Using the Wiki in the college classroom

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Abstract
There is an ongoing challenge to integrate new media and forms of technology into the college class. This article presents the results of two studies which examine the role of a classroom Wiki in the development of class note taking. The results of the two studies are reported to demonstrate how Wiki's can be used to supplement class material and test preparation.

Introduction
Of the many challenges that come with teaching in higher education, perhaps one of the most ongoing and vexing is that of adapting teaching techniques to meet the ever-changing needs of incoming students. As the millennial generation - the first to grow up surrounded by digital media (Raines, 2002) continues to come of college age, technology integration within the higher education curriculum will only become even more important.

The current article examines the use and effectiveness of using a wiki as a class note taking technique. The study was undertaken to determine if the end result of using a wiki for classroom note taking helps students in learning the material and in assessment of outcomes. It is argued that through the use of a wiki, the class as a whole will produce a set of notes that is more comprehensive than the notes produced by any one student. The advantage of shared note taking is measured through standard unit assessment. The results of the study can be used to promote collaborative note take in the college classroom as a means of information acquisition and test preparation.

Literature Review
Computer mediated communication (CMC) has been shown to have numerous benefits when properly integrated into the classroom (Sherblom, 2010). When CMC is combined with emergent digital networks such as the wiki, educators will find themselves faced with new tools to master, but also valuable opportunities to challenge and engage the current generation of higher education students.

In a study of the effectiveness of integrating web-based bulletin boards to facilitate learning and communication for graduate education students, King (2001) sought to examine what benefits may arise by integrating a web-based experience into a face-to-face higher education course. King’s study showed that once students began to engage in the online portion of the class, “There was much more interaction among students… and developed a stronger sense of community” (King, 2001, pg 349).

This sense of classroom community also led to more lively on-topic classroom discussions. The students became more likely to ask each other questions and elaborate upon each other’s comments in class, showing not only a more student-centered
orientation to the classroom, but a greater amount of deeper discussions with more attention paid to each other’s thoughts (King, 2001).

Research on computer-mediated-communication tools such as web-based bulletin boards work as a blueprint to illuminate how integrated technologies such as classroom wikis will benefit individual students as well as the overall classroom environment. While web-based bulletin boards and other widely-utilized CMC technologies are an important step in adapting the classroom to the needs of higher education students, as newer technologies such as the wiki page emerge, technologies that are already familiar to the current generation of students—known as the millennial generation—educators must be willing and able to incorporate them as well.

Millennial students, those born between the years 1980 and 2000, have been described as sociable, optimistic, talented, well-educated, collaborative, open-minded, motivated and achievement-oriented (Bourke & Mechler, 2010). Millennials, as they are often called, have shown numerous key differences that separate them from previous generations. Millennials have shown an overall team-oriented outlook on problem solving and task completion. A popular strategy for managing millennials recommends assigning work related projects to groups which can be evaluated as a whole. This makes their outlook on task completion tailor-made for projects such as the group-edited wiki page.

Williams Layman, Slaten, Berenson, & Seaman (2007) further elaborate on this point in their longitudinal study of African-American millennial students and their learning preferences. By enacting a specifically collaborate pedagogy for a group of millennial students, results showed that a collaborative, social activity structure “yielded a greater sense of accomplishment and also a higher quality product. Creating higher quality products in less time increased the students confidence in their abilities” (Williams et al, 2007, pg 3). Collaborating with other students also showed increases in efficiency and a greater variety of problem solving avenues, leading to a greater sense of accomplishment for millennial students (Williams et al., 2007). Wikipedia-style web pages create an engaging and unique opportunity for millennial students within the curriculum that can foster and enhance the positive feeling of accomplishment spurred on by the group-work orientation of millennial students.

Integration of emergent technologies in the classroom has become more key since millennials began entering college around the year 2000. Not only are millennials more comfortable with increased levels of technology in the classroom, they will expect it. Wilson (2004) points out that the student’s familiarity with technology comes with it an increase in their expectations of technology integration in the college classroom. Millennials will also expect teachers to have an increasing level of familiarity with technology in order to better match their own skill set. Online-only courses and the integration of online learning in face-to-face curriculums have already made strides in bridging the gap between instructors and the millennial generation, but more remains that can be done. Utilization of wiki-based learning activities is a comparatively simple and fresh concept in the realm of technology within the higher education classroom. Moreover using the wiki to as a learning tool may work toward more effectively teaching millennials in a style that meets the needs and expectations of their generation.
The wikiwiki web, more commonly referred to as a “wiki”, derives its name from the Hawaiian word for “very quick”, which touches upon one of the defining characteristics of the wiki that separates it from other web-tools: the ability to quickly and seamlessly collaborate on the web. The social and collaborative aspect of the wiki is a key factor in differentiating it from other existing forms of CMC, encouraging students to learn in a more complex way than the more content delivery style of online bulletin boards and existing classroom technologies (Bruns & Humphreys, 2005).

The first wiki system was developed by Ward Cunningham prior to the first wiki going online in 1995. The wiki software however did not begin to gain its current level of providence until the year 2001, with the advent of the website Wikipedia.org, launched with the intention of creating a collaborative internet-based encyclopedia.

It is this collaborative nature that makes the wiki website such a unique tool to be integrated within the classroom. The open nature of the wiki page is not without its flaws. In some instances the ability to edit other people’s work can produce conflict between multiple contributors, but the benefits of integrating the still-developing technology far outweigh any possible costs. As Ebersbach-Markus Glaser (2004) points out, the wiki page can have a positive effect on feelings of group membership “working on a common project does have a highly integrative function. Participants will identify with the piece of work they produce and also with the group it emerged from… one of the main emancipatory features of media usage” (Ebersbach-Markus Glaser, 2004, pg 5).

As students increasingly look to Wikipedia and wiki websites as information sources for their assigned tasks, instructors understandably may look at the task of integrating the wiki into their existing curriculum with some trepidation. However, several universities have already integrated wiki-based web pages for various projects, such as library websites (Chawner & Lewis, 2006). The adaptability of the wiki is yet another great strength to be utilized as Bruns and Humphreys (2005) demonstrated in their efforts to implement a wiki-based project in teaching a new media technologies course. The wiki lends itself to both teaching, research and administration purposes (Bruns & Humphreys, 2005), each of which can be further adapted as instructor and administrator’s familiarity with the wiki format increases.

While a healthy amount of skepticism is understandable, it is important to note that within their study, consisting of a rigorous investigation into the quality of Wikipedia articles across a variety of subjects, West and Williamson (2009) found the Wikipedia website overall to be a worthwhile academic tool. After analyzing over one hundred randomly sampled and complete Wikipedia articles in terms of quality, errors and omissions, results showed that “Wikipedia articles are highly objective, reasonably accurate, clearly presented and relatively complete. Therefore, Wikipedia is an information tool of acceptable quality” (West & Williamson, 2009, pg 268). While the creation and maintenance of classroom wiki projects is an entirely different undertaking, the validation of Wikipedia itself can be seen as a validation of wiki integration within the higher education experience.

While the effects and benefits of creating and integrating wiki style websites in the college curriculum have not yet been adequately explored, in their study on the educational uses of social networking adaptive technologies such as blogs, rss feeds and
wikis, Duffy and Bruns (2006) begin to outline some of the potential benefits. Most interestingly, wikis are shown to be a useful tool for group note-taking, “wikis can be used for students to add summaries of their thoughts from the prescribed readings, building a collaborative annotated bibliography” (Duffy & Bruns, 2006, pg 5).

Because millennials are already predisposed to group work, a wiki-based project should be a natural fit for projects that emphasize collaboration, “wikis are tools for group authoring… some attempt is made to coordinate the edits so that everyone’s work is equally represented; using a wiki pulls the group members together and enables them to build and edit the document into a single, central wiki page” (Duffy & Bruns, 2006, pg 6). Although millennials are, on the whole, more tech-savvy than previous generations, the wiki format may not be immediately intuitive to all students, and may require some level of tutorial, though students tend to adapt quickly to the technological environment of the wiki (Bruns & Humphreys, 2005).

While the wiki itself is in a relative infancy in terms of college curriculums, its usage stands to reap tremendous benefits for students and educators alike, particularly in terms of collaborative projects such as note-taking and editing wikis for an entire classroom. Because the wiki acts as a tool for group authoring, the end project of a wiki should be a stronger product than any one student could produce. In practice, students each take notes during a traditional classroom session. Students then use those notes to review for exams or projects. However, if the notes were supplemented in the class, by a collaborative wiki, the end product of notes should be stronger and more complete than any one student alone would complete. The online format and collaborative nature of the wiki will engage them more than the traditional habit of individual note-taking could. To test this, two studies were conducted. The first was a within group comparison to determine if the presence of a wiki produced positive outcomes on assessment. The second was a between group comparison to replicate and bolster validity.

**Discussion**

The first study included twenty students in a Business Communication class at a small Midwest college during 2008. For this experiment, students were not given instructions for the first unit of the class and were administered the first unit exam. For the second unit, three students each class period were required to take class notes and then post those notes on the wiki. Students were instructed to only post notes pertaining directly to class content. Each student was required to post for one class period, but encouraged to contribute any time after subsequent class periods notes were updated. The exam score for Unit 1 and Unit 2 was then compared.

A t-test was to compare student exam scores for Unit 1 (before the wiki) and Unit 2 (after the implementation of the wiki). For Unit 1, the class mean was 125.25 (for an exam with a maximum of 150) with a SD of 8.82. The class mean on unit 2 was 131.20 with a SD of 12.42, t(19)=−2.273, p<.05

The second study included two classes in Public Relations from 2009, with a total of 36 students. For this experiment, one class was provided and required with a wiki to use and the other was not. Students in the class with the wiki were required in groups of three to take class notes and then post those notes on the wiki. Each student was required to post for one class period, but encouraged to contribute any time after
subsequent class periods notes were updated. The final exam score for class 1 and class 2 were there compared. The mean final exam for the class without the wiki was 116.75 (out of 150) and the mean for the class with the wiki was 124.30, t(34)=2.286, p=<.05.

Results suggest that in both classes the requirement that students post and edits notes on a class wiki resulted in better classroom scores. There are several reasons that help to explain the findings. First, from a systems perspective the principal of holism emerges. Through the use of the class wiki, education is not just transmission and transaction but is collaborative. The class as an organization produces synergy; the ability of a group to outperform even its best individual member. The use of the wiki creates an aspect of teamwork that should produce an overall better set of classroom notes than if each person was working creating their notes individually.

The wiki format is also one that engages the current generation of college students in a way that appeals to their technology savvy mindsets, creating a sense of excitement and novelty that is unique to the wiki assignment. This may have the effect of making the assignment seem more relevant and worthwhile to the student.

Finally, the collaborative nature of the wiki also appeals to millennial students. The collaboration inherent in a wiki leads to a greater feeling of investment for students, as they seek to improve the notes not only for themselves, but out of a sense of loyalty to their classmates.

Potential negative aspects also may emerge and should be studied. If a class is highly cohesive a form of group think may occur (Janis, 1972). Because a concept or aspect of the class is left off the first set of posted notes, others may believe that the concept was unimportant and then choose not to post it either. It is not obvious if the use of a wiki would facilitate or impede the emergence of groupthink.

Conclusion
Although mean scores for exams as an outcome measure increased in each class, limitations to the experiment exist. Spurious relationships may exist which are not accounted for. Factors, aside from the use of the classroom wiki might have caused a change in test scores. Maturation may have occurred; things can happen in a semester that produces positive changes in the study habits of students. Selection is a threat in that for the second study, students were not randomly selected to a treatment or control group.

As millennial students continue to enter higher education, it becomes increasingly important that their educational needs be met through emerging technologies. The results of this study show the positive impact that the inclusion of a collaboration-based tool such as a wiki can have on classroom scores. Because of this, further integration of the wiki in the classroom and its impact on the success of millennial students is a valuable avenue for further study.

References


