

HOW WIKI-INTRANET CHANGES INTERNAL COMMUNICATION?

Katja Hilska
Tampere University, Information Studies, Tampere, Finland
katja.hilska@uta.fi

Introduction

This paper describes how the newly implemented wiki-intranet has affected internal communication in the National Public Health Institute in Finland. Wikis that are installed in the organisations for internal use, called corporate wikis or enterprise wikis, can also be used as company intranets. Even though these types of wikis are not open for the public, they are an open communication, collaboration and work space for people working in the organisation. The intranet based on wiki-technology and applying wiki principles can enhance communication and information sharing in the organisation. It can help people to share their knowledge and work together in collaborative projects. The study is based on the results of a survey and interviews accomplished in January, February and March 2008.

Objectives

This paper will discuss the effects of the implementation of a wiki-based intranet for the internal communication, information and knowledge sharing and collaboration in an organisation. The paper will describe how the launch of the wiki-intranet was supported, did the project reach the goals set up for the new intranet and how the wiki-intranet could be developed further to support collaborative information work. The paper will also discuss the possibilities for libraries and information services in using a wiki as a collaborative information environment. The objective is to share the experiences gained in the wiki-intranet project and to encourage others to experiment with wikis.

The paper is organized as follows. First some aspects of the idea and history of wikis are presented along with wiki terms and principles. Secondly the results of the case study are presented from the internal communication approach. Lastly the discussion considers the possible ways to improve the use of a wiki as a collaborative tool and how the libraries and information services could apply wiki to enhance their work procedures and communication.

What is a wiki?

The term wiki and the ideas behind wiki and Web 2.0 are best explained if we take a look at the opinions of two key developers: Tim Berners-Lee, who is the originator of the World Wide Web, and Ward Cunningham, who is the father of the wiki.

The term wiki comes from Hawaiian word “wiki wiki” which means quick. The first wiki was developed by computer programmer Ward Cunningham in 1995, to communicate specifications for software design¹. He explains in an interview how the idea of a wiki came after trying other collaborative techniques (e.g. collecting lists and organising workshops), while trying to solve a problem at hand, but they were realized to be too hard for the task:

“[...] We needed to do it with the community. So we started having workshops. [...] And we said, well this is too hard. So we need to have some way to use... and this was when the internet was just becoming popular, in '94, '95 ... we said, well let's just make a site. [I] didn't know how to organise it, I just said, let the community organise

*it. There was a leap of faith, to say that you can edit it to be whatever organisation you want. But people did a good job. [...]"*²

In an organisation where internal communication has been seen as a part of only certain people's tasks, it is also a 'leap of faith' to see the internal communication suddenly as open for everyone to participate in, as everyone's duty and possibility.

Ward Cunningham sees wiki as a "*body of writing that a community is willing to know and maintain. That community has every right to be cautiously selective in what it will groom.*"³ The idea of selectiveness relates to the collaborative maintenance that is typical for wikis. Wiki is maintained by the community that thinks it is 'our wiki'. The collaborative maintenance relates to the quality of the information published in the wiki.⁴

The developer of the World Wide Web Tim Berners-Lee thinks that the so called Web 2.0 phenomenon is just the thing he wanted the web to be in the first place. He comments when asked about the difference between Web 1.0 and Web 2.0 in an interview:

*"[...] When asked if it's fair to say that the difference between the two might be fairly described as "Web 1.0 is about connecting computers, while Web 2.0 is about connecting people," Berners-Lee replied, "Totally not. Web 1.0 was all about connecting people. It was an interactive space, and I think Web 2.0 is of course a piece of jargon, nobody even knows what it means. If Web 2.0 for you is blogs and wikis, then that is people to people. But that was what the Web was supposed to be all along. And in fact, you know, this 'Web 2.0,' it means using the standards which have been produced by all these people working on Web 1.0. [...]"*⁵

Michel Buffa quotes the discussion of Ward Cunningham and Jimmy Wales, the founder of Wikipedia, at the Wikisym 2005 conference:

*"A wiki is like a garden: users (or at least the ones with a gardener's spirit) must take care of it. Start with some seeds and watch it grow, and the wiki will become moderated by its users' community, respect and trust the users, leave them anonymous in order to avoid ego problems, ...good things happen when you trust people more than you have reason to, let everybody express his opinion, no censorship, consensus must be reached, ...the wiki is adapted to a dynamic social structure because of its refactoring features. Do not impose a rigid structure, users will refactor and structure the wiki as it grows."*⁶

Wiki is usually described as a web page that anyone can access and edit using a browser window. The main features are the ease of editing and ease of tracking changes, which lead to the possibility of creating documents collaboratively. The idea is that users can contribute: they can add new pages, add new content to existing pages, and change or delete existing information. Users can also edit the organisation of the wiki by moving pages from one place to another. The ease of editing means that the users, contributors, do not need to know HTML or have Web design skills. A wiki page is always available, even when it's being edited.^{7,8,9}

Also the uses of a wiki can be developed collaboratively. In the case study organisation, the wiki has developed according to the user needs and the ideas users get when they see how other people use the wiki. We will discuss the uses of the wiki-intranet later in the results-section.

The above comments by Ward Cunningham and Jimmy Wales emphasize the open nature of wikis. In organisational settings, the wikis usually have some kind of basic structure and their goal can be

clearly expressed. Contributors log in with their own names or user names, so there isn't anonymous editing. Reading the wiki pages is possible without logging in.

Ward Cunningham presents the following wiki design principles (see table I). He comments:

*“Wiki has turned out to be much more than I'd imagined! That is not to say that I didn't imagine a lot. These are the design principles I sought to satisfy with the first release of Wiki. Note that this page is only a reconstruction from memory of intentions I held at the beginning.”*¹⁰

Cunningham describes the wiki design principles as open, incremental, organic, mundane, universal, overt, unified, precise, tolerant, observable and convergent (see table I.)^{11,12}

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

Table I. Wiki design principles¹³.

Cunningham also presents additional principles that guide wiki authors and implementers. These are trust, fun and sharing (see table II:

Trust	This is the most important thing in a wiki. Trust the people, trust the process, enable trust-building. Everyone controls and checks the content. Wiki relies on the assumption that most readers have good intentions.
Fun	Everybody can contribute; nobody has to.
Sharing	of information, knowledge, experience, ideas, views...

Table II. Principles that guide wiki authors and implementers.¹⁴

The principles presented by Cunningham form the basis of the so called wiki philosophy. The principles have been further discussed and developed by the wiki community, as Cunningham has presented his ideas openly in wikis. In addition to the principles above, some social conventions have also guided the development of wikis. One of these is the notion of 'soft security'. The principles of soft security are summarised in the following terms at MeatballWiki:

Assume Good Faith - People are almost always trying to be helpful; so, we trust everyone, confident that occasional bad will be overwhelmed by the good.

Peer review. Your peers can ensure that you don't damage the system.

Forgive and forget. Even well-intentioned people make mistakes. They don't need to be permanent.

Limit damage. When mistakes are made, minimise the damage.

Fair process. The theory that being transparent and giving everyone a voice are essential management skills.^{15,16}

Soft security principles relates to the 'audit trail of changes', a record tracking who did what and when. These are usually presented in the version history and the change log. The audit trail enables both peer review and the ability to reverse changes. The audit trail also gives the contributors the confidence to edit the wiki, knowing they cannot do permanent harm and that their mistakes can be forgotten.^{17,18}

Wiki as an intranet

There are several examples, reported openly in the internet, where companies have implemented wiki as their intranet. In an Australian pharmaceutical company the wiki-intranet replaced simple, static HTML-intranet. The case study reports, that over the 16 months since launch, the intranet has dramatically transformed the internal communication. The visits and contributions are increasing each month.¹⁹

In a real estate firm residing in British Columbia, Canada, the wiki-intranet has turned users into authors. The case study reports an incident of knowledge sharing about a solution, that saved the company half million US dollars.²⁰

In Ingenta, the company probably best known for the EAHIL-audience, wiki intranet has been in use since 2002. The company needed a simple tool to share information between researchers and engineering departments. Leigh Dodds describes, that the wiki works well across dispersed teams. The barrier to contribute to the wiki is very low. Documentation can be added and maintained easily. He adds, that "*creating a wiki environment is as much of an exercise in community building as it is in software installation*".²¹

The intranet project in the National Public Health Institute in Finland

The National Public Health Institute in Finland is a health sector research organisation, whose goal is to protect and promote the health of the Finnish people. It is a governmental organisation partly funded by government, but also attracting other funding. It has about 980 employees. The Institute has sub-units in four cities: Helsinki, Kuopio, Turku and Oulu. It is known for its international collaboration and it is the home of the Secretariat of the International Association of National Public Health Institutes. In 2007, the researchers of the Institute published 728 scientific articles and 25 PhD Dissertations.^{22,23}

The former intranet of the Institute was a collection of HTML-pages based on a folder structure. The former intranet was criticized for its hierarchical structure and the lack of editing rights. The editing rights for the folders were maintained by the IT-unit. When requesting editing rights for a certain folder, people needed to fill a paper form, have acceptance from their supervisor and send it to the IT-unit. Only certain people had editing rights and therefore people who wanted to publish information in the intranet had to ask editors to publish it. Most of the departments and units had only contact information published in the intranet. Editing the HTML pages was also thought to be difficult. There was an editor program available, but it had an expensive license, and was therefore only in a limited use.

The requirements for the new intranet were:

- wide editing rights
- easy editing
- can be used as a part of the daily work
- can be used as a collaborative tool
- supports collaborative information work
- supports personalisation
- supports personal pages
- supports the different units in making their own intranet pages
- supports easy publishing of news in the intranet's start page (known as a bulletin board)
- helps to keep the information updated
- helps to find relevant information²⁴

The idea of a wiki as an intranet came after the requirements for the intranet were formulated. The project manager describes: “[...]in one meeting, where we were discussing about the new intranet solution and the features that we wanted the intranet to have, one member pointed out that ‘this all sounds just like a wiki’. After realizing that wiki had all the features wanted, it was just the question of choosing which wiki”.²⁵

The intranet project group chose a wiki solution designed for organisational use. It supported e.g. Java and LDAP-integration, which made it easier to integrate with the systems that already existed in the organisation. The wiki engine chosen is developed for organisational use and it's implemented in the organisation's own server. The test and implementation phase of the wiki-intranet was few months. During that time the wiki was piloted as a collaborative writing tool for the annual reports of the units and departments.

New intranet was officially launched in the end of February 2007. The main principle for the new intranet was chosen to be openness. Every employee has the right to access, edit and comment any intranet page. Pages can be edited directly in the browser window and no other software is needed, nor the knowledge of HTML. Everyone has the right to publish news in the intranets first page or in the home pages of units, projects, etc.

The technical implementation of the wiki-intranet continued after the official launch in February 2007. There has been a flow of new features, as the wiki managers and other developers have found new tools to support the wiki use. Also requests from the users have helped to develop the intranet.

The human aspect of the implementation was also considered. Before the launch, the project group organised a series of workshops involving the end-users. Information sessions were organised in all the geographical locations of the Institute: Helsinki, Kuopio, Turku and Oulu. After the launch, the project group organised user training, published user guides and help pages including a discussion board in the wiki. New users could practise the wiki editing in the so called ‘sandbox’ – the training area of the wiki. Some people learned to use the wiki quite quickly. Even that quite many people attended the training, some people just learned to use the wiki-intranet by themselves.

One challenge in implementing a wiki is to convince the users that they are no longer just the readers of the intranet – they are the collaborators, they can communicate their own messages to the intranet, they can start new pages and edit and publish information. The wiki-intranet is a collaborative environment where everyone can be active producers of information and ideas. The wiki-intranet is a whole new collaborative environment, which also serves as an intranet. The change in the perception of the intranet is not made overnight, but can take over a year depending on the person's need to communicate and collaborate over the wiki-intranet.

Methods

The results presented in this paper concentrate on the effects that the implementation of the wiki-intranet has had for the internal communication of the Institute. The results are based on a survey, which was accomplished in January 2008, and on theme interviews that were accomplished in February and March 2008. The survey was published in the company's intranet and advertised also in the e-mail lists. The survey received 247 answers and presents 25% of the employees of the National Public Health Institute.

The interviews were organised as group interviews and as individual interviews. The interviews were done in Helsinki, Kuopio, Turku and Oulu. Groups and individuals were chosen by their activity or experience with the wiki-intranet. Altogether 32 people were interviewed: 9 group interviews with 2-5 participants were organised and 6 people were interviewed alone.

In the questionnaire, people were asked to compare the new and the old intranet and to express their opinion about the new intranet and if it has affected their work:

- Which intranet is better, the new wiki-intranet or the old one?
- What do you think of the wiki-intranet in general?
- Has the wiki-intranet affected your work?

Questions related to the internal communication were:

- Has the wiki-intranet improved the organisations internal communication?
- ... improved your chances to participate in the internal communication?
- ... improved the internal communication in the units?
- ... improved the communication between the units?
- ... improved the visibility of news and announcements?
- ... improved the finding of relevant information?
- ... improved the possibilities for collaborative work?

In the theme interviews, the people were asked to tell how they use the wiki-intranet, to tell their experiences in using the wiki, what has facilitated the use of the wiki and how it has affected their communication and work procedures in general.

The internal communication is seen here as the flow of information and the interaction between the individuals and groups working in the organisation. The interaction can be seen as an action of communication, but also – especially in the work setting - one important aspect of the interaction is the collaboration in work related tasks and projects. Therefore the research questions emphasise both the internal communication and collaboration.

Results

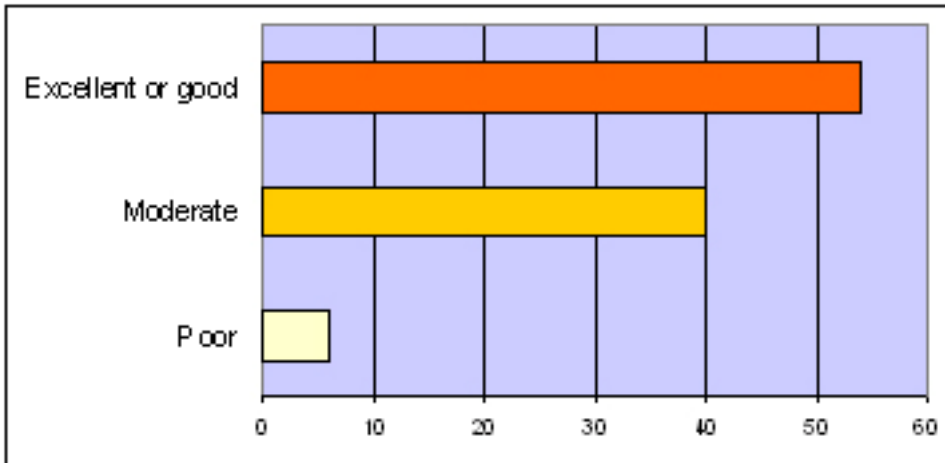
This section presents the key results from the internal communication point of view. It also discusses the uses of the wiki-intranet.

In the questionnaire people were asked to compare the old and the new intranet. Among the users, that had used both the old and the new intranet (N=207), 79% (163) of the respondents said that the new intranet is better than the old one, and 21% (44) said the old intranet was better.

When asked to tell what they think of the wiki-intranet in general (N=242), 53% (130) of the respondents said that the wiki-intranet is excellent or good, 40% (98) said the wiki-intranet is moderate, and 11% (14) said it is poor (see Figure 1.).

One respondent, who answered that the wiki-intranet is poor, commented that information is even more difficult to find now than before, because some of the information needed is not yet in the wiki, and therefore has to be searched from several sources.

Figure 1. *What do you think of the wiki-intranet in general?* (N=242)



When asked if the wiki-intranet has affected their work (N=240), 40% (96) of the respondents answered that it has made their work considerably or somehow easier. 45% (107) of the respondents answered that the wiki-intranet has had no effect on their work and 15% (37) said it has made their work more difficult. It was also possible to leave a comment, and people who said the wiki-intranet has made their work easier, commented:

- *it is easy to write documents together and track the changes*
- *I can add text to the pages myself when needed*
- *information flow, information sharing*
- *I can update the pages myself*
- *writing documents in the work group is much easier, as is the writing e.g. annual reports*

The respondents who said that the wiki-intranet has not affected their work, commented:

- *if we would have adequate training and could use the intranet it could make work easier*
- *has slowed down the use if the intranet*

Those respondents, who said the intranet has made their work harder, commented:

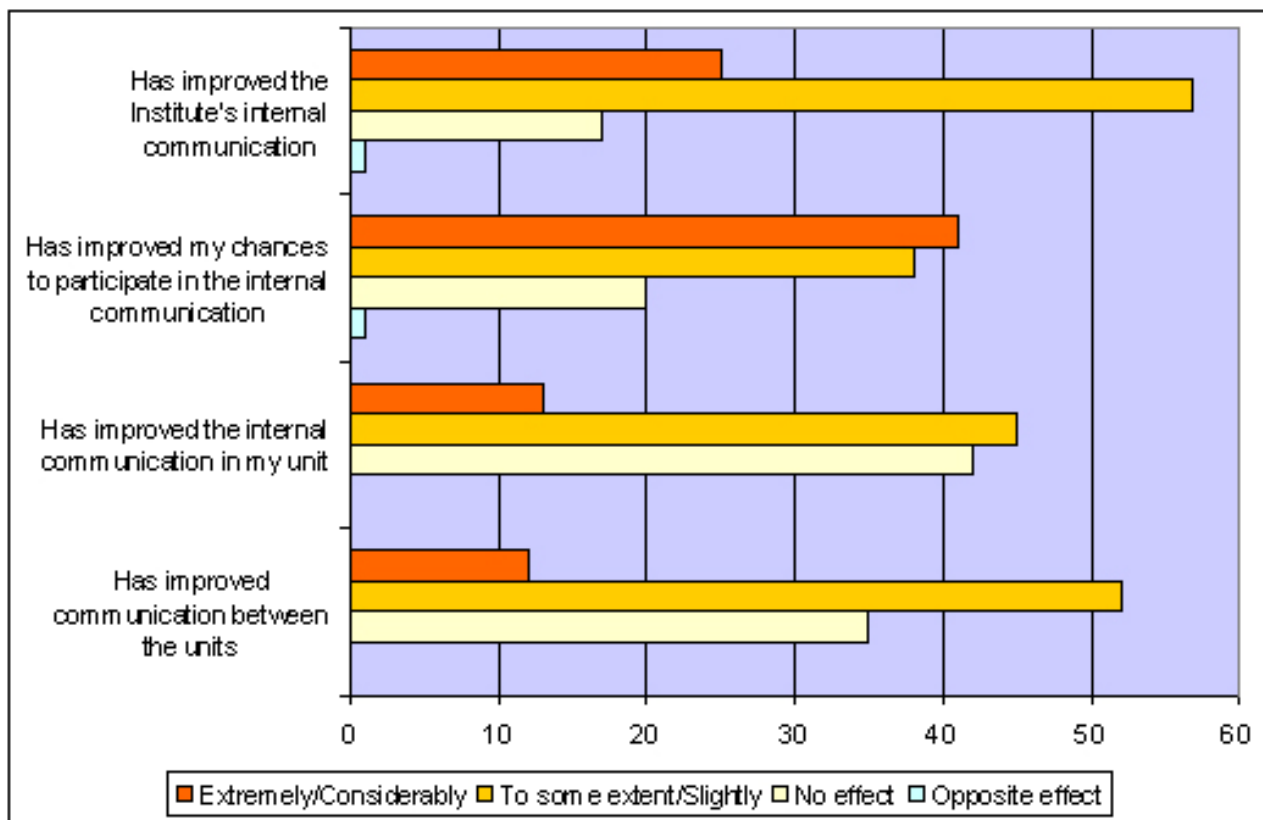
- *it is even harder to find information on the internet now (7 comments)*
- *mainly, we should do other things than read and edit the wiki*
- *it is still all about trying to learn this new thing*

In the questions related to the internal communication of the Institute, people were asked how the wiki-intranet has improved the internal communication, improved their changes in participating in the internal communication, improved communication within and between units, improved the visibility of news, finding of relevant information and if it has improved the possibilities for collaborative work. People could choose from six options: extremely, considerably, to some extent, slightly, no effect, opposite effect. In the results and the figures below the options ‘extremely and considerably’ and ‘to some extent and slightly’ are combined. In these questions the number of the respondents varies from 232 to 240. (See figures 2 and 3.)

The results show that 57% of the respondents think that the wiki-intranet has improved the internal communication to some extent or slightly, and 25% think it has improved extremely or considerably. When asked about the chances to participate in the internal communication, 41% of the respondents said the wiki-intranet has improved it extremely or considerably, and 38% to some extent/slightly. (See Figure 2.)

When asked if the wiki-intranet has improved the communication within the units, 45% of the respondents say it has improved the communication to some extent or slightly and 13% think it has improved it extremely or considerably. 42% say the intranet has had no effect improving the internal communication in their unit. When it comes to the communication between the units, the same figures are 52% (to some extent/slightly) and 12% (extremely/considerably). 35% say the intranet has had no effect improving the communication between the units. (See Figure 2.)

Figure 2. How the wiki-intranet has affected the internal communication? (Part. 1) The wiki-intranet....

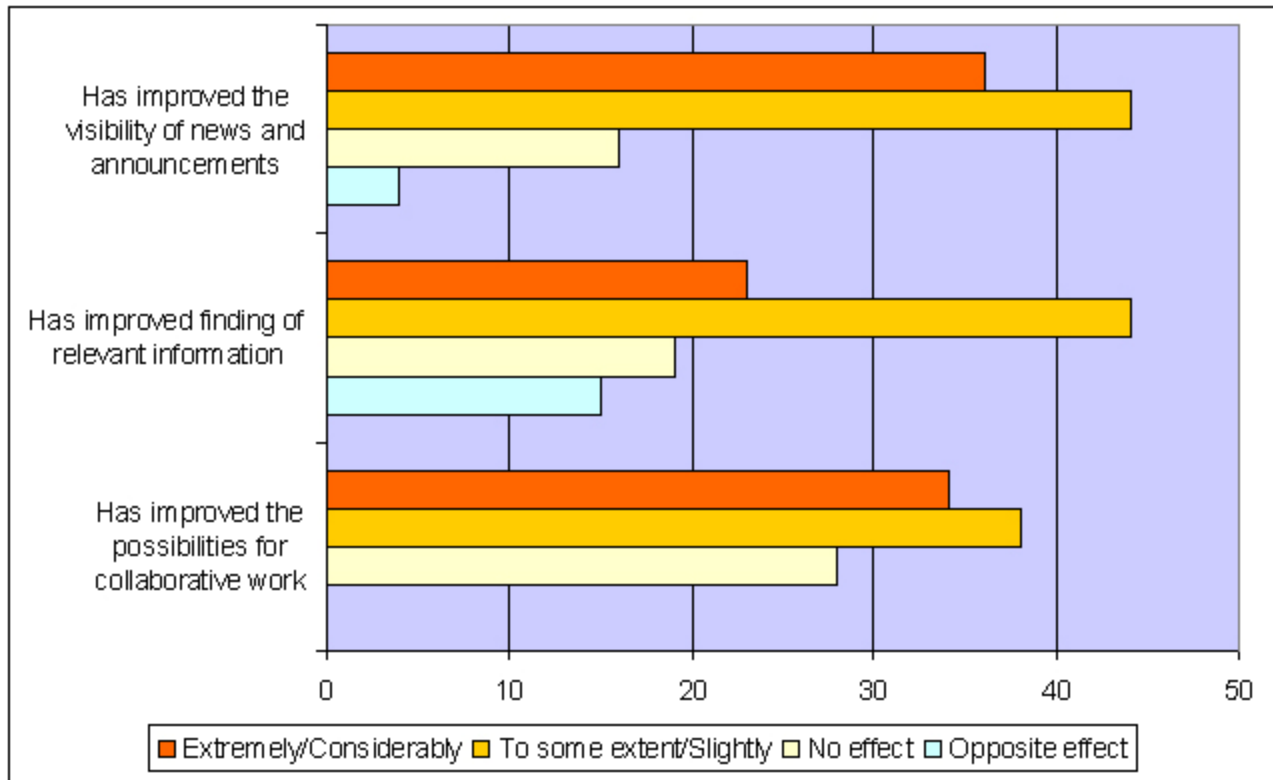


When asked if the wiki-intranet has improved the visibility of news and announcements, 44% of the respondents said it has improved it to some extent or slightly and 36% said it has improved it extremely or considerably. The results show that 23% of the respondents think that finding of relevant information has been improved with the new intranet, but 15% thinks it has had an opposite effect. 44% say that finding of relevant information has improved to some extent or slightly. (See Figure 3.)

From the wiki-point-of-view, maybe the most interesting question is if the wiki-intranet has improved the possibilities for collaborative work. 34% of the respondents said the wiki-intranet has improved it extremely or considerably, and 38% to some extent/slightly. Almost one third, 28% of

the respondents, said that the wiki-intranet has had no effect on improving the possibilities for collaborative work. (See Figure 3.)

Figure 3. How the wiki-intranet has affected the internal communication? (Part. 2) The wiki-intranet has....



The uses of the wiki-intranet

The results presented in this section are based on the theme interviews with the wiki users, but also on monitoring the wiki-intranet. The old intranet was criticised for the lack of editing rights and one of its down sides was the shortage of the information on different units. So, has the wiki-intranet changed that? Do people use the editing rights they have now been granted?

First, let's present a list of some of the uses of the wiki-intranet. In the Institute, the wiki-intranet is used in:

- writing the minutes of meetings
- publishing news and announcements
- publishing the home pages of the units, work groups and departments
- task management
- project management
- documenting work procedures (SOPs, etc)
- co-writing documents, for example articles and annual reports
- sharing information in the work group, for example presenting results of data analyses
- sharing documents (that would be otherwise send by an e-mail)
- collecting the lists of experts and researchers on particular subject
- collecting the list of research done in the Institute on a particular subject
- organising seminars
- organising trainings and presentations

- sign-in for training sessions, seminars and other events
- as personal home pages

The uses of the wiki-intranet can be roughly classified as ‘internal communication’ and ‘collaborative work’. It must be noted that the uses of the wiki-intranet grow everyday.

Writing the minutes of the meetings with the wiki can be one of the earliest adoptions, which gives people the idea and experience how easy the editing is and how useful the wiki can be. In some meetings the minutes are written during the meeting directly to the wiki page, so that at the end of the meeting the minutes are ready. After the meeting people can comment and edit issues directly in the minutes, and therefore the accuracy of the minutes is ensured.

The new intranet has made the publishing of news possible for everyone. The publisher can choose where he/she wants the news to be seen: in intranet’s ‘start page’, the bulletin board for the whole institute, or in the pages of certain departments, units or groups.

Creating the home pages of the units, departments and work groups were supported by publishing a template of the wiki page, and making the start easier: contributors who wanted to add information on the home page just had to click the Edit-button and start writing. After getting accustomed to the wiki-editing and the freedom of adding new wiki pages, organising and re-organising them, the units and groups have discovered a wide variety of uses for their new collaborative working environment.

The task and project management is one popular use of the wiki. In several occasions, the people interviewed told how that kind of management wasn’t possible before the wiki-intranet: documents and details were behind one person. With the wiki-intranet, the information on a particular task or a project can be published in a wiki, and the group can together comment and edit the information, and also control that the task gets done. With projects, the schedule, contacts, tasks, the phase of the project and the budget can be all collected in the wiki. Publishing information on tasks and projects improves the knowledge sharing in general: everyone can see which projects and tasks are done by whom and where – it also enhances the understanding about the other units work.

In one unit particularly, the work procedures have been documented in the wiki. The interviewed group explained that they have written the standard operating procedures (SOPs) in the wiki in such a detail, that *“if we are hit by a bus, anyone can come and do it”*. The work procedure in question is one of the Institute’s core responsibilities.

In the interviews, people explained that one of the benefits has been the decrease in the e-mail attachments. Now people can add the attachment in the wiki page and just inform the others that it is available there. Documents that would have been earlier written by one person and then sent by e-mail to other people to comment and edit, can now be co-written directly in the wiki. The co-writing of project documents, user guides, articles, annual reports and other documents is the core feature of the wiki.

The wiki has been used to collectively develop the Institute’s so called ‘Expert list’ – the list of researchers and experts in a particular subject. Also particular groups have developed their own lists of expertise and experience – for example the statisticians have organised the list of statisticians working in the Institute and the collection of statistician’s know-how.

At the beginning of 2007, a new department was established. The department is responsible for co-ordinating research done in a certain research area. The department collected details of the research done in other units and departments of the Institute with the help of the wiki. They have collected

'the network of experts' by publishing a wiki-page, where the units can add information on their research. The new department also organised a seminar with the help of the wiki.

One of the earliest adaptations of the wiki-editing was the sign-in for training sessions. People can sign in for training sessions and seminars by adding their name to the wiki-page. It saves both the organisers work and let the participants see if the course is already full and if they should sign in to a course organised at another time. In the events where the number of participants is limited, the organiser can publish a table that only takes the certain number of names.

Every wiki user has their personal home page. The home page is often used to publish contact information, describe the work responsibilities and projects the person is involved with. Wiki identifies the user and can personalise the information shown: every user has also their own bulletin board where are shown the news and announcements that are published in the users department and the ones the user has him/herself selected to be shown on the personalised bulletin board.

Also, the uses of the wiki can be developed in collaboration. Users see what other users are doing with the wiki, and the users – contributors – realise new communicative and collaborative tasks that the wiki can support. About a month ago a new wiki has been launched to support the fusion of the two health sector research institutes: the National Public Health Institute is merging with the National Research and Development Centre for Welfare and Health.

Enablers and barriers for using the wiki-intranet

The interviews revealed both enabling factors and barriers for using the wiki-intranet.

Enabling factors

The positive factors facilitating the use of the wiki-intranet are:

- support from the management: the enthusiasm of the immediate superior, support from the top management, orders from the management/superior
- support from the wiki-activists: the active use of the wiki, recognizing benefits, starting new pages and projects, helping others to 'come along', organising training or wiki support
- the user has had the time to learn to use the wiki
- the user has had a change to participate in the user training sessions
- the user has started to experiment with the wiki him/herself
- transparency, ability to copy and paste wiki markup: users can see what other people are doing and can copy the wiki markup
- benefits experienced in group work, project documentation and management, internal communication
- the ease of use (after taking the first steps)
- the availability of a wiki support person (someone to help with the start)
- the availability of user training
- the attractiveness of wiki: more information, communication and knowledge, information and contacts are easier to find

Barriers and challenges

The negative factors affecting the use of the wiki-intranet are:

- the immediate superior is doubtful about the use and benefits of the wiki-intranet
- the habit of using other information and communication channels, the routine of using e-mail, etc.

- the change from reader to the active creator of information can be a big step
- information is more difficult to find than before (when using search) due to the ever increasing amount of content

Based on the results drawn from the interviews, there are several challenges for developing the use of the wiki-intranet and wiki-culture:

Challenges for creating a wiki-culture

- Developing the reading culture: when the company's information and communication are concentrated on the wiki, people have to develop the habit of reading the wiki.
- Developing the writing culture: writing to wiki without worrying about finishing the text before publishing (the first draft).
- Developing the wiki habits: marking the pages as favourites, subscribing to e-mail alerts, and while editing, considering that other people are watching the page changes.

Has the wiki-intranet reached the goals?

The benefits of the wiki-intranet can be summarized as follows: The wiki-intranet has enhanced the work in some projects and has even made some projects possible. It enables the people to participate in internal communication, participate in collaborative projects, share information, ask other people to share information, and manage work in a meaningful way. It has met the requirements formulated for the new intranet (see the section 'the intranet project in the National Public Health Institute in Finland') by supporting wide editing rights and easy editing. It has become part of the daily work for many and it can be used as a collaborative tool. It has increased the number of the home pages of different units, departments and groups, and it has transformed the read-only home pages to collaborative working environments.

The wiki-intranet supports personalisation and personal home pages. It gives everyone the possibility to publish news. It can help to keep the information updated by supporting easy editing and wide editing rights: anyone who comes across outdated information can update it themselves, comment on the page, or contact the original editor.

The downside of the wiki-intranet is that some of the users think that finding of relevant information is even more difficult than before. There is ever increasing number of information available in the wiki, and the search engine finds all the pages that include the search phrase. The search can be defined only to some extent. With the wiki-intranet, the key is that the information is available and accessible. It is also highly linked and communicated (for example in the news). The users can also subscribe to page alerts, so they get an announcement every time the page is changed.

Limitations of the study and suggestions for further studies

The wiki-intranet had been in use in the organisation for less than twelve months when the survey was accomplished. At that point, some people hadn't even logged-in in the intranet for the first time. Also the number of the respondents (247, but varying from 232 to 242 in the questions presented here) is quite low (25%) comparing to 980 people working in the organisation. Therefore it is possible that those who responded in the questionnaire were already interested in the use of the wiki-intranet and had positive opinions about it.

The people who were interviewed were wiki-users: they had been using the wiki-intranet actively, adding and editing the pages, experimenting with wiki's features and new uses. This selection

supported the research questions. It would be also interesting to interview the no-wiki-users, who are not participating in the editing and collaboration.

The study was just a year after the launch. It would be interesting to study the same organisation again after the time from the launch is two to three years, when everyone is (hopefully) using the wiki-intranet and the wiki-culture is more matured.

Many of the results are drawn from a questionnaire and are quantitative in nature. This study was not designed to understand the change in the communication culture from the individual's point of view. Therefore a further study, that could reveal the true nature of the change in the social and individual aspects of the communication culture should be organised. Other interesting subject is the effect of the changing communication culture for the work motivation, work productivity and innovations.

Discussion

As described above, the wiki-intranet launched in the National Public Health Institute in Finland has changed the internal communication in certain measures. It has improved the internal communication and the people's chances to participate in the internal communication. It has improved the communication within and between the units in some extent. It has improved the visibility of news and finding of relevant information – even that it must be noted that 15% of the respondents said it has had an opposite effect. The wiki-intranet has also improved the possibilities for collaborative work – but again 28% said it has had no effect on that.

Supporting collaborative information work

So how could the wiki-intranet be further developed to work effectively as a group work tool that supports the collaborative information work? This question was formulated in the early stage of the study. After studying the organisation, reading discussions in the wiki-communities, research articles and books about the subject, I have finally realised that it is no longer the question of developing the tool. It is a question of developing the social interaction, internal communication procedures and communication culture, and changing the organisation of the work to support the collaboration. If the question is re-formulated as “how the collaborative information work can be supported”, and where the wiki-intranet is seen only as a one tool, we are closer to get interesting answers.

Wiki connects people to people. It takes away the barrier of publishing information and collaborating with others on a (mainly) textual basis. Moving further from the technical point of view, the main point is the community, collaborative groups and organisation of the work. In the work setting, wiki moves the focus from the tool to the work culture and management culture of the organisation.

Wikis and Libraries

How could libraries and information services benefit from using wikis? The librarians and information specialists are usually active in adapting new tools, and so it has been with the Web 2.0. With wikis, libraries and information services could support their internal work, communication and collaboration with their customers, and also collaboration with other libraries.

As a tool for managing internal work, wikis work well for managing projects, co-writing user guides and documenting work procedures. In the wiki-environment, nothing is behind one person: during meetings, holidays and sick leaves, there is no need to wait for the certain person to get back to work and retrieve the information from his/her records. User guides can be developed together

and they are easy to publish as wiki pages. Everyone can add their best tips, comment and ask questions. User guides can be also commented by the library users.

In the Information Services of the National Public Health Institute in Finland, the wiki-intranet is used in several tasks: to publish the library home pages, to manage the library's projects, to organise training sessions, and to coordinate the acquisitions of journals in collaboration with the departments, etc. The Information Services subscribes to about 5000 journals and over 10 databases. Keeping record of the prices and status of the subscriptions, collecting comments from the departments every year has been an enormous work. In 2007 and 2008, the same work has been done collectively in the wiki. The departments can comment the journal subscriptions on the wiki page. When the list of subscribed journals and databases along with the broker is listed publicly, anyone in the organisation can check if the journal is subscribed by the Institute, and who is the right broker to contact if problems arise.

Wikis could be used as Question & Answer -lists to communicate and collaborate with the customers: it is easy for the library user to write a question, library staff writes the answer, and everyone can see the discussion. Wiki pages can also be used as a feedback and wish list: customers can send their requests for new resources and services, and get comments and support from other customers and the library staff. Wiki works well as a news board: notifications about new resources and services, user education classes and problem situations are easy to add.

Angela Kille discusses the many possibilities of wikis in the library reference service. She suggests, that *"Wiki could be used as a ready reference database for frequently asked questions. The advantage to this type of wiki is the ability for anyone easily to add new content at any time or revise content on the fly"*.^{26,27}

One possible use for wikis is to collaborate with other libraries, information services and even with the universities. Librarians can unite in sharing their knowledge. One example of this is the UBC (the University of British Columbia) HealthLib-Wiki - A Knowledge-Base for Health Librarians. HealthLib was created in 2006 to support a medical library course, to encourage discussion with and between the students. The authors encourage all professional health librarians to participate. The objective is to build a health library wiki with an international perspective. The topics range from Associations to Evidence-based Librarianship, to Health Informatics, Semantic Web and Web 3.0.²⁸

Conclusions

The wiki-intranet has affected the aspects of the internal communication that were studied in the survey. It has improved the internal communication and the chances to participate in the internal communication, the visibility of news and announcements and improved communication within and between the units and the possibilities for collaborative work to some extent. It has improved the finding of relevant information, but also opposite opinions was expressed. More than half (53%) of the respondents thought that the wiki-intranet is excellent or good and 40% said it is moderate. The wiki-intranet was preferred by most (79%) respondents when compared with the old intranet.

Based on the results, it could be said that the wiki-intranet has had a positive impact on the internal communication. Wikis can be used in many ways to improve the internal communication and enhance the collaborative work. Wikis are platforms for collaborative communities. As tools, they don't do the collaboration, but they can be implemented to offer the people a supporting platform for collaborative work.

References

- ¹ Wikipedia. Ward Cunningham. (Available at: http://en.wikipedia.org/wiki/Ward_Cunningham. Page accessed: 25 April 2008.)
- ² The Channel 9 Team. Ward Cunningham - How did you come up with the idea for the Wiki? Posted by The Channel 9 Team, 18 August 2005. (Available at: <http://channel9.msdn.com/ShowPost.aspx?PostID=7726>. Page accessed: 24 April 2008.)
- ³ Cunnigham, W. Why Wiki Works. Page updated 25 April 2008. (Available at: <http://c2.com/cgi/wiki?WhyWikiWorks>. Page accessed 25 April 2008.)
- ⁴ den Besten M, Dalle JM. Collaborative maintenance of collections - keep it simple: a companion for simple wikipedia? In *Proceedings of EURAM 2007*, Paris, France, May 2007. (Available at: <http://users.ox.ac.uk/~ierc0002/EURAM2007.pdf>. Page accessed: 24 April 2008.)
- ⁵ Anderson, N. Tim Berners-Lee on Web 2.0: "nobody even knows what it means". Published: September 01, 2006. (Available at: <http://arstechnica.com/news.ars/post/20060901-7650.html>. Page accessed: 25 April 2008)
- ⁶ Buffa, M. Intranet wikis. Workshop IntraWebs 2006. Edinburgh, Scotland. (Available at: http://www-sop.inria.fr/acacia/WORKSHOPS/IntraWebs2006/Bufa_Intrawebs2006.pdf. Page accessed 24 April 2008)
- ⁷ Wagner C, Bolloju N. "Supporting Knowledge Management in Organizations with Conversational Technologies: Discussion Forums, Weblogs, and Wikis," JDM submission. 2004, 1-16. (Available at: http://144.214.55.213/wn/tiki-download_file.php?fileId=7. Page accessed: 18 April.2008.)
- ⁸ Wagner, C. Wiki: A Technology for Conversational Knowledge Management and Group Collaboration. *Communications of the Association for Information Systems*. 2004, 13: 265-289.
- ⁹ Franssila H, Pehkonen M. Kokemustietämyksen elinkaaren hallinnan haasteet asennus- ja huoltotyössä [Challenges of experience knowledge management life-cycle in installation and maintenance service work]. In Viteli, Jarmo ja Kaupinmäki, Simo (ed.) TUOVI 5: Interaktiivinen tekniikka koulutuksessa 2007 -konferenssin tutkijatapaamisen artikkelit. Tampereen yliopiston Hypermedialaboratorion verkkojulkaisuja 2008; 15, 69-85. [In Finnish.]
- ¹⁰ Cunningham, W. Wiki Design Principles. Updated 26 March 26, 2008. (Available at: <http://simplewebs.com/?WikiDesignPrinciples>. Page accessed: 26 April 2008.)
- ¹¹ Ibid.
- ¹² For more discussion about wiki design principles, see Wagner, C. op. cit. (⁸)
- ¹³ Cunningham, op. cit. (¹⁰)
- ¹⁴ Cunningham, op. cit. (¹⁰)
- ¹⁵ Meatball Wiki. Soft Security. Page updated 29 April 2008. (Available at: <http://www.usemod.com/cgi-bin/mb.pl?SoftSecurity>. Page accessed 29 April 2008.)
- ¹⁶ Klobas, J. Wikis: tools for information work and collaboration. (2006). Oxford, Chandos Publishing.
- ¹⁷ Meatball Wiki. Audit Trail. Page updated 29 April 2008. (Available at: <http://www.usemod.com/cgi-bin/mb.pl?AuditTrail>. Page accessed 29 April 2008.)
- ¹⁸ Klobas, op. cit.
- ¹⁹ Wallace, N. Our Intranet, the Wiki: Case Study of a Wiki changing an Enterprise. Nathan @ e-gineer. 2007, 18 August. (Available at http://www.eu.socialtext.net/cases2/index.cgi?intraWest_wiki_intranet. Page accessed: 24 April 2008.)
- ²⁰ McGrath, C: IntraWest Wiki Intranet (Available at: http://www.eu.socialtext.net/cases2/index.cgi?intraWest_wiki_intranet. Page accessed: 24 April 2008.)
- ²¹ Dodds, L. Embracing the Wiki Way: Deploying a Corporate Wiki. Freepint Newsletter. 2006, 27 July. Available at: <http://www.freepint.com/issues/270706.htm>. Page accessed: 24 April 2008)
- ²² National Public Health Institute in Finland. 2008. (Available at: <http://www.ktl.fi/portal/english>. Page accessed: 24 April 2008.)

²³ KTL-esite 2008. [Brochure of the National Public Health Institute in Finland, 2008] [In Finnish.] (Available at: http://www.ktl.fi/portal/suomi/esittely/toiminta_ja_tehtavat. Page accessed: 24 April 2008.)

²⁴ The writer has been part of the intranet project group and has access to the documentation of the intranet project.

²⁵ Interview with the Project Manager of the intranet group.

²⁶ Kille, A. Wikis in the Workplace: How wikis can help manage knowledge in Library Reference Service. Library of Information Science Research Electronic Journal, March 2006, 16; 1. Available at: <http://libres.curtin.edu.au/libres16n1>. Page accessed 24 April 2008.)

²⁷ For more information on wikis and libraries, see the site compiled by Darlene Fichter: Fichter, D. Wikis and Libraries: Resources, Articles and Links. Page updated: 4 February 2005. Available at: <http://library2.usask.ca/~fichter/wiki>. Page accessed 24th April 2008.)

²⁸ UBC HealthLib-Wiki - A Knowledge-Base for Health Librarians. Available at: http://hlwiki.slais.ubc.ca/index.php?title=Main_Page. Page accessed: 24 April 2008.