Choosing A Wiki Platform For Student Projects – Lessons Learned

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ABSTRACT

Wikis offer many benefits, such as two-way flows of information, early and consistent feedback, and greater student group collaboration, in an educational setting. Some researchers have already reported on the use of Wikis in their classes. However, instructors must choose an appropriate Wiki platform in order to receive all of the benefits of their use. Failure to do so can lead to significant frustration on the part of both students and the instructor. Using a framework put forth by Schwartz et. al. (2004), this paper reports on the use of various Wiki platforms in an introductory information systems class. Lessons learned from this experience are discussed.

INTRODUCTION

A Wiki is a Web site that allows users to develop documents in a collaborative setting. The most well known Wiki is Wikipedia (www.wikipedia.org) a Web-based encyclopedia that allows anyone to add or edit entries. Researchers have shown that Wikis are useful in the areas of knowledge management and group collaboration (Wagner 2004, Raman, et. al. 2005). More recent research has begun to explore the potential of using Wikis for educational purposes. Some of the research has focused primarily on explaining the Wiki concept to instructors (Skiba 2005, Bergin 2002). Other researchers (Engstrom & Jewitt 2005, Bergin 2002) have examined the roll of the instructor or instructor developed Wikis.

More recently Watson, et. al. (2008) have argued for the use of Wiki technology as part of the "open classroom". They point out that a number of potential benefits of Wikis in information systems education. Among these benefits are greater student engagement, two-way flow of knowledge, avoiding waste in education, and knowledge creation and learning.

The goal of this paper is to provide guidance for instructors who choose to assign student Wikis. Using a framework for Wiki platform selection provided by Schwartz et. al. (2004), lessons learned are drawn from using various Wiki systems used over the past three years in an undergraduate introductory information systems course.

The rest of the paper proceeds as follows. The next section provides background information on Wikis in general and the selection framework. The framework is then applied to four Wiki platforms. Limitations are discussed, followed by a summary of the lessons learned. Finally, the paper summarizes lessons learned and suggests future research directions.

BACKGROUND

Wikis

According to Wikipedia (which is itself a Wiki), a Wiki is "a type of website that allows users to easily add, remove, or otherwise edit and change most available content… This ease of interaction and operation makes a Wiki an effective tool for collaborative writing." Wiki also refers to the software used to create a Wiki Web site. The first Wiki (named for the Hawaiian word for fast – wikiwiki) was created in 1995 by Ward Cunningham.

Cunningham (2006) put forth eleven design principles for Wikis, they are:

- Open - Should a page be found to be incomplete or poorly organized, any reader can edit it as they see fit.
- Incremental - Pages can cite other pages, including pages that have not been written yet.
- Organic - The structure and text content of the site are open to editing and evolution.
- Mundane - A small number of (irregular) text conventions will provide access to the most useful page markup.
- Universal - The mechanisms of editing and organizing are the same as those of writing so that any writer is automatically an editor and organizer.
- Overt - The formatted (and printed) output will suggest the input required to reproduce it.
- Unified - Page names will be drawn from a flat space so that no additional context is required to interpret them.
- Precise - Pages will be titled with sufficient precision to avoid most name clashes, typically by forming noun phrases.
- Tolerant - Interpretable (even if undesirable) behavior is preferred to error messages.
- Observable - Activity within the site can be watched and reviewed by any other visitor to the site.
- Convergent - Duplication can be discouraged or removed by finding and citing similar or related content.

Many Wikis, especially earlier one's, use a simple markup language called WikiText. However, there is currently no standard for WikiText, so individual implementations may vary. All Wiki platforms provides the ability to hyperlink and includes basic formatting tags (i.e., bold, paragraph, etc.).

Many Wikis provide the ability to track the history of changes and compare various versions. Some also allow users to rollback to a previous version. In addition, Wikis can track contributions by individual user. This is a particularly useful feature in an educational setting, as it allows instructors to see the contributions of each member of a student team.

Wiki Selection Framework

The nature of Wikis makes them an ideal resource in an educational setting. Some instructors (Bergin 2002, Wang & Turner 2004) have reported using Wikis to communicate and interact with their students. Due to their collaborative features, Wikis are also perfect for group projects.

Schwartz, et. al. (2004) describe a number of factors that need to be considered when choosing a Wiki platform for educational purposes. These factors include: cost, complexity, control, clarity, common technical framework (CTF), and features. Cost includes not only any upfront cost to acquire Wiki software (much of which is available for free), but also incorporates ongoing maintenance costs. Complexity deals with issues such as availability of technical support and whether the user needs to install the software themselves or will use a hosting provider. Control issues include password protection for Wiki content, user registration, and various levels of user rights. Clarity includes concepts like keeping a history of older versions of each page, the ability to easily identify new content, and the ability to create, edit, and delete pages. In the educational setting, clarity is particularly important. For example, instructors need the ability to easily identify who has been contributing to the Wiki and what the contribution has been.

A common technical framework allows for the manipulation of the Wiki through a standard Web browser. Some Wikis provide a host of additional features, such as group calendars, Blogging systems, insertion of media files (sounds, movies, etc.), and the ability to run surveys.

While the Schwartz framework is useful, it is definitely instructor focused. The most glaring omission from a student perspective is ease of use. A simple WYSIWYG editor is essential for student Wikis.

APPLYING THE FRAMEWORK

During the past few years we have assigned a Wiki project as part of an introduction to management information systems course in a business school at a public commuter university. Many of the students live off campus and hold outside jobs.

The project involved groups of 4-5 students researching an emerging information technology and using the Wiki in place of a term paper to report on that technology. The Wikis were due during the last two weeks of the semester. The rationale for using a Wiki for this assignment was fourfold: (1) to provide students with an understanding of Wikis and their use in a business setting, (2) facilitate student teamwork in a virtual environment, (3) provide early feedback to students on a semester long assignment, and (4) provide the instructor the ability to determine individual student's contributions to their Wikis.

The criteria for grading the Wikis included not only the content, but proper use of Wiki technology. Some of the required elements for each Wiki included use of internal and external links, and inclusion of embedded media (such as pictures, audio, or movies). In addition, individual contributions to the Wiki were considered when assigning student grades.

Over the period of time in question four different Wiki systems were used – TikiWiki, Schtuff.com, JotSpot.com, and Wetpaint.com. The selection and use of these platforms along the criteria identified by Schwartz (2004) reveals important lessons for other instructors who would like to use a Wiki in an educational setting.

Cost

When selecting a Wiki for educational purposes cost is definitely a consideration. Fortunately, many Wiki systems are available for free. However, instructors must be aware that even apparently free systems may have a cost. For example, TikiWiki is an open source Wiki system that can be downloaded for free (see info.tikiwiki.org). However, it must be installed on a Web server, which may entail a cost.

In addition, instructors must be aware that free hosted Wiki sites might change their policies and pricing at any time. This problem actually occurred during the Spring 2006 semester. At that time we were using JotSpot, a hosted Wiki system (now owned by Google), that was free. However, during the semester JotSpot began charging a small fee. While the fee was nominal student were reluctant to pay and quite annoyed.

Finally, many free Wiki sites generate revenue by displaying context sensitive ads on the Wiki. Some of these ads may be risqué and otherwise distract from the educational purposes of the Wiki. Some of these sites do have academic settings that will remove the ads and may provide additional features.

Complexity

Schwartz (2004) includes many concepts under the area of complexity. However, we can break it down broadly into two categories – complexity in setup and support for users. For example, non-hosted Wiki software, such as TikiWiki, involves quite a bit of complexity. It requires the instructor to download the software, and then upload and install it on a Web server. In addition, the instructor must create separate Wiki areas for each group and my need to add user accounts for students. Hosted Wiki sites, such as WetPaint.com, involve a low level of complexity as they are already setup and students can register accounts themselves.

The same pattern of complexity holds true for user support issues. Since most non-hosted Wiki software is open source, there is no company users can call for technical support. However, some products may have a vibrant online user community students can turn to. Most hosted sites provide tutorials, forums, FAQs, and e-mail support.

Control

The ability to control who can write, read, edit, and comment on a Wiki is particularly important in an educational setting. Obviously, we would not want members of the general public to have the ability to write or edit a student Wiki prior to grading.

Ensuring that each member of the student group and the instructor has the appropriate access permissions on the Wiki is particularly important. In almost every semester, at least one group has problems with permissions. For example, during the Fall 2007, while the class was using WetPaint.com, one student Wiki administrator set all of the other students as Writers. This seems logical as all of the students were going to write the Wiki. However, on WetPaint.com, those with Writer permissions do not have the ability to create new pages. Thus, it is important for the instructor to understand the various control permissions and provide appropriate guidance to students.

While comments from knowledgeable members of the public might prove useful, past experience reveals that most of these comments appear to be spam. The various Wikis used provided different levels of control in terms of who could leave comments. For example, at the time we used it Schtuff.com allowed anyone to comment on a Wiki. On the other hand, WetPaint.com allows the Wiki administrator to set various levels of access, one of which is the ability to leave comments, but not edit any content.

Clarity

Schwartz (2004) defines a quite a number of elements of clarity. From the instructors perspective the most important of these is version tracking and the ability to easy determine the contribution of each individual user. Fortunately, most Wikis provide this functionality. However, exactly how each system implements these features can make a big difference.

For example, TikiWiki provides a list of various versions. The instructor needs to drill down in order to see the actual changes made. In order to determine the quality and quantity of content contributed by each student, the instructor needs to drill down on each version.

WetPaint.com, on the other hand, provides a quick summary of each users' number of page edits, number of discussion threads, and date of last contribution. This type of summary is helpful in determining who has, and has not, been participating in the project. In addition to the summary, WetPaint.com provides a full audit trail for each user's contributions. So the instructor can quickly see how many pages each student created and how many words they added to the Wiki.

Common Technical Framework

There does not appear to be any major difference in common technical framework (CTF) among the major Wiki providers. All of them are editable using a Web browser and all resolve simultaneous editing conflicts. The only major difference is their support for various Web browsers. For instance, WetPaint.com provides only limited support for the Safari and Chrome Web browsers.

Features

Wikis have evolved significantly over the time period in question. Software, such as TikiWiki and systems like Schtuff.com provided very few features beyond the basic Wiki functionality.

Perhaps the most important feature for educational use is WYSIWYG editing. Early Wiki systems (TikiWiki, Schtuff) required students to use a Wiki markup language. This made even simple edits difficult and ensured a steep learning curve. Newer systems (WetPaint.com, JotSpot.com) provided a WYSIWYG editing system that is similar to word processing packages. They allow students to quickly enter and format text, and add hyperlinks, pictures, and other content.

Many Wiki systems now include a host of additional features, such as Blogging, group calendars, surveys, and to-do lists. Perhaps the most interesting new features are widgets and really simple syndication (RSS) feeds. Widgets allow users to easily insert content from other Websites directly into their Wiki. For example, a common Widget allows users to insert videos from YouTube or Google video. RSS allows the creators of Web content to easily syndicate that content through the use of standard extensible markup language (XML) formatting. RSS feeds that are included in a Wiki allow for that page to automatically update itself based on the content from the feed. Widgets and RSS feeds can add a "fun factor" to a student Wiki project. In addition, RSS and Widgets are particularly useful in an information systems course as they allow the instructor to discuss this material and students to actually use it.

LIMITATIONS

This study has a number of limitations. First, clearly only a limited number of the possibly Wiki systems have been used. Finally, the findings of this study may not be generalizable to courses taught in other disciplines.

CONCLUSIONS – LESSONS LEARNED

Student Wikis in an educational setting serve a number of purposes. First, they help students learn about an important information technology trend. Second, using a Wiki allows the instructor to provide continuous early feedback. Third, Wikis can help student groups communicate and develop their "paper" more effectively. This is particularly important for students who may have many outside obligations and thus little time to meet with their group outside of class.

The results of this research reveal important lessons learned for choosing a Wiki platform for educational purposes. First, it appears that hosted Wiki systems have a significant advantage over open source. Many of them are available at no cost and some provide special features for academic users. In addition, hosted systems provide technical support, forums, and tutorials – tasks that would fall to the instructor when using an open source system. However, instructors must be aware that the hosted Wiki space is rapidly changing – companies may be bought, change pricing schemes, or even go out of business entirely during the semester. Therefore, instructors (and students) should have a backup plan ready to go in case such problems arise.

Second, instructors should put considerable thought into access controls and need to be certain that all students are aware of how controls should be set. Depending on the purposes of the Wiki, instructors might want to allow the general public to provide comments. However, this situation requires monitoring as many comments left may be inappropriate or spam.

Third, the Wiki should provide the ability for the instructor to quickly and easily determine the exact contribution of each member of the group. While most Wiki systems provide some amount of individual level audit tracking, many do not present this data in an easily accessible format.

Fourth, perhaps the most important lesson is that the Wiki must provide a WYSIWYG interface. When using Wikis that relied only on a Wiki markup language, students reported a great deal of dissatisfaction and frustration with the project. In addition, information systems instructors in particular might want to consider a platform that includes additional features, such as widgets and RSS.

FUTURE RESEARCH DIRECTIONS

The use of student Wikis is a relatively recent phenomenon, and as such has not been extensively studied. There are a number of important issues for future research in this area. First, we need to have a better understanding of how students actually use Wikis. Some of the more compelling research questions include the following. Do students work in a more traditional format, such as circulating a document or meeting face-to-face and then complete the Wiki? If, so how can instructors encourage students to use the collaborative features of Wikis? Do students prefer to work with the Wiki or in a more traditional format? Are their differences in preference for students who have large obligations (such as work or family) outside of school?

Finally, one of the main benefits of using student Wikis is the ability to provide early feedback to students. This puts a responsibility on the instructor to actually provide that feedback. Future research should examine this interaction. Do students want early feedback? How do they use such feedback? What additional level of effort is involved from the instructor's standpoint?

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