Wiki in the Social Semantic Desktop

A usability study of Wiki as a tool for collaboration

CHRISTINA STRANDÄNGER

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CHRISTINA STRANDÄNGER

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Supervisor at CSC was Rósa Gudjónsdóttir
Examiner was Kerstin Severinson Eklundh

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Abstract

This Master’s thesis portrays an evaluation of wiki as a platform for collaborative and individual work within the Nepomuk project, funded by the European Commission as part of IST Semantic based knowledge systems programme (FP6-027705). Modern work is relying more and more on teams and information sharing, which has increased the demand for social software such as wikis. After a usability evaluation study, interviews with users and a participant observation study to make communication within a group of friends more effective, this Master’s project has resulted in guidelines that should be used when starting a wiki. Wikis are useful in all groups that need an efficient way to communicate, such as project groups at work, sports teams and other associations or friends planning an event together. To use wikis in the Social Semantic Desktop, the end product of Nepomuk, is an excellent idea since it is easy to use and relatively quick to learn. It reduces the e-mail load and is a great way to implement such a versatile tool.

Wiki i Social Semantic Desktop
En användbarhetsstudie av wiki som samarbetsverktyg

Sammanfattning

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Background

Scope of Work

This thesis treats an evaluation of wiki as a platform for collaborative and individual work within the NEPOMUK project, sponsored by the EU. The wiki concept will be explained in the next chapter. In Nepomuk researchers, industrial software developers, and representative industrial users get together to develop a comprehensive solution for extending the personal desktop into a collaborative environment. This environment will support the personal information management as well as the sharing and exchanging of information across social and organizational relations. The thesis treats users’ experiences with wikis in different environments. It is meant to help developers in the Nepomuk project get an overview of how wikis can be used and lay a good foundation for creating productive and useful wikis. The purpose of this Master’s project is not to choose a specific wiki platform, but rather to evaluate the general usability of wikis.

Project Background

The workplace is changing, especially for “knowledge workers” which is a term comprised of “company presidents but also computer programmers; engineers, medical technologists, hospital administrators, salesmen and cost accountants; teachers, and the entire employed educated middle class which has become the center of population gravity in every developed country” (my italicization). Many companies that used to employ strict top-down management have realized that with collaboration being the essence of modern work there is a great need for efficient communication tools. The typical work model is evolving from being located in a physical place, consistent, foreseeable and hierarchical to being the opposite. Tasks vary with time and work is no longer fixed to a geographic location. Employees are expected to work with people they have never met and perhaps never will meet. People are invited to influence their work environment and are sometimes offered to work from home if that suits their personal needs better. The downside of that is that it makes it hard to gather all staff concerned for a meeting if people are working from locations other than the office. At the same time we are expected to be available outside of traditional office hours, which modern technology has made sure we are, especially if the work is international and spans over several years.

1 The Nepomuk Consortium 2007.
2 Drucker 1973:30.
time zones. Considering all of the above, this new style of work does not only change the hierarchical order and how we relate to our colleagues, but also where, how and when we work.³

Technical solutions can be a great help to facilitate work-related tasks if used effectively, but they could be a hindrance if it is incorrectly deployed. An example of this is e-mail. Many times it is used to send documents around to colleagues, after only making small changes. This behaviour quickly overloads everyone’s inboxes, creating stress and annoyance. There are techniques available to ease communication, such as wikis, but several of them are unknown to most people.

**Nepomuk and the Social Semantic Desktop**

The Nepomuk project is funded by the EU and has a time frame of three years, starting in early 2006 (see Figure 1 for the logotype). The goal is to extend the use of the personal computer to a tool for collaboration over country boarders and cultural differences, as well as making the computer an efficient tool for personal information handling and workspace. The end product will be a Social Semantic Desktop, which, in addition to being a desktop such as Microsoft Windows, Mac OS or Linux, will be a social tool in respect to the well-adapted collaboration features. It will be a semantic desktop, which means that for instance a document will contain more information than the actual text; it will be marked with words that describe the content.⁵

Using tagged documents makes it easier to find the text you are looking for. Many people use tags on their blogs today to categorize their texts, so a text about a newspaper article could be tagged with “personal reflection”, “society” or “things I’ve read”. Pictures can also be tagged. Take a picture of a sunset in Stockholm for example; the picture could be tagged with words such as water, sunset, bridge, Stockholm, Scandinavia, boat. Thanks to the different tags the same picture can be found by many people even though they would use different words to describe it. On online communities such as Facebook it is also common to tag friends in photos, which makes photos easier to share. Since wikis tend to grow rather quickly in size and the navigation issue is not yet fully developed, enabling tags would help when searching for a specific wiki page.

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³ Ehrlich 2006.
Human-Computer Interaction

Human-Computer Interaction (HCI) is a fairly young discipline which pursues to provide an understanding for two complex systems: the computer and the human being. The aim is to understand how users think and act when performing certain tasks at the computer, thereby make the interaction between the two easier and more satisfying. When this is done successfully the user is able to perform the task easier and more effectively than if it is done via a manual system. An effective system is also more fun to work with.\textsuperscript{6}

In the real world users do not perform tasks as isolated events, so to be successful in HCI one needs to have an understanding for many disciplines at the same time. Some of these are psychology, computer science, linguistics and design. There is a higher chance of creating an appropriate system if the developer understands the user and the tasks the user performs. Users may be experts in their own fields but know very little about computers even though they use them as part of their daily work. When users are taking part in developing computer systems from the start, the final product will be better adapted to the users’ needs and feel more natural to use. The best interfaces and systems are overlooked by the users, meaning that the users should concentrate on the task that the system is supposed to help with instead of focusing on how to work the system. The users’ knowledge of the task alone should be sufficient to handle the computer system.\textsuperscript{7}

Even though the system may be good and appropriate for the task it is designed to handle, the users might still miss the manual way because they had a “feel” for how things were done. If the developer incorporates tools that were used in the manual way, for example something that resembles a ruler if the software is developed for graphic designers, it will be easier for the user to adapt to the computer system.\textsuperscript{8}

Not only is usability important for users to feel comfortable when working with the system, but it is also an advantage when marketing a product. If the design is good, as well as the functionality, consumers are more likely to choose the product in the first place and to stay with it when the time comes to upgrade.\textsuperscript{9}

\textsuperscript{7} Faulkner 1998: 1-10.
\textsuperscript{8} Faulkner 1998: 7.
\textsuperscript{9} Preece et al. 2002: 10-12.
Methodology

For this Master’s project various methods have been used for fact-finding and understanding. For the more theoretical parts research has been done mainly through searching the internet, which is appropriate as the subject is closely tied to it and most of the information on wikis can be found there. Books and scientific journals have also been a good source. The latter parts of this thesis needed a more practical approach and data were therefore better collected through interviews and evaluations.

Methods for Evaluation

The four basic techniques for research: questionnaires, interviews, observations and written sources can be used separately or combined. Each technique has its premises and leads to various kinds of information. One can therefore not say that one technique is better than the other for all situations or that there is one perfect technique with will lead to the absolute truth. By combining several techniques to research one subject one can take advantage of different perspectives to contrast and compare results. This method, called triangulation\(^{10}\), gives more data than using only one technique does and thereby enhances the validity of the data and quality of research.

A disadvantage of triangulation is that to release resources for using more techniques the researcher is likely to have to sacrifice certain parts of the evaluation which might have been included if the researcher had only used one technique. With triangulation the researcher can get different types of data about the same subject which makes it possible for the researcher to get a broader and more complete understanding than if only one technique had been used.

Triangulation also makes it possible to confirm or to question the results which have been procured through different techniques.

Usability evaluation is usually performed in a controlled environment, for example a computer laboratory, where an informant performs various tasks to test the product. This is usually filmed and sometimes the user’s mouse movements and keyboard usage are recorded for future reference and analysis. To avoid the stress that some informants may feel in a controlled setting, the evaluations may be performed in an environment where the subject feels more at ease, for instance their work place if the technology is to be used there. This technique helps the researcher understand how the technology in question impacts people’s behaviour. Common techniques include observation and interviews.\(^{11}\)

\(^{10}\) Denscombe 2000: 102-104.

\(^{11}\) Preece et al. 2002: 339-358.
Interviewing users or “experts” can help in estimating the outcome of other evaluation techniques. Usability experts know from experience how a user interface should be set up in order to generate desired results while users who are used to the application can tell the interviewer which functions are commonly used, which features they miss and appreciate and what they like or dislike about the application. Results from the interview can be used as an indication of what to look for in the usability evaluation and participant observation.

When participating in a participant observation the researcher has two roles: user and researcher. As a user the researcher gets to know the application and understands what the other users experience from an insider’s point of view. At the same time the researcher needs to remember that he or she is there to observe how the users are progressing, changes in the dynamics of the group and how the application is used.

There are many reasons for evaluating the usability of a design. The major goals for a software company may include: predicting user satisfaction with the product, understanding how users behave and interact with the system, finding problems, making sure that the software does what it is supposed to do and assessing competitors’ software. Evaluations can be done with a shorter timeframe in mind, for example to correct small errors, or a longer timeframe to see how improvements are made in an iterative development process.

The collection of data for this Master’s project has been done in three different stages, which are presented below.

**Stage 1 - Usability Evaluation**

This part of the study was performed at the informants’ work place. The informants were knowledge workers, ranging from a union representative to a management consultant. They were informed that this evaluation was designed to test the system (wiki), not their computer knowledge or problem solving abilities and that the results would be used in this Master’s project. The informants were first asked about their experience and comfort level with computers, how they use the computer in their daily work and if they had any previous experience with wikis. Then came the usability evaluation part during which the informants were asked to think aloud. The informants read a short description of wikis on the online encyclopedia Wikipedia and shared their thoughts on it. After that they had to create a wiki of their own to use when planning a trip with family and friends. After the session I asked the informants if they had changed their

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12 Preece et al. 2002:343.
13 Preece et al. 2002:364.
14 Torres 2002: 225.
view on wikis after trying it for themselves. I also wanted to know if they would be interested in continuing to use it and for what purpose.

Stage 2 - Interviews with Teachers at Konstfack

The interviews were conducted at Konstfack, the University College of Arts, Crafts and Design. I met with two teachers who had been using wikis for three to four months as a tool for communication between a group of teachers as well as a course homepage. They showed me how they used the wikis and shared their thoughts on how it affected them in their work.

Stage 3 - Participant Observation

I felt that I needed more practical experience with wikis so I started one with a group of friends from my media technology engineering studies at KTH. I have asked the group to tell me what they like and dislike with the wiki and if our relations have changed since we started using it. The questions were asked and answered via msn, on the wiki and by talking about it when we met in person. I have also drawn conclusions from observing activity on the wiki.
Wiki

Definition of Wiki

A wiki is a type of website that allows anyone visiting the site to change its content by adding, removing or editing information\(^\text{15}\) (see Figure 2). The term wiki can refer to the software itself, often called wiki engine or wiki motor, or the site. It is usually relatively simple to use and because of its open concept, it is deployed as a collaborative tool in many places. Applications include knowledge databases, university course homepages, and project homepages. Some companies have even replaced their intranets with wikis or wiki-like software.\(^\text{16}\)

\[\text{Figure 2: Example of how the front page of a wiki may look.}\]

\(^\text{15}\) Many wikis require that the users log in before being able to view or edit the content.

\(^\text{16}\) TWiki 2007.
History

The first wiki, the WikiWikiWeb, was created by Ward Cunningham in 1995 (see Figure 3.) It began as a discussion forum and storage for problem solving in computer programming. Programmers belonging to that group recognized that many problems surface in patterns and discussed solutions to these in a common forum. The group was named the Portland Pattern Repository.

Cunningham, like many others in the 80’s and 90’s, used the HyperCard software that came with Macintosh computers. The software was used for address books, programming, lists, databases and PowerPoint-like presentations and worked in many ways as a Rolodex. HyperCard consisted of index cards on which any type of information could be written. It became very popular for programming and used a simple language called HyperTalk which was much like readable English. An instruction such as “Put the second word on the first line into the field”...
“Surname” would do just what it seemed to do. Each program consisted of a “stack” of cards which could be hyperlinked to each other. An example of a commercial product created in HyperCard is the original version of the popular game “Myst”.

Apple, who makes the software for Macintosh computers, discontinued including HyperCard with new computers. This inspired Cunningham, who worked as a programmer, to develop “the simplest online database that could possibly work” which became the wiki. He invited other programmers to the repository and the wiki has grown ever since. It still exists today and can be found online.

Cunningham, who is an advocate of collaborative ownership, looked at the open source movement when he designed his wiki. The open source community promotes free software and keeps the source code public so that it can be altered by users all over the world. They have exchanged copyright for copyleft which encourages users to improve the source code and continue to redistribute the software for free. The Linux operating system is one of the most famous products of open source. It is free for anyone to use, improve and distribute and thanks to the large amount of programmers working continuously on improvements it is considered the most stable operating system today.

Current Applications of Wiki

Today, wikis are used in several areas. Some wikis are free, others charge a fee. A few examples are: encyclopedias and other reference databases, discussion forums, web pages for personal organization, calendars, project communication and organization. Some companies have even replaced their intranets with wikis or at least let them take up a big part of the intranet. Many companies choose to install the wiki on the company server to have more control over the content, but it is also common to use a web-based solution. The Nepomuk Consortium, which

20 Wikipedia 2007. According to Wikipedia, Myst was the most sold computer game for many years, but was recently put on second place due to the successful game “The Sims”.
21 Apple has developed a “new” tool called SuperCard which anyone can download from their website. It seems very similar to HyperCard and is now marketed as a development tool, mainly to be used for programming. See Apple 2007.
22 Wiki.org 2007.
26 Linux 2007.
27 The term intranet is used to describe a private part of internet, usually only accessible to the employees of a company.
consists of research groups from universities and companies from six European countries, uses a wiki to communicate and collaborate.\textsuperscript{29}

\textbf{Wikipedia}

The most well-known, and probably the most successful wiki\textsuperscript{30} is Wikipedia, an online encyclopedia to which anyone can contribute. Since the Wikipedia project started in 2001, the encyclopedia has grown to more than one million articles in the English version.\textsuperscript{31} This number should be compared with the Swedish national encyclopedia (Nationalencyklopedin), which has 378,000 articles out of which 185,000 are encyclopedic articles.\textsuperscript{32} However, since the fact control is made by the users and not by a group of experts as is the case with any other encyclopedia, not all of the articles in Wikipedia can be considered to have the same high quality as in a traditional encyclopedia. Many of the articles in Wikipedia treat contemporary culture and subjects that would not be found in traditional encyclopedias. Wikipedia is also unique in that it can be found in over two hundred languages, out of which 14 contain more than 100,000 articles.\textsuperscript{33}

Wikipedia is built on an open-source management style and rests on five policy pillars. It is an encyclopedia, not a forum or a trivia collection. Texts must be kept neutral in character. The content is subject to constant revision by anyone who reads it and it will be kept free under the GNU Free Documentation License (GFDL). The site has a code of conduct saying that respect should be paid to others and asks users to assume that everyone wants to do good. The last pillar is that there are no more rules, instead everyone are encouraged to improve the content as they see fit.\textsuperscript{34}

By allowing access to the editing functions be unrestricted, Wikipedia is at risk for sabotage from users who like to post misleading or false articles or even inappropriate material.\textsuperscript{35} The openness does however also provide the solution to these potential problems, since anyone can change the false information. Certain trusted users can also get access to tools for cleaning up more serious problems such as web graffiti. Wikis have a built-in back-up function, so it is possible to go back to a previous version of the site if a page has been vandalized. There is also a possibility for administrators to block certain IP-addresses to control certain users’ unwanted behaviour. This

\textsuperscript{29} The Nepomuk Consotium.
\textsuperscript{30} In terms of recognition and number of visitors.
\textsuperscript{31} The total number of articles in the English version of Wikipedia was 1,097,883 on April 25, 2006.
\textsuperscript{32} Nationalencyklopedin 2007.
\textsuperscript{33} Wikimedia 2007; Encyclopaedia Britannica 2007.
\textsuperscript{34} Wikipedia 2007.
\textsuperscript{35} Davies 2007; Fildes 2007.
method was used in 2006 when it was found that staff members of some U.S. congressional representatives had been editing out unfavourable information about their employers.

Although Wikipedia is now used as a reference in school projects as well as by the media, the critics oppose to the validation process done by the readers instead of by field experts. Their main concern is that there is no one to take responsibility for inaccuracies and that Wikipedia therefore cannot be trusted. However, a test performed by Nature\textsuperscript{36} has shown that Wikipedia generally is as trustworthy as Encyclopedia Britannica. A difference between Wikipedia and more traditional encyclopedias is that new subjects and contemporary words are brought up much quicker in Wikipedia and the articles are written in a less academic manner which makes the texts more accessible to people without higher education.

Motivation for the Use of Wiki as a Collaboration Platform

For a long time tools and applications for personal productivity, for example Microsoft Office programs, have been centered on a single user generating and editing documents. As collaboration is getting more frequent and important in the work environment, features such as shared workspace have been added in order for several people to be able to work together on one document. In many companies there are systems designed to cope with different tasks at work and structures that users have to adjust to. Users, however, are often opposed to these tools and try to find a way to work around them since the systems are not adapted to their needs. That is one reason to why a very high percentage of collaborative work is done in e-mails, although it is not an application designed for that purpose. Considering that the average Fortune 1000\textsuperscript{37} employee spends four hours reading and writing e-mails per day, there is a dire need to launch another efficient and easy-to-use tool.\textsuperscript{38}

The goal of the Nepomuk project is to create a computer platform that eases collaborative as well as individual work. A tool such as a wiki, which eases documentation, information sharing and keeps track of the history of edits, is beneficial to any type of work that contains a large quantity of information, both individual and collaborative. The founder of wiki, Ward Cunningham,


\textsuperscript{37} Fortune 1000 is a reference to a list maintained by the American business magazine \textit{Fortune}. The list is of the 1000 largest American companies, ranked on revenues alone. Eligible companies are any for which revenues are publicly available (which is a larger universe than "public companies," as the term is commonly understood, meaning "companies whose common stock trades on a stock market"). The list draws the attention of business readers seeking to learn the influential players in the American economy and prospective sales targets, as these companies tend to have large budgets and staff needs. Wikipedia 2008.

\textsuperscript{38} Tapscott 2006: 252.
created wiki to be used as a collaborative learning environment for professionals and that is the main selling point for many companies selling wiki solutions today.\(^{39}\)

At the investment bank Dresdner Kleinwort Wasserstein (DKW), wikis were first used in the IT department to document the development of a new product, but it quickly spread to other parts of the organization as a way to kick-start collaboration projects. After six months of usage, the traffic on the internal wiki had exceeded that on the entire company intranet. With more than two thousand pages, the wiki is now used by more than a quarter of the entire workforce at DKW. Avid users have cut meeting times in half and decreased their e-mail volume by up to 75 percent.\(^{40}\) At DKW a weekly teleconference to discuss clients used to take one and a half hours, most of which was spent to update people on what had happened during the past week. Since people started using the wiki for posting their task status, the updating on these weekly meetings is kept at five to ten minutes, leaving the rest of the meeting to the issues that really matter, namely those that concern the clients.\(^{41}\)

**Inherent Advantages**

Wikis have several positive traits that are especially appealing to collaborative environments. In fact, wikis were created with that purpose in mind and the development since has mainly focused on making them user-friendly. A good example of that wikis truly work as collaborative spaces is Wikipedia. The reasons for its success are many. Larry Sanger, one of Wikipedia’s founders, has inspired the following list of success factors which I have adapted based on my experience with wikis to be about wikis in general rather than just Wikipedia: Ease of Editing, Collaboration, Sabotage-proof and Democracy.\(^{42}\)

**Ease of Editing**

Since one does not have to have knowledge in a specific programming language nor have any programs other than a web browser installed on the computer to use wikis, most people can quickly figure out how to edit pages. Some wikis use a WYSIWYG editor\(^{43}\), which often use buttons such as those used in Microsoft Word (see Figure 4). This works well for most users since they are used to for example highlighting a word and clicking on the button marked with a

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\(^{39}\) Gage 2006.

\(^{40}\) Tapscott, p. 253

\(^{41}\) Socialtext 2007.

\(^{42}\) Slashdot 2007. Sanger’s list includes Open content license, Focus on the encyclopedia, Openness, Ease of editing, Collaborate radically–don’t sign articles, Offer unedited, unapproved content for further development, Neutrality, Start with a core of good people and Enjoy the Google effect.

\(^{43}\) WYSIWYG = What You See Is What You Get. In this case it refers to edits being visible directly on the screen.
“B” to make the word bold. Others use a text-based editor (see Figure 5), which are generally preferred by people who are used to programming since they find using the keyboard is faster than using the mouse to point and click. Asterisks could be used before and after the word to make it bold, but there may also be other characters depending on the editor.44

![Figure 4: A WYSIWYG editor. The interface with buttons is similar to Microsoft Word, which most people are familiar with.](image)

Collaboration

One of the greatest ideas of the open source software movement, which wiki is a part of, is the radical collaboration, which allows anyone to edit any part of anyone else’s work. For Wikipedia, this means that the development of the dictionary has gone much faster than it would have, had there been individual authors to each article only. As an added bonus, this means that the texts are automatically polished, both with respect to content and style. The Wikipedia team encourages contributors to put up their unfinished drafts as well, since the whole idea is built on other people reviewing and revising the material. This is a classic principle used in all open source

44 Making a word bold in a text-based editor can look like this: **word**.
45 PBWiki 2007.
software and has helped other successes such as the operating system Linux to become well
known and work as well as it does.

Figure 5: A text-based editor. There are no formatting buttons so the user has to know which characters are used
instead.46

Sabotage-proof

It is often surprising to people that a completely open system can work and do it well, since the
general experience is that when something in society is publicly accessible, it will sooner or later
get sabotaged. However, people who volunteer with their knowledge, skills and time are usually
not out to destroy their own and other peoples’ work, instead they want to see it progress and
succeed. Susning.nu, a Swedish encyclopedia-like database similar to Wikipedia, is an exception
to this. They closed the site for public editing in 2004 due to increasing graffiti on the site. It is
currently only open for editing during a few hours on Sundays.47 Also, wikis automatically save a
history of changes, so it is always possible to go back to previous versions, for example in case of

47 Susning.nu 2008.
sabotage. For companies it is also beneficial to collaborate this way since co-workers do not have to wait for someone else to post their comments before making changes to a document.

Democracy

Radical collaboration promotes decisions made in consensus. The wiki has to be used and updated to work and that will only happen when people feel that they get something out of visiting the site, something that helps them further. It will not work if one person or small group has absolute control over the wiki. Since the wiki is supposed to be dynamic and be changed by the users, there is little risk that initiators will control the wiki. A wiki is good for creating a democratic workplace, since everyone can have their say.

Inherent Disadvantages

No system is perfect and that is true for wikis too. Below I have put together a list of a few problem areas that concern wikis and suggestions on how to make them less of a problem. This list includes Openness, Information exchange takes time, Navigation, Disagreements and Confusion about wiki and Wikipedia.

Openness

There are problems with keeping a system this open and widely accessible. By loosening control one attracts people one does not wish for.48 They may post texts that belong somewhere else or simply be overly persistent and obnoxious which chases other users away. Material that is simply wrong is not a problem, since it will be corrected by other users sooner or later. There might also be “friendly” people who do not share the same goals or opinions on certain matters as the rest of the group does, meaning that they might post texts on the wiki which in some way is disturbing. With this in mind, it is vital for a successful wiki to have a moderator or a group of moderators controlling the information if a big group of people have access to it. This however interferes with the original thought of freedom and implies that there is no such thing as a completely free medium.

Information Exchange Takes Time

Wikis are built on the same basis as communities. For wikis and communities to “live” it is required that new material is contributed and this may of course take some time. “For most scientists and academics, blogs and wikis remain unattractive distractions from their real work.

48 If the administrator makes the wiki private, only invited people will have access to the wiki. The same annoying behaviour may however just as well occur in a closed group.
Many consider them an online version of coffee-room chatter, background noise that goes against the very ethos of heavily filtered scholarly information. This is not necessarily true as many great ideas have come from talking freely, for example over an informal cup of coffee. Some companies encourage employees to use MSN and similar applications to chat with colleagues at work since they have seen the benefits of exchanging ideas in informal environments.

Navigation

Navigation is a problem. There is no sitemap or navigation tool on wiki pages, so users have to re-think how to get from one page to the next. The idea is to follow the hyperlinks from the current page for more information. However, a search function can be found on almost any wiki, but it is an inefficient tool when one is not sure of what one is looking for. If the wiki allows tagging the search function could be of use, but not all wikis feature that. Many wikis also have an alphabetical list of all the pages that have been created on it. Some wikis have solved the navigation issue by providing a “SideBar” which appears on every page and can be used as a navigation tool, but it is usually up to the users to provide the information.

Disagreements

If the rules of the wiki page are not clear to everyone, including what should be discussed and not, there is a great risk that the conversations on the wiki will mainly be about form and not so much about the real subject in which case the purpose of starting a wiki in the first place is defeated.

Confusion about Wiki and Wikipedia

Many people mistake wikis for Wikipedia, mainly because they have never heard of wikis before. The first thing they have to learn is that Wikipedia is an application of wikis and not the other way around. That way they might start to understand that wikis are meant for collaboration and not mainly as an encyclopedia. Another concern connected to Wikipedia is the special type of editing that is done there. The objective in Wikipedia is to speak with one voice, so editing is done by correcting a text which someone has written previously and leaving out the discussion behind the change or keeping it on another page. Editing has another meaning in collaboration

49 Butler 2007.
50 The Swedish IT-consultancy companies Pointer and Josh allow colleagues to chat during work hours, according to personal communication with employees of the above named companies. IBM encourages their employees to use the chat client Sametime to contact colleagues (personal experience).
wikis where the idea often is to keep track of discussions leading to a decision. To confuse these styles of editing could prove to be very annoying to participants and make contributors lose interest when they feel that they are being disregarded.

**Chapter Summary**

A wiki is a type of website that allows anyone visiting the site to change its content by adding, removing or editing information. The first wiki was made by Ward Cunningham and is still in use today as a repository for solutions to patterns in programming. Since then many more wikis have been developed for various purposes. The most common ones include group forums, university course homepages and project administration and collaboration tool.

Wikis are easy to access and to edit. They are designed for collaboration and work well when employed for that purpose. Since all changes are logged the information on the wiki can always be recovered if it is subject to sabotage. Its openness promotes democracy, but may also attract people who do not have the same objective as other group members. Many people confuse wiki, a tool designed for collaboration, with Wikipedia, a free online encyclopedia which is based on the wiki-technology.

With a changing work environment where collaborative work is becoming increasingly important, there is a demand for good tools to ease work. Wiki was built with collaboration in mind and has matured into the attractive application it is today. The fact that many companies and organizations are already using wikis today shows that wikis can be of benefit in many environments.
Usability Evaluation, Interviews and Participant Observation

About the Study

This section of the thesis treats the evaluations, interviews and participant study I have conducted. It is divided into three parts: usability evaluation, interviews with teachers at Konstfack and participant observation.

The reason for using three different methods is that I wanted to see how a wiki is perceived in different settings. How does a new user cope with a wiki? What does an experienced user have to say about it? I also wanted to see what happens in a group that uses a wiki as their main way for communication. Triangulating the problem like this, attacking it from three separate angles, has helped me understand different aspects of how wikis work and how users perceive them.

In the first part I have asked informants, representing the target users, with little or no previous experience of wikis to create a wiki of their own to see how they manage and what their first impressions are. The target user of the Social Semantic Desktop is a knowledge worker who uses computers daily, but does not necessarily know much about computers or technology. These interviews and evaluations were performed at the informants’ work place and filmed by me.

The second part contains interviews with two teachers at Konstfack who at the time had been using two separate wikis for a few months in their tutoring and as a tool for communication between colleagues. These interviews were also video-taped.

The third and last part describes an informal experiment that I set up. After gathering facts for this Master’s project I felt that I needed practical experience with wikis to be able to write about them, so I started a wiki for a group of my friends. They have shared their thoughts about how we use the wiki and how they like it. I have also drawn conclusions from my own experiences with wikis.

All three parts are done with the wiki that PBWiki provides.52 I have looked at other wikis but I chose this one since it is a very simple wiki with few extra features in the free version. The free wiki includes functions such as comments, possibility to upload pictures and files, e-mail notifications and unlimited number of wiki pages. I found it to be suitable for beginners as it also has a rather appealing design.

52 http://www.pbwiki.com
Usability evaluation

Information Concerning the Evaluations and Interviews

During the period that the usability evaluation was performed, the PBWiki site was revised a few times. Therefore, the informants could not perform the exact same tasks. This also means that some bugs and problems mentioned in the report are fixed the day this report is written. The sessions were held in Swedish, which means that the quotes are translated to have the same meaning as in Swedish.

Informants’ Backgrounds and Computer Experiences

The informants in this study are representatives of knowledge workers who use computers daily and use them as their main tool, which also is the target group for Nepomuk. Half of the informants are women and half are men. Their ages span from 29 to 57 with a mean of 41.5 years. Their professions range from land and bank analyst to union representative to management consultant; they are in other words knowledge workers. When comparing themselves to colleagues, on average they consider their own computer knowledge to be “good”\textsuperscript{53}. They all have a positive attitude towards computers and agree on that their daily work could not be performed without one. Most informants use their computer at work for information searching and handling, writing reports and spreadsheets and organizing. Privately they also pay bills, upload pictures from the digital camera and read newspapers. The general interest in new technology is fairly low: they only buy products that they know they will have use for and are not particularly interested in extra features. Only one out of eight informants admitted to testing every feature on a product before losing interest in it and start looking for new gadgets.

It is very common to save all important documents on the computer instead of printing them out and putting them in binders. Almost everyone that participated in the study said that they use the calendar function in Microsoft Outlook or similar programs to arrange meetings.

Knowledge and Experience with Wiki

Only one informant had used a wiki previously. Almost everyone had heard of Wikipedia and just over half had used it one or more times. Two had heard of susning.nu, but no one had used it. MSN and similar programs are commonly used for collaboration with others. Some people use

\textsuperscript{53} Alternatives were ”Very poor”, ”Poor”, ”OK”, ”Good” and ”Very good”. See appendix A.
the intranet provided by the employer for sharing common documents, other use websites such as Project Manager\(^\text{54}\). Those who do not use any of the above e-mail their colleagues, but complain about receiving large amount of e-mails which is time-consuming to go through and fills up their inboxes too quickly. One informant, a trade consultant, had worked with a website similar to Project Manager called Projektplatsen, but thought that it was of better use for the project manager than for the rest of the group.\(^\text{55}\) It is possible to upload documents for sharing on that site, but he felt that it is mostly used by the project coordinator to check up on the group members. Today his organization uses a similar tool that includes a comments feature which works better, more like an internet forum.

No informant was familiar with computer programming or using HTML.

**Task Phase**

For this section the informants were asked to complete a series of tasks on Wikipedia’s and PBWiki’s websites. They began with reading a short text on wikis on the free online encyclopedia Wikipedia to get an introduction to the subject (see Figure 6). Then they were asked to add information to a page and save it. Next they had to create a new wiki on PBWiki and add content to it (See Appendix A).

The first assignment was to get a hint of what wiki is, which was done through reading the summary of an article on wikis on Wikipedia\(^\text{56}\). I have translated\(^\text{57}\) the introductory text on Wikipedia from Swedish to English below:

A wiki, from the Hawaiian word for quick, is a website where the pages can be edited by visitors themselves. The mark-up of links, fonts and other are done by using a special mark-up language which is meant to be easier to use than HTML. The word wiki is mostly used to denote an open wiki to which the public has access and all visitors help with writing and improving the content of the pages, but there are also wikis which allows anyone to read the information, but only the administrator can edit the information. In these cases the wiki system is only a practical way to administrate a website.

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\(^{54}\) Project Manager is the site for a series of online web project management software.

\(^{55}\) Projektplatsen is a project management website, similar to Project Manager.

\(^{56}\) Wikipedia 2006.

\(^{57}\) Since there is no central Wikipedia committee or the like to write Wikipedia’s articles, texts differ greatly between language versions; hence the translation.
The key to the wiki concept is version handling, which means that when someone saves a new version of the text the old version is stored and the text can be restored if needed. This makes vandalism and graffiti easy to handle after the fact. (My italicization.)

![Figure 6: The English Wikipedia article on wikis.](image)

Below is what the informants had to say about what they understood about wikis after having read the above cited text. One informant stated:

“Wiki is a site where you can search for stuff, but you have to be a bit cautious with what you find since anyone can write anything on that site. NE is perceived as slightly more reliable. Wiki seems like fun, an interesting project.”

This informant, a land and bank analyst, clearly believes that Wiki is synonymous with Wikipedia, that it is only an encyclopedia. This is a common misconception. Apparently, reading the explanatory text did not change the informant’s understanding of what a wiki is. The text made the informant enthusiastic about getting started, because she thought it

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60 NE=Nationalencyklopedin, http://www.ne.se
was something one does for fun. She did not quite see that it could be useful for work-related activities from reading the passage. Another informant said:

“Wiki seems to be a website for constructing a website. Various people can add information.”

This informant, who works as a lobbyist, is one of the few who understood the explanation correctly. She continued:

“I am fascinated by the fact that people contribute with information. There has to be someone overlooking that the information is correct. If it is an entire encyclopedia, I wonder how one can make sure that the information is correct.”

Being aware of what and who one’s sources are has become an increasingly important issue on the internet, which is what the lobbyist’s comment reflects. Forums and chat rooms are often monitored by a moderator to keep disturbing and offensive comments away. With so much information available on the internet today it is important to know what one’s sources are. She also says that she is fascinated by the fact that people want to contribute with information and work together with people they will probably never meet. That is something she probably would not do herself. The next informant uttered:

“The article about wiki on Wikipedia is somewhat unorganized. Too much text.”

Many websites, such as newspapers or websites for TV networks which many people visit every day provide much information, just like Wikipedia does. They may not be the best example of how a webpage should look to be easy to navigate, but a person such as this informant, who uses the internet several times a day in her work as a land and bank analyst, ought to be used to how information is presented. I find it strange that this informant was so disturbed by how Wikipedia’s website looks that she chose not to comment on the text itself. She was not asked to read the entire article, only the first few paragraphs. Another informant commented differently on the text:

“Wiki is a language similar to HTML. A mark-up language where one can edit various links and other things simply. There are open and closed wikis where you can interact together. Mostly, it is a mark-up language where anyone can edit what is already written. Wiki is simple and non-commercial since the user interface feels like DOS. It works well. It might scare some users.”

This informant was the only one who had tried working with a wiki prior to the evaluation. A couple of years earlier he played in a band where one of the band members had started a
wiki to make communication about band rehearsal easier. His profession as a management consultant might explain the relatively advanced technical information he provided.

He is correct about that the user interface might scare some users if the wiki only comes with a basic editor. It is however getting more and more common to use a “point-and-click editor”, which is similar to a word processor, such as Microsoft Word. Yet another informant thought differently about it:

“It is an information site where the users contribute with information. I have not quite understood what one can search for. It seems like it is supposed to be fast.”

The informant, a union representative, is partially right; it is an information site where the users contribute with information. The comment about it being fast comes from the origin of the word “wiki”, which is Hawaiian and means fast. The next informants said:

“It is a website which anyone can log in to and write on. It can be edited by others, but there is one kind that only the webmaster can change. It is possible to go back and remove errors if one is a target of sabotage. It is not in any way like an ordinary encyclopedia. The quality varies. As with anything one reads, one has to be critical.”

The informant, another land and bank analyst, is partially right. It is a website that people can log in to and write on, but it is not common to have a webmaster or a wikimaster. Changes are logged so one can go back and rebuild a page that has been subject of sabotage. This informant also did not understand that wiki is neither Wikipedia, nor an encyclopedia. Another informant stated:

“It is a shared encyclopedia to which everyone can contribute with their knowledge. Someone else, for example a webmaster, edits the texts depending on quality. I was familiar with the name Wikipedia, but not that wiki could be used on its own.”

Again, wiki is not an encyclopedia, which is what this trade consultant believes. Wikipedia is not edited by a webmaster or the like, but by the users themselves. There is a group who has the overall control over Wikipedia, but they rarely intervene. The informant continued:

“Wiki seems interesting and I am sure that it works, but vandalism, personal accusations and such things are bound to happen. That is my experience with internet forums.”

The openness of wiki and that it works without being vandalized too often is something that many people are surprised by. I believe that the reason for bad things happening as seldom as they do is that wikis are generally edited by a small group of users and that they
feel that are working toward a common goal. Few people want to destroy something that they have put effort into building.

It is interesting that so many of the informants did not understand what a wiki is even after just having read a description of it. There are several possible reasons for this: the ones that had heard about Wikipedia earlier did not think one step further to figure out that the name Wikipedia is put together by the word “wiki” and the word “encyclopedia” and that wiki could be something on its own. This was the first task, so it is possible that some informants were nervous about having to perform and be smart, especially when I was looking over their shoulder. All the informants had Swedish as their native language, not English, which might have made some of them unable to concentrate enough on the text.

The evaluation included a task of adding text to an already existing page on Wikipedia. Most people had trouble finding the edit tab and the save button. Some people did not know what they were looking for, but in most cases neither the edit tab nor the save button were shown on the screen due to unconsciously scrolling down so that the button was outside of the screen area. Some were confused by the code-like text and did not know where to write in the box provided and wondered if characters such as <, “ and / were needed in order to publish their text.

The next part of the evaluation was to create a wiki at PBWiki.com. The first task was to come up with a name and to register the wiki. PBWiki then sends an e-mail with a few instructions and a link. After following the link and answering a few questions, the wiki is activated. While the e-mail is being sent from PBWiki, an introductory film is shown on the website containing examples on what wikis could be used for.

Quite a few informants did not understand that they had to wait for the e-mail, and were confused when no further instructions came up on the screen. Many complained about that too much information was provided and that they became uninterested in reading it. They would have liked as little information as possible with an option to click on a link if questions should arise. Two informants missed the introductory film, even though they could hear the person speaking. One of them said that she lost interest in watching it when no humans were shown, only screenshots. Others said that the film was a good idea, but the speaker spoke too quickly for them to be able to take it in. Almost all informants who made a mistake during the registration process thought that it was annoying that they had to provide the information again. One informant found the front page of PBWiki to be confusing. He thought there were too many options to click on.
All informants but one used the template “Plan a Trip” when asked to create a page for planning a vacation with friends or family (see Figure 7). The informant who chose not to use the template decided to use the default page because he was not able to understand the options due to poor knowledge of English. He had a hard time completing the tasks in general due to insufficient computer skills. Some forgot to name the new page. Most people provided answers to the issues that came with the template; no one erased the given text or added new subjects. All of the informants were Swedish, but they all chose to write in English and were very concerned about spelling mistakes.

![Figure 7: When creating a new page one has the possibility to choose a template, which is shown to the right.](image)

Although all the informants have Swedish as their native language, they all wrote in English on their wiki, almost as if someone, for example the webmaster, would check up on them afterwards. They got nervous about misspelling words. One informant was unsure of where to write when he got to the edit page and said, “Do I have to write in Timeline and where do I write? On the same line or on the line below?” Once he had clicked on the preview button he understood more, but the result did not look like he had expected. A couple of informants did not know what to do when they were finished writing. They did not know what to look for or
how to move on. One informant looked at an instruction site for using templates before he started editing. He also managed to understand that a headline comes from writing an exclamation mark at the beginning of the line.

The next task was to create a list of fellow travelers. Most informants chose the template for Address Book and were surprised to find that the template preview did not look like the page that they created themselves. They were also annoyed with the amount of text and HTML tags which made it hard for them to overlook the information. It took some time before many of the informants knew where to start writing.

PBWiki has a help function and a tour. The tour has a more modern layout than the rest of the PBWiki pages and many appreciated this layout. One might think that the different layouts would have confused the informants, but it does not seem to have been a problem. In fact, it might even have helped in keeping track of what was their wiki and what was the tour and tutorial. However, many of the informants would have preferred a tutorial where one would have the possibility to try what was being described instead of only reading it. A couple of informants thought that the tour was unstructured and provided too much information. Almost all of the informants confessed to seldom reading instructions and would probably never have tried the tour had they tried this on their own.

A problem with many wikis is the navigation, or rather lack thereof. The PBWiki team has solved this by a SideBar where links to all the pages in the wiki can be displayed (see Figure 8). The SideBar occurs on every page on the wiki. At the beginning of the evaluation period this SideBar was optional and one had to look through the tour or the help function to even know of its existence. Today this feature is automatically added when creating a new wiki and an information text is provided in the box. The informants, who had to look through the tour to find information on it, all overlooked it when taking the tour the first time. Even when told where to look for the information on a navigation tool, it was overlooked.

To create a SideBar one has to write the word in that exact manner, but many missed the capital B and thus created an ordinary page, which does not work as the navigation tool. Some were also confused with not having to use a template when creating the page as they had done with the previous pages. They felt unsure of what to write when there was no pre-written text in the edit box. To insert links to previously created pages, one simply clicks on the page names that are listed to the right or write the page name within square brackets. There is a mouse over help to the different commands in the right hand side column, but most informants did not hold the cursor long enough over the words to read the help text. They tried clicking and dragging the
Figure 8: The edit page for SideBar as it looked during the time of the usability evaluation. It is now possible to choose a new “Point and Click” editor (also known as WYSIWYG editor), which is shown in figure 4. To add pictures or link to previously created wiki pages one simply clicks on the pictures or links to the right.

links into the text box, which does not work. Some went to the pages that they had created, copied the address from the address bar in the web browser and pasted the links into the SideBar text box on the edit page. That works, but includes the entire link instead of the link being “hidden” in a hyperlinked word.

Publishing a picture proved to be a difficult task. The picture first has to be uploaded and then included as a link on the page by clicking on it, much like how one links to another wiki page. The few informants who managed to upload and publish the picture had several difficulties. First, they did not know which page to go to to upload. When they found the upload files page, they were unsure of how to get it on the right page. They got help going to the edit section of the intended page and then tried clicking and dragging it into place. One informant thought that she was using the same method that had worked for including links to her pages as done earlier in SideBar, namely clicking and dragging. She had no recollection of simply clicking on the links to
get them into the text box. A couple of the informants only managed to get the web link to the picture on the page, but not the picture itself.

**Summary of Task Phase**

Only a few informants understood what a wiki is after having read a text about it. Almost all of them were positive to try it, but also somewhat unsure of how to do it. The special characters used for editing on some wikis were disturbing to the informants. They did not know what they were for or if they could publish their texts without them.

The PBWiki team has put effort into making the wiki technology easily accessible, but they are not yet fully there. The introduction and wiki setup phase is not as easy and self explanatory as one may think. Many informants did not know how to move on once they had completed their texts and did not find the save button. The biggest miscalculation is probably that people are less patient than the developers expect.

Although no one will really look at what the informants wrote on their wikis, they were very conscientious about answering every suggested question properly and spelling correctly. I spoke Swedish to the informants at all times, but they all chose to write in English anyway since that is the language on the wiki.

**Post Task Interview**

After the task phase the participants were asked to answer another set of questions relating to their recent experiences with Wikipedia and PBWiki. The first question was to describe wiki.

Four informants made statements that suggested that they had understood that wiki is a way to create web pages. Three informants thought it was an encyclopedia. One of these thought that the encyclopedia was used to create web pages. Another informant thought that the encyclopedia had two parts to it: the encyclopedia and PBWiki. She liked the second part better since she could write lists, plan trips and over all write texts herself instead of just searching for information. The third informant thought that wiki was not only an encyclopedia, but that it also contained a notebook. One informant thought that wiki was some kind of Internet discussion forum.

Creating a wiki went fairly easy for all of the informants. “To fully understand what you can do with wiki and how to do it, it has to be applied to a real task”, one of the informants said. “The alternative to wiki code, HTML code, is a lot harder to understand and to work with.” Earlier experience with computer programming or HTML is beneficiary, but not necessary. It does however require standard computer skills, such as using the internet and handling a text editing
program, and knowledge of the English language. Through getting an opportunity to try wiki, several informants said that the threshold for starting to use it was lowered. One informant thought that wikis work very well with shorter texts. Reading a fifty pages long report or formatting it on the screen for that matter would not be a good use of the system. A few informants said that they do not have enough patience to read an instruction manual, so the wiki has to be very simple and straightforward if the were to use it.

The informants recognized an almost unlimited use for wikis, but thought that it would cater better to private interests than to professional ones. The most common reason for not using it at work would be the security issue. One informant said “Wikis would be better deployed outside the work place, because at work one commonly takes a position for or against something that one does not want to have changed by someone else. It is very vulnerable to have something changeable, since changing it could be a mistake”. Another informant thought that a wiki could replace a tool that the company now uses for projects. He thought that wikis would be useful when working with people who are on different geographical locations. The wiki has to be accessible and reliable, especially when it is used for work-related purposes. One informant thought that the threshold of learning would be too high for his colleagues to endure and that wikis therefore are better suited for private use. Six out of eight informants could see themselves using wikis, either professionally or privately. Some areas of use that they could come up with were invitation for a party, planning a trip or a bachelor party, private organization, cookbook, group project and discussion forum. One informant did not think that she would have use for a wiki. Another informant did not think that his colleagues would be able to learn how to use it. Most informants either use a paper calendar or the calendar function in Microsoft Outlook, so a wiki calendar was not of interest to any of the participants.

The majority of the informants were positive to their wiki experience. They liked the fact that everyone is invited to participate on equal terms because it makes processes more democratic. They also liked that it is easy to use, so one can get started fairly quickly, although they did not think that it is as easy as Word. The templates are good for when one starts using the wiki since it makes people more comfortable with trying new things and gives an idea of what and how to write, though a couple of informants had difficulties using the templates since they did not know where to write. Several informants thought that a wiki is a good starting ground for projects that require cooperation and that it is easily accessible to everyone involved.

Not everyone was comfortable with others being allowed to change the content. They were worried that the wiki would be sabotaged or that a colleague would misunderstand what was intended and change what they had written. One informant was uncomfortable with that no one
was responsible for quality control. He was also afraid that the wiki requires almost daily use for people to remember how to use it.

Some complained on the large amount of explanatory texts, because it made them feel distracted and unfocused on the task. When they needed help they had to click away from the page to find the right help section, instead of having a separate help window. The help function should be divided into two to three levels so that one can get the help and information required depending on interest and the amount of time one can make available. A few people said that they dislike reading instructions and thought that the wiki should be easy enough to use without having to read any. One informant said: “Sometimes you do not feel like using the computer since it is used so many hours every day anyway. Working with pen and paper sometimes gives other and better ideas. The easier the system is to use, the higher the chance is that it will be used.”

**Observations and Suggestions for Improvement**

The informants generally overestimated their computer skills. According to what I observed during the task phase only half of the participants put themselves into the right category.

Every informant but one used the templates. There are several explanations for this, but the most credible one is that they felt pressured, as they had someone looking over their shoulder when they were performing the tasks. They also did not know what to write from the top of their heads, so choosing a template was an easy way out. However, no one dared to erase or change the information that the templates provided. My guess is that they did not realize that they could be changed or that they were allowed to do it. Should templates be included in the final Nepomuk product, I strongly suggest providing a note on that the templates are a suggestion on what can be written on a specific type of page and can be changed or erased if desired.

A reoccurring mistake that the informants made was to forget to fill in the name for the new page. This mistake corrected itself when clicking *Create new page* since no new page can be created without a name.

Many people who are not that familiar with computers do not use the trial and error method and might find it hard to read and overlook too many editing tags, such as HTML, or even wiki characters. With a WYSIWYG interface, similar to Microsoft Word or other word processors, I believe this issue is less of a problem and makes people more willing to use wikis.

The help function provides assistance as it is today, but a great deal could be done to improve it. The tour, which many beginners presumably start with, has a serious navigational problem. The wiki should be left in the background and the tour should be opened in a new window so that it
is possible to go back and make corrections in the wiki if needed. At the time of this usability evaluation, one has to use the browser’s back button to get back to the wiki. The PBWiki team has reprogrammed the tour somewhat and at the bottom of the tour window there is a button that takes you back to the wiki you were working on. A better solution if it is decided that they tour should stay, is to open the tour in its own window or tab. For many of the informants it was natural to close the tour window when they were finished reading. Then the wiki disappeared and they had to open a new window and log on again. The tour also does not add much information even for new wiki users. The help function is sufficient to get started, but it lacks in-depth information. Another suggestion to the help function is to use different levels depending on how much in-depth the visitor wants to go. Two or three levels ought to suffice. Some people are only interested in knowing how to do perform a certain task, others might want to elaborate and learn more.

![Figure 9: Links are shown to the right. An explanatory mouse-over text is provided. To insert a link or picture from the list one just has to click on it, but for the informants it seemed more natural to drag and drop.](image)

In the edit view of every page, there are links on the right hand side (see Figure 9). They may be uploaded pictures, documents or links to wiki pages. The mouse-over instruction provided is a good idea, but it did not quite work. Hardly any of the informants pointed the curser at the links long enough for it to appear and therefore missed the information. A clearer and quicker instruction should be provided, for example a short explanatory text above each division.
It is clear that the definition of what a wiki is and what it is used for needs to be better communicated. The team who created Wikipedia has applied the wiki technology to create an encyclopedia. No informant saw it that way. Instead, they all believed that Wikipedia had created a technology that PBWiki now uses to handle their wikis. Only half of the informants understood that wikis are an easier way to create web pages and that was after having tried it themselves. Many thought that the encyclopedia was used to create the pages that they had just created on another website (PBWiki). Wikipedia has more or less taken over the concept of wiki in the eyes of people.
Interviews with Teachers at Konstfack

In early 2006 a group of teachers at the University College of Arts and Design (Konstfack) in Stockholm, Sweden, started using a set of wikis to ease communication within the teaching staff. Two of these teachers agreed to be interviewed on how using the wikis has changed their work. These interviews were done when they had been using wiki for four to five months.

Informants’ Backgrounds and Experience with Computers

The two teachers are 35 and 45 years old and say that their computer knowledge is very high and more advanced compared to their colleagues. They both have a positive attitude towards computers and new technology. At work they use the computer for administrative tasks as well as for teaching. At home one of the interviewees uses it for information searching, e-mail, photos and family administration. The other informant lets the computer stay on all day and uses it for everything it can be used for. He does not use chat programs because he likes the time buffer that the computer allows in comparison with the telephone.

About the wikis

Before they were introduced to the wikis at work in January-February of 2006, they both had limited experience with Wikipedia but did not know that the foundation for it is a wiki.

The idea to utilize a wiki sprung from a need to have different means of communication other than e-mail. The school does not have an intranet and therefore e-mail is often the only way of written communication. The functions used on the wiki exemplify what would be needed in an intranet or a substitute for it.

Many teachers are part of more than one work group, as are the informants. The wiki was first introduced to one group where the teachers have common courses and some that they are solely responsible for. The purpose was to let everyone in the group know what had been said at meetings when some were not attending. This has worked very well and it has helped the wiki to grow to its current state.

The wikis look fairly alike. The front page of one of the wikis displays a picture of the teachers as well as a list of the last major changes. The group found this list to be very important in order to stay up-to-date on recent events. The list has also started a number of discussions, especially at the beginning when many courses were running at the same time and the group members visited the wiki often. On the right hand side of the screen is a navigational tool called the SideBar which
contains a list of pages on the wiki. After having worked with the wiki for some time, the teachers invited the students to ask questions and book appointments with the teachers on the wiki and that has worked very well for teachers as well as students, according to the informants.

The PBWiki team has made continuous updates on the wiki, so many things have changed since they first started using it. One example is text editing, which used to be handled through adding characters to the text, for example two asterisks before and after a word would make it bold. This type of operation can still be performed by adding the extra characters, but the wiki developers have also added some buttons to make the wiki editor handle more like Microsoft Word. Even if MS Word is not the most user-friendly text editor, making this change on the wiki makes the wiki more user-friendly since most people are used to this program. Formatting has become easier.

There is also an e-mail service to let users know when changes have been made, without having to log on to the wiki. The groups at Konstfack have only been using functions that are free of charge, which everyone have found to be sufficient, but there are additional packages that one can buy to get more functions.

Using the Wikis

Since most of the teachers only work part-time at Konstfack, colleagues do not bump into each other in the hallway and scheduling meetings is not as simple as it might be at other work places. The wiki is a good substitute for meeting face-to-face, according to one informant. When people in the work group are engaged in a discussion on the wiki, the attendance is high. “One gets happy or angry just like in real life and it makes you stay up late at night”, said the same informant. It is evident that the wiki makes it possible to meet, even if the parties involved are not standing face-to-face at the time.

They both agree that the wiki has changed how they work, mostly through being able to discuss things with their colleagues without having to meet face-to-face. It is an impossibility to find a time slot that suits everyone when they are all working part time at the school. Compared to earlier examination periods, the exchange of ideas has been more intense between the teachers. It seems like people have felt a great need to write about the students that they supervise and their progress. To get a response from the others on the wiki sometimes demands that you “shout”, said one informant, because not all teachers read everything that is written. Some things are written several times on different pages, but since the pages stay fairly static, the redundancy is not disturbing.
One of the informants says that she was completely sold on wikis when she started using it and talked to everybody about it. She was also very enthusiastic when she first heard about it because things were often forgotten in the past since the teachers cannot meet very often. The wiki has solved that problem. The second group of teachers was more reluctant at first, but after having been shown the first wiki, they changed their opinion and now think that it would be hard to work without it.

Neither of the informants thinks that it takes much effort to make the wiki organized and structured. One informant thought everything about the wiki is easy, self-explanatory and logical. The other informant compared it to sharing a closet: “One person thinks that the sweaters should be placed on this shelf; someone else wants to put the socks there.” Even colleagues, who at first were hostile and thought that the wiki would mean much extra work and effort, now enjoy using it.

**Conclusions and Future Plans**

The wiki has neither eased nor complicated the teachers’ work. It has however increased the exchange of ideas and information between the teachers compared to earlier examination periods, which indicates that it is a good tool. The difference between wiki and e-mail, where misunderstandings often occur, is that users respond quicker to questions that appear on the wiki. One informant thinks of wikis like a chat room with a log. He thinks that it could cure the Swedish “meeting disease” (mötessjuka) and leave more time for individual work. Many more meetings could be held on the wiki without taking up as much time.

Neither of them feels a need to change anything on the wiki, and think that it works well as it is today. They both like the availability and that it has eased communication between the teachers. It has become easier to ask questions and receive comments and suggestions. That could of course be done through simply asking the colleague directly, but it does not happen as often as with the wiki. The number of conflicts has decreased with the wiki as people post their thoughts and worries, which also makes work more democratic.

The introduction given by PBWiki when a user sets up a wiki is good for persons who are comfortable with and interested in computers. Other users benefit from being introduced to wikis through being shown how it is used. The introduction given by PBWiki when a user sets up a wiki is good for persons who are comfortable with and interested in computers. Other users benefit from being introduced to wikis through being shown how it is used. Since it is mostly self-explanatory, not much

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61 In the usability evaluation performed for this thesis, the informants were asked to start a new wiki and they all managed well. They may however have achieved a better understanding for the wiki and what it can be used for if they had been shown how to use it. This is especially valid when introducing a wiki to an environment where it is more or less forced on to the users, such as a work place.
introduction is needed, according to one of the informants. It took them less than ten minutes to get started.

They both have a positive attitude towards wikis, but one of them was not sure of what it was good for. He found it hard to tell whether the complexity of his work has increased or if he in fact has become more efficient. He did however feel more committed to his own work as well as more involved in the work of his colleagues. The other informant thought that wikis are good for whenever a group needs to communicate. It becomes another way and a different place to meet. She also thought that a wiki works better when it has a designated purpose rather than being just a meeting place for general inquiries. The wiki should be deployed to fill a void, such as an easy way to communicate.

The school has no intranet, despite that some teachers have been trying the get one started for the past ten years. This is mostly due to that only a few understand what an intranet is used for. The administration complains on receiving too many e-mails, but that is because they send the documents between each other with only a few changes made. They have not yet realized that by posting the document on an intranet or a wiki they would reduce the amount of e-mails going back and forth. The group of teachers that started using a wiki understood the need for another form of communication, but not that the real solution is an intranet. They think that the solution is the wiki, which works well. There is also a legal problem with posting information about students on a commercial website located in the USA.

Both of the informants have plans to start new wikis. One would use it for private organization; the other would like to discuss ideas for new courses with the other teachers, since there never seems to be a good time to bring it up otherwise. He would like to use the wiki to make course home pages where he could post information for the students concerning the course, show examples from previous years and have a closer contact with the students. He would then like to restrict the editing privileges of certain pages and make them read-only for students. This can be achieved with PBWiki today, but requires an upgrade fee.

Introducing the wiki has started a revolution among the teachers at Konstfack. The head of one of the four departments at the school has invited the teacher who initiated this to present their solution to the remaining two departments, so this will surely spread to the entire school. It does however require at least one enthusiastic person to start it and make it work.
Participant Observation

After having conducted a usability study and interviewed users for this Master’s project, I felt a need for practical experience with wikis, so I started one for a group of fellow alumni who needed to solve a communication problem. We only used e-mail for group communication, but that is not very effective when the group consists of as many as ten people. The main reason for starting the wiki was to easily arrange our monthly get-togethers which we call Thursday night beer, but it has developed to be used for much more than that. The group members all know each other from having studied at the same program at KTH (media technology engineering) and have similar backgrounds and comfort level when it comes to using computers, which is higher than the average person.

Problem

The group has previously mainly communicated via e-mail, but that became increasingly inefficient. A few weeks before the wiki was started, another member of the group created a mailing list. It often happened that the sender forgot to add all of the group members, so the information did not get to everyone and that caused irritation. A problem that the mailing list however did not solve was that of overloading the e-mail inbox. The group did not communicate every day, but when it happened there were often twenty or more e-mails sent within a few hours. Besides making one lose one’s focus on the task at hand when getting a new e-mail notification several times a day, two or more threads were often created to the conversation when more than one person answered the e-mail at around the same time. It got very confusing trying to comment on what was previously said in a conversation. Deciding on where and when to meet got very difficult. Although the e-mail list solved the problem with including the recipients, it did not help in creating an effective tool for communication. We still use the mailing list, but usually only when the matter is urgent.

Initiation

When the wiki was introduced in the group, I was uncertain of if a wiki was a suitable solution. Although all members of the group are technology friendly, it did not mean that they would like it and use it. As previously discussed, a wiki has to be used to be “alive” and interesting and that means that the users have to be involved.
I presented the idea in an e-mail which briefly explained what a wiki is. Everybody was encouraged to experiment and not to be afraid to make changes. Before the e-mail was sent I had already created a few pages, such as a contact list, a page for discussions and a page for the next get-together.

The group members quickly added their contact information and started to comment on the pages provided. It only took a couple of days for the members to start adding pages of their own and uploading pictures.

The wiki has a built-in comment feature which is accessed through clicking on the button “Comment”. This action takes the user to another page linked to the page the user wishes to comment on. It looks and works similarly to the commenting function on most blogs. The thing that made the group stop using the built-in commenting function was that the original text was not visible on the commenting page and therefore made it hard to remember what had previously been said. Nowadays the group comments directly on the page where the original text is written. Each member writes their name in bold before or after each contribution so everyone knows who said what.

We now use the wiki to send out invitations for parties, blogging, helping with job applications, planning our next Thursday night beer, travel planning and much more.

**Evaluation process**

This part of the study was not as structured as the other two (usability evaluation and interviews), but has been ongoing for a longer period of time. There were no questionnaires or filmed interviews. Instead I have asked my friends to write what they think about it on a page on the wiki; what they like or dislike about it, if it has affected our friendship in any manner, if it works as a communication tool for us. Some members of the group have answered my questions and given feedback on the wiki page. I have also used a conversation with a person in the group about the wiki on MSN as a source for this part of the thesis. They were all informed of that their answers might be used in this report. In addition to this I have written down my own reflections about how the wiki works for us.

**Why it Works for the Group**

Almost all members of the group like the wiki because it serves its purpose well. So far no one has come up with a solution that works better so it looks like the wiki is here to stay. There are several reasons to why this group has a positive notion of the wiki. These are explained below.
Solution to Communication Problem

The wiki solved a communication problem. E-mail is not an efficient tool when three or more people are involved because it creates redundancy when the same message is sent back and forth with only a few small changes. To decide when to meet can take forever and when you go back to see what the group decided the date is too hard to find so people start e-mailing to ask about the same question again. Many people who use e-mail alerts in their e-mail program get disturbed every time the alert comes up on the screen. When twenty or more messages are sent on the same subject in one day, the conversation tends to get ignored and the recipient is at risk of missing information. It could also be the opposite, that the recipient becomes too interested in the conversation and does not get the more important work done as the notifications pop up all the time. It is better that each person logs into a website and finds out if anything has been changed or added to the site since last. There is also a possibility to get e-mail notifications of changes made by other members with certain time intervals, but then the e-mail menace is back.

A Democratic Approach

The wiki is and should remain a democratic tool. There are ways to restrict access and editing privileges, but that is not used in this group since the members meet as peers in real life. Giving one person a higher status would therefore not make sense. Also, the person who has the higher access level might not be the one in the group who is most skilled in all areas that the group might come across on the wiki. In other words, giving group members different status levels could hinder the development of the wiki. In this particular group everyone were given administrator status, meaning that they all have full access to everything on the wiki and that they can change anything they like.

Technology-Friendly Group

All the members of the group are comfortable working with computers, and that most likely helped in getting people to try new things. Some people in the group even work with developing technical solutions that involve computers, so this group is well above the average user. However, the target group does not have to consist of engineers to find a wiki easy to use. Most wikis are self-explanatory and offer help to get started.

Clear Purpose

The objective for this particular group is to keep in contact with one another, a goal that we share with many others. We also needed to find a better way to discuss where and when the next
monthly get-together should take place than via e-mail. The need for specific functions varies with every group, so there are no set ways to structure a wiki. A project-based work group needs to keep in touch as well, but they need to share and distribute information along with asking and replying to questions. Therefore their needs are different from a group of friends playing in a band in their spare time.

Voluntary Contact

The wiki works because everyone in the group keeps in contact just as much as they like. A mailing list could serve the same function, but demands attention every time somebody has sent something. A wiki on the other hand is voluntary since it requires each user to log on to the wiki to be able to see any changes made.

Continuous Update

Very soon after the initiation the group started using the wiki for more than the monthly get-togethers. Members of the group posted invitations, started discussions and updated their personal blog. The continuous updating made the wiki an interesting website to visit, often several times a day.

Limited Group Size

This particular group has ten members and that works great. Some members are more active than others, as is natural when being a fairly big group. The level of activity on the wiki more or less corresponds to the level of attendance at the monthly get-togethers. A good group size for a wiki lies around eight, give or take two or three. If there are too few participants, the wiki easily becomes outdated since there are fewer people who can edit the information. If the group is too large, there is a risk that the wiki is updated too often, and that makes it hard to overlook the changes. Being in a large group also makes each user feeling less important and there is a possibility that contributions are only made by a low number of extra active people, since the others are afraid of “disturbing the peace”.

Modest Ambitions

Since no one in the group had used a wiki previously, there were no specific wishes in regards to what functions it should offer or which pages should be created from the start. The only real ambition with starting this wiki was to ease communication and make the group use it. Wikis generally do not have the flashiest of interfaces, but it does not need to either. By keeping the interface low-key, the texts become more important.
Why it Does Not Completely Work for the Group

There are a few things that were not solved with the wiki or that could be improved to improve the meeting place.

Unsatisfactory User-Interface

The user-interface is not always satisfactory. It looks all right in respect to style, but some functions, such as deleting a page, are hard to find. If there are more than one link to a page they do not automatically change when one renames a wiki page, so this has to be done manually, which of course increases the risk of forgetting a link or two. There is a help function, but it is not sufficient when trying to solve a problem. A wiki should be self-explanatory, but should also have a proper help function that is easily accessible.

Odd Structure

There is no way to sort pages into folders to keep track of them and this is confusing to some people. Most wikis have a SideBar, which is a navigation tool that is shown on every page. The content of the SideBar is edited by the users, like any other page, and therefore there is no set structure. There is also no way to create subcategories, unless one uses headlines. For people who are sensitive to order this could be a problem, but with such a large number of wikis to choose from, there ought to be one for everybody.

Manual Cleanup Needed

Wikis have a built-in backup system so all changes are automatically saved. This is of course a good safety feature in regards to sabotage, but most of all it means that the wiki has to be cleaned up at times. However, it also requires a certain discipline in not creating too many pages and removing the ones that have passed their best before date. This group has been fairly good at doing so and has only kept pages and conversations that are still relevant.

Complex to Add New Pages

When a new page has been created, there is no sign of it other than on the all pages list. The page has to be manually added to the SideBar to be easily accessible and noticeable, but it ought to come up on the SideBar automatically when it is created. It is also possible to create a link before the page itself is created and then click on the link to create the actual page.
Lack of Personal Settings

Since the wiki is meant to be used by several people and personal taste varies, it is strange that there is no way to personalize the wiki. This group has had troubles deciding which skin\textsuperscript{62} to use and for a couple of weeks, the colours were changed every day by users who could not agree.

How the Wiki has Affected the Group

There is really only one group member who does not visit the wiki very often. She works as a computer programmer and objects to the wiki because she does not know what to make out of it. She thinks that it is a mixture between a blog and a forum, but does not think that it is a good compromise. If she were to choose she would rather use a forum because she thinks that that is how we use the wiki anyway. A co-worker of hers is also in the group, but she visits the wiki more frequently and updates the reluctant colleague so the information gets through to her anyway.

Besides altering the communication patterns of the group, the wiki has changed the relationships between group members, especially after introducing the blog-like personal pages. People started sharing their problems, joys and thoughts on life in a way that would never have happened in real life. It is easier to bring such subjects up in writing than in a face-to-face conversation, especially when not more than a few meet more than once a month. People who are less close to one another in real life now comment and give each other advice on very personal subjects, which has helped in bringing the group closer together. This probably has something to do with the inherent nature of wikis, because users have to share control and that promotes trust. The more you put in, the more you get out of it. That is valid not only for private wikis, but also for work-related wikis and open source practice in general.

\textsuperscript{62} A skin is a group of settings that changes the appearance of a browser, media player, or in this case, the wiki.
Summary of Research

When I first started looking into wikis I found them relatively easy to use, at least the simpler ones I found. I therefore expected the usability evaluation to go smoother than it did. I was surprised to see that many of the informants struggled to use the computer even though I only asked them to do simple, everyday kind of tasks such as using the internet and checking their e-mail. This of course has to do with me having unreasonable expectations about people’s computer skills after spending the past few years at KTH, which is an engineering university where computers are used daily and basic programming courses are mandatory for all engineering students. I think it is important to keep in mind that people who are not educated in technology usually do not have the same “natural” relationship to computers and will therefore not adapt to new technologies as easily.

The usability evaluation shows that even a wiki which provides only the most essential functions is not as easy to manage as one might think at a glance. A majority of the informants did not feel that they had the time or patience to look for help when they did not immediately understand how to perform a task. Even if instructions are provided it should be simple enough to use without help. The result would probably have been different if they had been shown how to use the wiki first.

Both the interviews with the teachers at Konstfack and the participant observation show that a wiki is a good complement to communicating in person. Participants feel engaged and are active in conversations and act similarly to when meeting in real life.

Guidelines

Through usability evaluations, interviews and participant observation, I have discovered a number of factors that I believe are important for a wiki to be successful, which should be taken into consideration when starting a new wiki:

Give the participants a good and personal introduction. If the participants have the possibility to try for themselves and ask questions without feeling stupid, even the most resistant people may turn optimistic. In fact, the people who were most against implementing the wiki at Konstfack are now the keenest users.

Limit the group size of users. Five to ten people is a good group size. With less participants the contribution rate is too low and the wiki at risk for dying out. More people will make the wiki confusing and hard to work with since it is likely there will be too many people trying to force
their will through. Keeping the group small also eliminates the need for a “wikimaster” since undesired content can be discussed in the group.

**Decide on which subjects should be discussed on the wiki.** This will keep people committed to the wiki and reduces the risk of the wiki becoming difficult to navigate. If the discussions tend to sidetrack, it might be a good time to rethink the purpose of the wiki or start a new wiki where other subjects can be discussed.\(^{63}\)

**Make everyone feel welcome.** The wiki should be a place for experimentation as well as discussion. Encourage participants to start new discussions.

**Keep the content updated.** It is often the short texts that engage people and start good discussions, so contributing to keeping the wiki alive does not have to take much effort. Remember to delete pages that have expired for easy navigation.

**Agree on the form.** Although the wiki should be relatively free, agreeing on some basic rules is helpful in creating a good structure. Some examples are whether to write one’s name next to the comment, how to categorize pages in the SideBar, and whether one is allowed to change texts that others have written.

**Wikis need continuous input to stay alive.** Therefore, they work very well in time-limited projects that make users active where this happens naturally.

**Enjoy the simplicity.** There are many wikis that offer all sorts of extra features, but wikis were created with simplicity in mind. The basic functions often cover the needs. Having a limited amount of options is beneficial to people who at first are opposed to the wiki.

**Keep it short.** Wikis, just like the internet, are not intended for long chunks of texts, so remember to keep the texts fairly short in length. It should work as a place to exchange ideas, not to edit reports.

**Put content on the wiki before introducing it to the team.** This will get people interested in how it can be used and makes people more willing to try it than if they had been given a blank wiki to start with.

**Convince the users.** A valuable point about introducing wikis and other new technology at grassroots level instead of top-down is that when the manager is no longer there to supervise that it is being used, coworkers are so used to it that they will continue to employ it if they are convinced of its usefulness.

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\(^{63}\) However, in the initial experimental phase all contributions should be encouraged. A simple thing such as a coffee rota might help people getting acquainted with the wiki and make people see the practicality of it.
Conclusions

Wiki has gone from being a simple database-like collection of programming tips to being used as company intranet, encyclopedia and project management tool in a little over a decade. The original wiki still has a very simple look (black text on white background) while companies that develop wikis today have put effort into the graphic presentation as well as added more functions to make their product look more attractive.

Its simplicity is an asset, but based on my usability evaluation it is not as simple as it may seem at first glance. However, after using it for some time many of those who were initially against it appreciate its accessibility and contribute regularly with content on the wiki, at least when the wiki is used in smaller groups.

Wiki is more of a success than a failure, but it is not strongly positioned at either end of the scale. It would be a complete failure if no one used it, but there are many people and organizations that do. However, if it were a real success, it would be known and used by a much bigger part of the population who use the internet than it is now. Therefore, one can neither say that it is a success, nor a failure. Nevertheless, it is successful in many groups where it is employed.

One of wiki’s strongest points is its versatility, because it can be used for almost anything. It is easy to adapt to the user’s needs and can easily be changed if better ideas on how to use it surface after a while. It is a great way for coworkers to get involved and be engaged in their tasks at work. Since it invites people to take part in development it helps in establishing a democratic work place which creates a pleasant work environment.

The Nepomuk team is looking for a tool where coworkers could easily share their work and their thoughts as well as keeping track of everyone’s status in a project. Wiki was created to be a tool for collaboration and I think that it would do just what they want it to do. It is relatively easy to learn so it is possible to have people working with it after only a short introduction. My estimation is that 5-10 minutes is enough for people who are comfortable with using computers. Others might need more time.

There are an abundance of systems on the market which are designed to help companies become more efficient, so most companies would probably ask themselves if it really is worth while to go for something like this. The research I have done for this Master’s project along with my own experiences with wikis has convinced me that the wiki technology makes for a powerful tool and has great potential.
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Appendix A: Interview Questions for the Usability Evaluation

Förintervju

Bakgrund
1. Namn?
2. Ålder?
3. Kön? (Man) (Kvinna)
4. Vad arbetar du med?
5. Hur bedömer du din egen datorvana?

<table>
<thead>
<tr>
<th>Mycket låg</th>
<th>Låg</th>
<th>OK</th>
<th>Bra</th>
<th>Mycket hög</th>
</tr>
</thead>
</table>

6. Vad har du för inställning till datorn?
7. Vad har du för inställning till ny teknik?
8. På vilket sätt hjälper datorn dig i ditt arbete?
9. Tycker du att datorn på något sätt är "i vägen" för ditt arbete? Hur?
10. Hur använder du datorn privat? Vilka program/funktioner?
11. Hur använder du din dator i jobbet? Vilka program/funktioner?
12. Hur organiserar du möten, länkar, papper etc.? Skulle du kunna tänka dig att göra det på datorn?

Åsikter och erfarenhet av wiki
13. Har du hört talas om wiki? I vilket sammanhang?
14. Om ja, har du använt wiki tidigare? I vilket sammanhang?
15. Har du hört talas om wikipedia eller susning.nu tidigare? Berätta vad du vet om det! Vad tycker du om sidorna?
17. Har du skrivit HTML tidigare?
18. Har du programmerat tidigare? Vilka språk?
19. Har du några frågor innan vi fortsätter med testet/uppgifterna?
**Uppgifter**

2. Vad får du för intryck av wiki?
4. Skriv in något fakta som saknas, t.ex. ett bra smultronställe.
6. Välj ett resmål och skriv in förslag på sevärdheter och andra saker som man kan göra på platsen. (Använd fetstil, rubriker, punktlister och andra formateringsmöjligheter.) Titta gärna på ”Style Help” (om de kör fast).
7. Skriv in en lista på resedeltagare.
8. Öppna ”take a tour” i ett nytt fönster och berätta vad du tänker.
10. Lägg in en bild på förstasidan på din wiki. (Bild på skrivbordet på datorn?)
11. Logga ut.

**Efterintervju**

1. Hur skulle du nu beskriva wiki?
2. Vad har du för helhetsintryck av wiki?
3. Vad tyckte du om att skapa en wiki? Vad var lätt/svårt?
4. Vad kan du tänka dig att wiki kan användas till?
5. Kan du tänka dig att använda wiki själv och till vad i så fall?
6. Eftersom alla sidor på wikin kan ändras av användarna, används det ofta i samarbetssituationer. Är det något du skulle kunna tänka dig att använda, t.ex. på jobbet eller i någon förening som du är med i?
7. Många använder wiki till egen organisering, t.ex. kalender, att göra-listor, länksamling, projekt m.m. Är det något du kan tänka dig att göra?
8. Vad tycker du verkar bra med wiki?
9. Vad tycker du verkar dåligt?
10. Är det något du tycker verkar konstigt?
11. Tror du att du kommer att titta mer på wiki efter det här?
12. Övriga synpunkter? Något du tycker att jag har glömt fråga dig?
Appendix B: Interview Questions for Konstfack

Intervju
1. Namn?
2. Ålder?
3. Kön? (Man) (Kvinna)
4. Vad arbetar du med?
5. Hur bedömer du din egen datorvana?

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9. Tycker du att datorn på något sätt är ”i vägen” för ditt arbete? Hur?
10. Hur använder du datorn privat? Vilka program/funktioner?
11. Hur använder du din dator i jobbet? Vilka program/funktioner?
12. Hur länge har du använt wiki?
15. Hur mycket använder du wiki per dag?
16. Beskriv hur du använder wikin!
17. Vilka funktioner använder du i wikin? Varför?
18. Vilka funktioner använder du inte? Varför inte?
19. Använder du wiki för saker som inte innebär kommunikation med andra, t.ex. egen dokumentation? Hur funkar det?/Varför inte?
20. På vilket sätt har wiki förändrat ditt arbete?
21. Har wiki underlättat eller försvårat ditt arbete? På vilket sätt?
22. Tycker du att wiki är lätt eller svårt att använda? Vad är lätt/svårt?
23. Använder du wiki privat? Hur?
24. Skulle du rekommendera andra att använda wiki? Till vad?
25. Vad hade du för förväntningar om wiki innan du började använda det själv?
27. Vad tycker du om wiki nu när du har fått prova på det ett tag?
28. Vad skulle du vilja förändra på wikin?
29. Vad tycker du fungerar bra på wikin?
30. Saknar du någon funktion på wikin?
31. Vad tycker du är onödigt på wikin?
32. Vad tycker du är krångligt på wikin?
34. Tror du att wikin kommer att finnas med i framtiden? Hur ser den då ut?
35. Hade du kommit i kontakt med mailinglistor, diskussionsforum eller communities tidigare? Var? Hur?
36. Om ja, använder du fortfarande dessa? Hur mycket?
37. Har ditt användande av mailinglistor, diskussionsforum eller communities förändrats i och med införandet av wiki?
38. Övriga synpunkter? Något du tycker att jag har glömt fråga dig?