and viewable by the other team member. Peer editing occurred on a continuous basis as comments were inserted to communicate with each other. Highlighting and different font colors were used to call attention to important parts of the document. To further enhance communication and collaboration, we were able to open Google Talk, Google's version of instant messaging, to discuss the assignment as we were viewing and editing the document together. We were able to compare all revisions made to the document and could revert to any previous document if needed. By the time this document was finalized, there were 1719 revisions tracking the development of our article. The final document was produced by exporting the text on Google docs into Word. Converting from Google docs into Microsoft Word required some minor format editing.

Summary

Based on our experiences with collaboration through the use of Google docs, we know that Web-based office applications provide collaborative creation tools that result in coordinated, synchronous activities. These activities lead to knowledge construction, which enhances both the learning process and the learning experience. The knowledge we gained through our interactions was enriched through our use of Google docs. We constantly questioned and challenged each other as the writing process unfolded. Being able to work on the same document in a synchronous format provided a richer and more meaningful collaborative learning experience.

Web-based office applications are collaborative writing tools aimed at facilitating the editing and reviewing of documents by multiple individuals in real time or asynchronously. These tools are flexible and useful in learning groups and educational settings. The benefits offered for collaboration through Web-based collaboration tools should be used in distance education classes to expand the level of collaboration and engagement for students and instructors in an online learning environment.

References

Alluri, K., & Balasubramanian, K. (n.d.) *Achieving development goals: Collaboration in education and development.* Retrieved August 2, 2008 from http://pcf4.dec.uwi.edu/collaboration.php

Beldarrain, Y. (2006). Distance education trends: Integrating new technologies to foster student interaction and collaboration. *Distance Education*, *27*(2), 139-153.

Good, R. (2007, March 1). *Collaborative writing tools and technology: A mini-guide.* Retrieved August 10, 2008, from http://spreadsheets.google.com/pub?key=pe48NjIzZGzkklhz4VF_xcQ

Kaplan, S. (2002). Building communities: Strategies for collaborative learning. *Learning Circuits Online Magazine.* Retrieved August 2, 2008, from http://www.learningcircuits.org/2002/aug2002/kaplan.html

Kearsley, G., & Shneiderman, B. (1999, April 5). *Engagement theory: A framework for technology-based teaching and learning.* Retrieved August 4, 2008, from http://home.sprynet.com/~gkearsley/engage.htm

Sonnenwald, D. H., Iivonen, M., Alpi, J., & Kokkinen, H. (1999). Collaborative learning using collaboration technology: Report from the field. In A. Eurelings, F. Gastkemper, P. Kommers, R. Lewis, R. van Meel, & B. Melief, (Eds.), *Integrating information and communications technology to higher education* (pp. 241-258). Amsterdam: Kluwer Academic.

VanderMolen, J. (2008, August 1). *Collaborative writing.* Retrieved August 11, 2008, from http://www.techlearning.com/showArticle.php?articleID=196605337