

# TWiki and WetPaint: Two wikis in academic environments

Libby Hemphill, Jude Yew  
School of Information, University of Michigan  
1075 Beal Avenue  
Ann Arbor, MI 48109-2112  
+1 (734) 647-8041  
{libbyh, jyew}@umich.edu

## ABSTRACT

This paper describes a community-based effort to preserve organizational knowledge and to orientate newcomers to a graduate school. It presents a very brief review of recent research on wiki use in corporate and organizational environments and initial data from two wiki implementation iterations within our academic community. We contrast use of a TWiki with that of a WetPaint wiki. Our data suggest that with low barriers to participation and a great deal of patience, wikis can be useful stores for community information and knowledge sharing.

## Categories and Subject Descriptors

H.5.3 [Group and Organization Interfaces]: Collaborative computing

## General Terms

Measurement, Design

## Keywords

Wikis, comparison studies, academic environments, collaborative editing, social computing

## 1. INTRODUCTION

Derived from the Hawaiian word meaning “fast”, Wikis are rapidly gaining ground as technologies to support collaboration [7]. Recent studies have explored how wikis are used in corporate environments [1], for political collaboration [2], in classrooms [3], and as encyclopedias [4]. The study reported here is perhaps best understood as an implementation project. We used two different wiki platforms over different academic terms and examined their use. Our aim is to understand how wikis are used in an academic community and what barriers to their use may be alleviated. The following provides a brief discussion of relevant wiki literature, describes the two different platforms and some motivation for their use, and discusses the nature of use on each platform. We conclude with a short discussion of how those uses might be explained and how our data can inform the next iteration of an academic community wiki.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.  
GROUP'07, November 4-7, 2007, Sanibel Island, Florida, USA.  
Copyright 2007 ACM 978-1-59593-845-9/07/0011...\$5.00.

## 2. RECENT WIKI LITERATURE

Wikis are server software applications that allow users to change the content and organization of web pages. They usually keep a history of changes made and make that history available through links on each page. The concept of “open editing” is central to wiki development; the idea is to allow ordinary users to contribute content and to encourage Web content development through a democratic, minimally technical process [5]. Wikipedia is likely the most well known public wiki<sup>1</sup>. Wikipedia is free online encyclopedia with more than 5 million articles in over 100 languages [6]. Wikipedia and other wikis have been studied in a variety of contexts ranging from corporations [1] to virtual communities [7]. Even the popular press lauds the open content model of wikis as a new technology to support collaboration [8].

Majchrzak, et.al, found that when used in corporate environments, wikis can provide benefits by enhancing reputation, making work easier, and helping an organization improve its work processes [1]. The wiki studied there supported a variety of work including software development, project management, and ad-hoc collaboration. Wikis were sustainable, useful sources of content for novel situations and when contributors were recognized as credible sources of information.

Makeice's PoliticWiki study explored how wikis may potentially contribute to political activism [2]. He found that seeding wikis with content sometimes discouraged participation; the seeded content seemed fixed to new users. He also found that small groups could benefit from wiki use – Wikipedia's millions of users are not required for a wiki to be successful.

In studying wiki use in classrooms, Wang and colleagues found that wikis are able to encourage student participation by allowing them to be co-creators of content [3]. They found the ease with which users could learn the wiki markup language and the ability of instructors to implement access controls (e.g. to lock pages, to keep draft pages hidden) were essential for the classroom wiki success.

In their pioneering work on wikis, Leuf and Cunningham also acknowledged that there were several barriers to the widespread adoption of wikis. In interviews with actual users, they found that the lack of what-you-see-is-what-you-get (WYSIWYG) editing prevents the casual user from using a wiki [7]. This is an important point as the ability for anyone to change any page in the database is crucial to the idea of “open editing” and the community formation that surrounds a wiki. Additionally, Leuf

---

<sup>1</sup> <http://en.wikipedia.org>

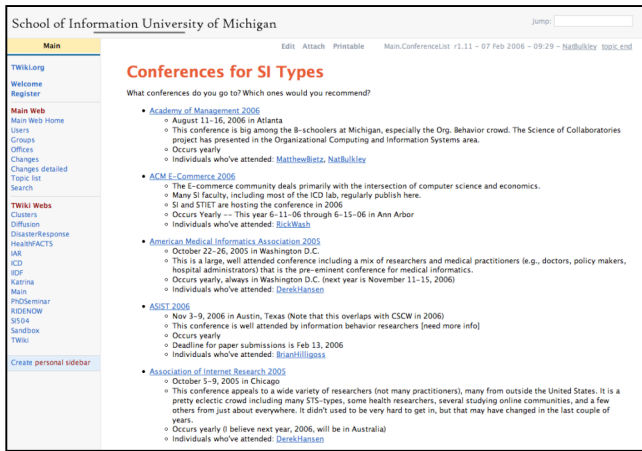


Figure 1. TWiki Conferences page

and Cunningham found that having a pre-existing set of “core” pages can help scaffold the participation of news users by giving them know-how and an initial structure to build upon. Visitors who add content may become stakeholders in the wiki and its further development. Based on these findings and our personal experience with wikis, we set out to test the usefulness of wikis for our academic community.

### 3. COMPARING TWO WIKI PLATFORMS

#### 3.1 Motivations

Our community experiences a great deal of turnover as students and faculty enter and leave the program. New members come from a variety of disciplinary backgrounds, disparate geographic areas, and are not familiar with the norms and procedures of the School or the University. Knowledge about the School and its environments is distributed among the constituents of our community, and such knowledge can be tremendously helpful for newcomers to succeed in graduate school.

Given a wiki’s advantages over other collaborative technologies - it captures version changes, allows for distributed administration, and persists - wikis were chosen as a means to organize and share knowledge in our community. Threaded discussion boards force topic-reply structure that can make finding relevant information difficult. Email lists interrupt work and have no persistent record. A wiki’s core function is the ability for many people to contribute, edit and archive shared content. It’s likely that given the knowledge distributed among members of an academic community that such a technology could prove useful.

Wikis offer a persistent, flexible platform for sharing information as they provide context and distributed administration not previously available for electronic community resources. The history views and comment areas of a wiki allow us to examine the paths through which wiki pages are changed and updated to reflect different opinions, approaches, and policies. Moreland’s characterization of transactive memory [10] suggests that anecdotes and informal information sharing hold useful information that is not available from official documents and existing resources. As communities grow, they also learn which tasks are best performed by people. Transactive memory refers to knowledge of individual knowledge and expertise in organizations. Wikis keep track of authors’ contributions and provide a record for transactive memory. We expect the wiki to

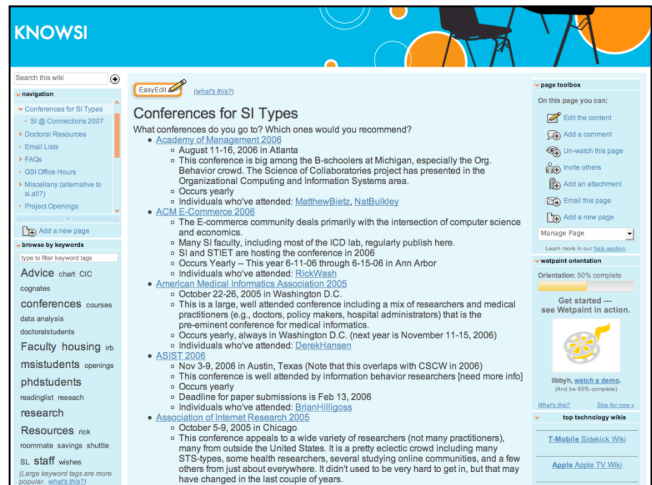


Figure 2. KNOWSI Conferences page

be most useful when it can make practice transparent. For example, by providing examples of informed consent documents on a wiki, these documents serve as a record of the transactive memory regarding the human subject and research guidelines held by more experienced members of an academic community. The wiki’s ability to keep track of authors and documents allows users to know who to ask for help with an IRB application while providing them a successful example to follow.

We predict that participation in the virtual community surrounding the school wiki will help to develop social and intellectual ties among members in the physical community. By involving the user in the process of creation and collaboration of a community knowledge base, the wiki provides advantages that the physical community cannot. For example, the wiki automatically captures and archives the history of a discussion so that context remains for decisions made. Such a context is crucial in the settlement of disputes and conflict and also allows the newcomer access and insight into the knowledge held by the community [9]. By providing and studying the online resources and behavior of the SI wiki users, we will uncover new ways to understand our academic life. The sections that follow provide initial findings from two iterations of wiki deployment within our academic community.

#### 3.2 TWiki

##### 3.2.1 Description

TWiki served as the platform for our community’s first wiki<sup>2</sup>. It launched in 2005 and was first used by members of a research group and students and instructors in a master’s level course. The TWiki is hosted on a private server that is maintained by a doctoral student. TWiki is a flexible wiki platform that allows for extension and customization. It is open source and written in Perl. It has low server requirements and can be implemented on nearly any server platform. See Figure 1 for an example of a TWiki page.

TWiki uses a “web” model for wiki architecture. TWiki implementations are networks of wikis where each “web” is essentially a subwiki. Linking among different webs is easily accomplished, and the result is a network of wikis that share a few overarching pages such as user profiles and help guides. Our TWiki includes 14 webs where each web serves the unique

<sup>2</sup> <http://www.socialcomputingresearch.net/twiki/bin/view>

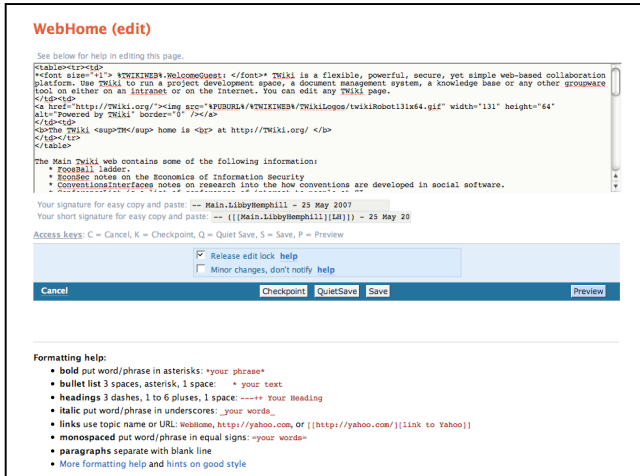


Figure 3. TWiki edit interface

purposes of a given group. For example, the incentive-centered design research group has their own web, and one of the required courses in the Ph.D. program has its own web.

TWiki has its own markup language that users must use in order to control the display of their content. See Figure 3 for an example of TWiki's edit view.

### 3.2.2 Use Data

Usage data about the TWiki is stored at the web level. Therefore, there are 14 different sources of data about the use of the TWiki. Those 14 webs contain over 1000 topics and have over 350 registered users. Because KNOWSI, the second wiki implementation described in the next section, was originally designed to replace just the Main web of the TWiki, only the Main web statistics are reported here. We should also note that the TWiki allows for anonymous editing and suffered from severe spam problems. Further analysis of the log data should allow us to exclude anonymous edits, but we have no way to control for anonymous views or search engine spiders.

The last legitimate edit of the Main wiki by a registered user took place in January of 2007. The TWiki remains in place so that users of other webs may still use it. Page views per month ranged from 290 to 21,165 (mean = 6321 views; s.d. = 5748). The number of edits per month ranged from 0 to 996 (mean = 146 edits; s.d. = 249).

The most commonly viewed pages were user profile pages. Standard TWiki pages such as "WebChanges," a list of recent TWiki changes, and "WebHome," the Main web's home page were the next most popular pages. Spammers were the most active TWiki editors. Doctoral students were the most active legitimate TWiki editors followed by faculty and master's students.

## 3.3 KNOWSI

### 3.3.1 Description

In early 2007, we launched a hosted wiki on WetPaint.com – Knowledge Networked on a Wiki for SI (KNOWSI)<sup>3</sup>. We chose WetPaint because it provided a WYSIWIG editor and appropriate access controls. It was also free and hosted elsewhere. We predicted that the WetPaint wiki would appeal to non-technical

<sup>3</sup> <http://siwiki.wetpaint.com/>

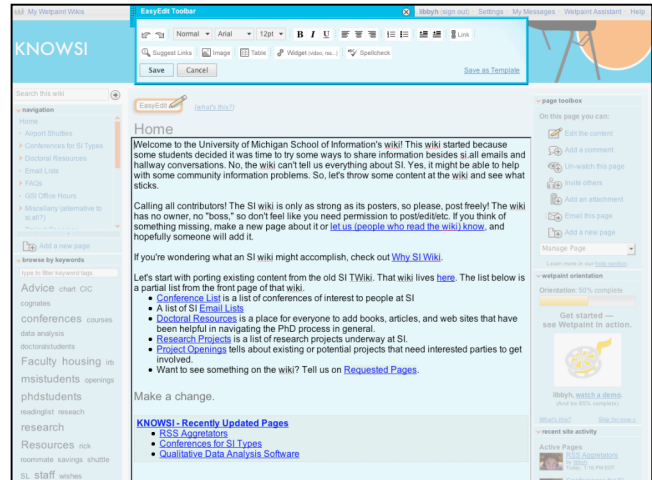


Figure 4. KNOWSI edit interface

users because it did not require users to learn a markup language. It also eliminated the need for dedicated server administration and spam deletion. We seeded KNOWSI with some existing content from the TWiki.

KNOWSI allows users to leave notes about their edits and to tag pages with keywords. It provides hierarchical navigation and keyword navigation by default. See Figure 2 for an example of a KNOWSI page. The editing interface for KNOWSI is a WYSIWIG editor. Learning wiki markup was a recognized barrier to participation on the TWiki and in the literature, and we hoped by lowering it with the WYSIWIG editor we could encourage use. See Figure 4 for an example of the edit interface for KNOWSI.

KNOWSI suffers from some limitations including inability to include anchor links to sections of the same page. It also requires that text ads be visible on various sections of the page, making it sometimes hard to tell what is user-contributed and what is advertiser-contributed content.

### 3.3.2 Use Data

Unlike the TWiki, KNOWSI has just one area in which it stores and reports site statistics. Since its launch in February 2007, KNOWSI's page edits per month have ranged from 6 to 16 (mean = 9.5 edits; s.d. = 4.5). Page views have ranged from 256 to 1746 (mean = 858 views; s.d. = 632). Page editing privileges are limited to registered users, and anyone may register. 7 (17%) of KNOWSI's 42 registered users have made edits. The most popular pages on KNOWSI are the home page, "Grilling @ SIN" – a page dedicated to a semi-weekly social event, "Qualitative Data Analysis Software" – a page compiled by doctoral students, and

	TWiki Main web	KNOWSI
Registered Users	393	42
Pages/topics	408	38
Dates	June 2005 – January 2007	February 2007 – May 2007
Views/month	6321	858
Edits/month	146	10

Table 1. Wiki statistics

“Conferences for SI Types” – a page listing conferences members of the SI community attend (see Figure 2). The “Doctoral Resources” page receives the most edits. Of the 7 users who edit KNOWSI, 4 are doctoral students, 2 are master’s students, and 1 is a faculty member.

#### 4. DISCUSSION

We set out to study whether a wiki built on one of two platforms could become a useful place to store organizational knowledge. The number of users and editing activity on both platforms indicate that TWiki and KNOWSI are likely useful places for users to find and share information about and relevant for community.

Doctoral students emerged as the most frequent editors of pages on both platforms. However, only one person overlaps between the doctoral students who edit the TWiki and those who edit KNOWSI. The most active page on KNOWSI – “Doctoral Resources” – was originally authored on the TWiki and copied over in the seeding of KNOWSI. It lived on TWiki for over a year with just one author who made no edits after the original posting and formatting. In its four months on KNOWSI, “Doctoral Resources” has been updated 16 times by four different doctoral students and one faculty member. It also now has 8 subpages about job hunting, poster preparation, doctoral student publications, and other content not previously shared on the TWiki.

The shift from the Main web of the TWiki to KNOWSI was immediate. As soon as KNOWSI launched, no one edited the Main web again. Changes to KNOWSI have been bursty, and the average edit rate is quite low. However, changes continue to be made, and new authors make edits each month. This indicates that KNOWSI is growing, albeit slowly. The audience and user base for both wiki systems was the same; more users, and users with more kinds of users, were active on KNOWSI. Compared to the TWiki, KNOWSI users are more active editors of content pages; TWiki authors spent more time editing their personal profile pages than editing pages with general content. Even though anyone can register for KNOWSI accounts, editors must have an account to make changes. This low-level access control appears to have solved much of the spam problem that plagued the TWiki.

The “Doctoral Resources” page and eventual section are unique on KNOWSI because they are the only seeded content that has changed much since its launch. It is too early to tell whether KNOWSI will see the resistance to change of seeded information that Makice found or whether seeding will encourage participation as Leuf and Cunningham found.

The rapid and complete shift from TWiki to KNOWSI may be attributed to the user-friendly features of KNOWSI such as WYSIWIG editing and automatic navigation generation. The markup language TWiki requires users to learn proved to be a powerful deterrent to nontechnical users. Some users also expressed frustration at the disorganized nature of the TWiki. KNOWSI’s editor looks much like a word processing editing menu, and KNOWSI automatically builds a navigation menu based on the links users establish among pages. The average edit rate has been increasing throughout KNOWSI’s lifespan, and it will be interesting to see if that growth continues. KNOWSI has sections such as “Miscellaneous” where users are beginning to post links to interesting external web sites; this page was originally started as an alternative to one of the community-wide

email lists that saw a lot of link-sharing traffic. Moving sharing behavior from email to a wiki is likely to take some time.

#### 5. LESSONS LEARNED

This data suggests that low barriers to participation – including easy editing tools – and patience encourage wiki use and that such use may prove beneficial for newcomers to academic environments, especially doctoral students. KNOWSI attracts users with its easy-to-use editing interface and prevents spammers from becoming the most active users.

#### 6. FUTURE RESEARCH

These lessons are just a few of the many to learn in exploring how to effectively deploy wikis in organizations. Our immediate next steps are to conduct interviews with users of both platforms to understand some of the differences we see in the use data. We will also explore the impact of seeding content on editing behavior in KNOWSI. We are also interested in how wikis can work in concert with other technologies such as email lists, discussion boards, and blogs. Each other those technologies has particular affordances and drawbacks, and future research should explore how they can best be used together usefully.

#### 7. ACKNOWLEDGMENTS

Our thanks to all the SI community members who contributed their content, questions, and comments to the wikis we examined for this study.

#### 8. REFERENCES

- [1] A. Majchrzak, C. Wagner, and D. Yates, "Corporate wiki users: results of a survey," *Proceedings of the 2006 international symposium on Wikis*, pp. 99-104, 2006.
- [2] K. Makice, "PoliticWiki: Exploring Communal Politics," presented at WikiSym 2006, Odense, Denmark, 2006.
- [3] C.M. Wang and D. Turner, "Extending the Wiki Paradigm for Use in the Classroom," presented at International Conference on Information Technology, Coding, and Computing, 2004.
- [4] J. Voss, "Measuring Wikipedia," presented at ISSI 2005, 2005.
- [5] "WhatIsWiki" - <http://www.wiki.org/wiki.cgi?WhatIsWiki>
- [6] "Wikipedia Statistics" - [http://en.wikipedia.org/wiki/Wikipedia:About#Wikipedia\\_statistics](http://en.wikipedia.org/wiki/Wikipedia:About#Wikipedia_statistics)
- [7] B. Leuf and W. Cunningham, *The Wiki Way: Quick Collaboration on the Web*: Addison-Wesley, 2001.
- [8] K. Swisher, "Boomtown: "Wiki" May Alter How Employees Work Together," in *Wall Street Journal*. New York, NY, 2004
- [9] F. Viégas, M. Wattenberg, and K. Dave, "Studying cooperation and conflict between authors with history flow visualizations," presented at CHI: Conference on Human Factors in Computing Systems, 2004.
- [10] R. L. Moreland, L. Argote & R. Krishnan (1996). Socially shared cognition at work: Transactive memory and group performance. In J. L. Nye & A. M. Brower (Eds.), *What's so social about social cognition? Social cognition research in small groups* (pp. 57–84). Thousand Oaks, CA: Sage.