

# User-Centred Design Approach for a Community Website with Social Software

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**Abstract.** Social software and web 2.0 live on the fact that people want to share and collaborate. This feeling of connecting with each other as well as helping and sharing information can be used in different domains. We think social software can be used to build dynamic online communities and subsequently can be used to improve the relationships between community members and stimulate them to be more active community members. To make sure the website is usable by all people and to make it approachable for all people to be active on a community website, we involved the users in an early stage of the design process. With the results of the user studies we designed the website, after which iterative usability tests took place. In this paper, we discuss a case study of the design of a community website around an interactive page in a local newspaper, using social software and their interaction with the real life community.

**Keywords:** Social software, online community, user-centred design, usability.

## 1 Introduction

In this paper, we discuss the possibilities of using social software in a community website developed with a user-centred design approach. The community website is built around an interactive page in a newspaper; called WegWijs. WegWijs is a two weekly page in two regional newspapers of Media Groep Limburg (MGL) “Het Limburgs Dagblad” and “Dagblad de Limburger” in the southern province of The Netherlands “Limburg”. Limburg is a province with a very strong feel of identity and has its own dialect. These newspapers have a very large reach in this province, 64,6% of the civilians of the province of Limburg who are 13 year and older read one of the two newspapers, although the largest group of readers are 50+ [9].

The WegWijs page is a page where people can send in original questions which will be answered by editors with the help of experts. Examples of questions are: “How exists a family coat of arms?”, “Why is a toilet roll divided in separate sheets?” “How long takes a dream?” (see figure 1 for an example of a question). Moreover they can place personal ads and contribute with limericks and personal thoughts. It is a highly successful page, with a long queue of questions and submissions, it takes about half a year before a submission appears in the newspaper. The main target

group, making use of this page, consists of people over 55. The newspaper decided to translate this concept to the Internet, but stressed that the same target group should be able to interact with it, and the high commitment should be retained. This project is done as part of a bigger project VIP-lab (“Virtual Lab for ICT Experience prototyping”), with the aim of making small and medium-sized businesses in the region aware of the advantages of ICT Experience Prototyping and user-centred design [3].

To make sure the website will fit the expectations of the readers of the newspaper, and will be usable for all people, also the people with very few Internet experience, we developed the website in a user-centred design approach. There is an international standard (ISO 13407: human-centred design process) that is the basis for many user-centred design methodologies. This standard defines a general process for including human-centred activities throughout a development life-cycle [6]. This means the readers and the editors of the WegWijs page in the newspaper were involved in all stages of development. In the following paragraphs we will describe the different phases of the user-centred design process, starting with a contextual inquiry and Internet survey, followed by an iterative phase of design and several usability tests, concluding with a field test.

## 2 Enhancing the WegWijs Experience

In order to gain insight into the way the WegWijs page is being used now, we performed a contextual inquiry and an Internet survey. Contextual inquiry is a field data-gathering technique to arrive at a full understanding of the work practice across all users [1]. An important benefit of contextual inquiry is that the interviewees are observed in their context, therefore is it not only possible to discover the user’s opinion and experiences, but also understanding the user’s motivations and context. Besides that, this technique makes unarticulated knowledge explicit [1,5]. The contextual inquiry took place at people’s homes, observing how they read this particular page and interviewing them about the interaction they have with WegWijs (see figure 2 for an example). The Internet survey was a questionnaire which could be filled in on the Internet.

We interviewed and observed 7 readers of this page, mean age 56 (between 41 and 75 years of age) spread over the province of Limburg. They all had some computer and Internet experience. During the observations the subjects were reading the page in the newspaper for the first time that day. We asked questions about the reading sequence of the different sections, their favourite sections, etc. These readers were recruited by sending an email to all the readers of the WegWijs page who ever had contacted the WegWijs editors by email. This means these people were already active by reacting on WegWijs items in the newspaper. We received a lot of enthusiastic reactions on our request, for that reason we decided to conduct an Internet survey as well.

During the Internet survey with 50 readers of the WegWijs page, just as during the observation and interviews, we asked their opinion about the WegWijs page published in the newspaper and what their expectations were for an interactive version of this page on the Internet. The average age of readers who filled in the survey was 55 (between 13 and 86 years of age). They used the Internet at least once a week, especially for emailing or surfing the web.

This contextual inquiry and Internet survey showed us that most of the readers were willing to visit the future WegWijs website and participate in the interaction, although some people asked themselves why everything should be digitized. Most of them were afraid that they did not have enough technological knowledge to really interact with the website. They were for example saying: “I don’t have much experience with computers” or “I will interact if I know how to do this”. The readers did not really had a fixed reading sequence on the WegWijs page, although most of them said the WegWijs page was the first page they read of the whole newspaper. The majority of the time, they first read their favourite section or the section which stands out the most by colour or subject. Overall they did not want the online version to be an exact copy of the paper version of WegWijs, and they preferred to keep it small and local.

When we asked them why they contribute to the WegWijs page, they gave several reasons for this. A frequently given answer was that they wanted to help other people: “just to be helpful”, “to pass knowledge”, “I like to help other people this way”. Some of them were wondering about a question and did not know how to find the answer, and they saw WegWijs as their solution: “I would like to know the answer and I think others want too”. Other people were just curious, wanted to learn (“you are never too old to learn”), wanted to know the opinion of other people, liked it to come in contact with other people, or did it just for fun. Another frequently seen explanation was that they like to see things they contributed, their own names or their home town in the newspaper (“to make sure my town is not underrepresented”).

Overall, the reactions on the WegWijs page in the newspaper were very enthusiastic. Also the amount of reactions we got on our requests for participation in the research confirmed the strong bonding with the page in the newspaper.



Fig. 1. Example of question and answer on WegWijs page in the newspaper



Fig. 2. Observation WegWijs reader

### 3 Prototyping the Wegwijs Website with Social Software

Based on the contextual inquiry and the Internet survey we wrote two scenarios of the current situation with the WegWijs page in the newspaper and two future scenarios describing how the interaction with an interactive version of the WegWijs page on the web could be. Scenarios are made up stories of people who want to reach their goals

with a product. The stories are detailed and also design suggestions can be discussed [15]. These scenarios and the results of the contextual inquiry and the Internet survey were used as input for the design decisions on how the interface should function and what it should look like. We will explain some different aspects of the community website by clarifying why we made these design implications.

The readers already had a strong tie with the WegWijs page in the newspaper and they indicated they really liked the looks of the page. Therefore we wanted the website to be recognizable for the WegWijs readers. We used the same graphical elements and colours like the newspaper so the users will have a feeling of trust and comfort. The decision of which sections would be translated to the Internet was based on the most favourite sections of the readers.

The WegWijs page in the newspaper has already a strong bond with their readers. The readers indicated they talk about the page with their friends, family and colleagues regularly. To support this feeling of connecting with each other and wanting them to share information and opinions with each other, we decided to implement social software concepts in the WegWijs website to make it a community website. Different definitions of social software can be found [11,16], often in combination with some other buzz words in the same domain, like Web 2.0 and Rich Internet Applications. All these terms express the feeling that the web is where we live. New sites like MySpace, Last.fm, del.icio.us and Flickr are not just places to go, but contain things to do, ways to express yourself, means to connect with others and they extend your own horizons [7]. They live on the fact that people want to share and collaborate, which makes it easier to build a community in a natural way. Using social software can even increase the involvement of the WegWijs readers in the community. Despite the vibrancy of online communities, large numbers of them fail. Often, designers do not have a solid understanding of why [8]. On Web 2.0 websites, users are not only trying to interact with the technology or information, they are also trying to interact with others. This makes the user interface a social interface. Because social interactions are complex and unpredictable, we certainly have to focus on usability problems concerning social software. Social interface issues can be far more difficult to deal with than conventional user interfaces because the interaction of technology, users or communities involves interdependencies that exceed the reach of conventional design techniques [2].

Users have to create a personal profile, if they want to contribute to the website. They can fill in their interests, where they live, upload their own photo, etc. People who have registered can see the profile pages from all the registered users, including a list of all the contributions to the website someone has made. The homepage gives an indication of the number of registered users, and the number of online users. This makes the website more personal and enables communication between users with similar interests in the future.

We changed the way questions were answered compared to the original WegWijs page, partly to spare the editors, but more important to support the community. Users can still ask questions, but the answers will not be given by the editors but by other users. To approach the reliability of the newspaper, other users can indicate if they agree or disagree with the answers. They can also just react on the answer by writing down their own opinion. Another indication of reliability can be the interests of the writer. For example if you see the writer was a former mine worker, you can presume

that the answer he gave about the question about the mines is correct. Further, the readers indicated that they thought it was a shame that after a question was answered, the subject was closed. On the website they can still ask substantial questions or react on the answers. Another benefit is that the long queue of questions can be solved because the activity of the editors will be reduced.

Users can also put their own rhymes and aphorisms online. In the paper version the editors choose the best submissions and publish them in the newspaper. Readers indicated they felt proud to see their own name and contribution in the newspaper. To simulate this feeling in the web version of WegWijs, users can give positive votes on these writings if they like them, like giving a complement, similar to Digg, a news website with a user-based ranking system. At the end of every week, the rhyme and aphorisms with the most votes will appear on the homepage. This way the writers can still feel proud, just like in the newspaper.



Fig. 3. Screenshot of Visio WegWijs prototype



Fig. 4. Screenshot question page

## 4 Usability Tests with the WegWijs Website

To involve the users in the next stages of the design process, we conducted several usability tests and a field test in an iterative process. First we made a prototype with Microsoft Visio, to get first reactions of users on the idea. We tested the website with 5 people. Not the whole website was worked out but only a few pages, see figure 3 for a screenshot of the Visio prototype. With this prototype there was interaction possible, with working links and buttons, but input fields were inactive. Because it was still a prototype and not all parts were functional, the usability test was accomplished in an informal way. As a result we received a lot of feedback of the users on the design. Taking into account the results of this first usability test, the website was built and a second and third usability test was carried out with this beta version of the website.

During the usability tests the users had to accomplish several tasks with the WegWijs website while thinking aloud. Thinking aloud means they say out loud everything that they are thinking and trying to do, so their thought processes are externalized [14]. Examples of tasks are creating a personal profile and voting on a

limerick. After the test they had to fill in a questionnaire about their opinion of the prototype and about specific interaction techniques. The usability tests were carried out with a portable usability lab at the editorial office at MGL in Sittard.

The second usability test was carried out with 9 WegWijs readers. The older adults are our primary target group, therefore we tested with 6 users aged between 60 and 75. Because the WegWijs page is also read by younger people, for example school classes send in questions regularly, we also selected 2 users about 45 and 1 user aged 17. Half of the subjects had very few computer and Internet experience. Another usability test was carried out with the 3 editors of the WegWijs page. Because the editors had very few experience with community websites and the website contained some extra features for them, we wanted to know if the website was also user friendly for them.

During the tests we saw some usability problems, especially with the users with less computer experience. The overall impression of the website was good. The users really liked the identification with the page in the newspaper. They said it was clear, familiar, and it was “peaceful for the eyes”. Most people were very pleased with the possibility of voting on other people’s submissions, like rhymes and aphorisms (“Nice to see if you have the same taste as other people” and “It is a stimulation to submit more”). They did not mind if other people were voting on their input, most of them even really appreciated it (“Nice to see what others think of it”). They also liked the opportunity to indicate if they agree or disagree with answers on questions (“You get a better idea of degree of truthfulness”). Most of them had enough faith the correct answer to their questions will eventually appear (“There are always people who know the answer”) (see figure 4 for an example of a question and answers). They also liked the idea they could take a look at other people’s interests and their submissions, although some people indicated they feel no need for it. They especially wanted to know more about people with the same interests, even more than was possible now. Most of the subjects had the feeling they could get in contact with other people who are registered through this website, and they liked this, especially with people with the same interests. The majority of the subjects indicated they even wanted to contact other people directly. They did not mind that other people could see their personal information, like hometown or their personal interests, although one person thought the photo was overdone. The younger people even wanted to go one step further, they would like to send messages to other users and wanted to know why people vote on rhymes. They also indicated that they would more easily publish something on the website then send it to the newspaper.

## **5 Field Test with the WegWijs Website**

With the results of the usability tests, the website was improved and a field test was carried out. Thirty-one WegWijs readers were asked to use the WegWijs community website intensively and were asked to participate during a period of 3 weeks. To make sure we had a balanced variation in the group, we made a selection out of 150 readers who already had contact with the editors of WegWijs page and wanted to participate. The selection criteria were based on age, computer and Internet experience and profession. The participants were aged between 11 and 87 (mean 50). They were

asked to fill in a diary every time they visited the WegWijs website. They had to answer questions about their experience with different parts of the website. The amount of time they spend on the website and what they were doing on the website was automatically logged. We also visited 7 of these testers at their homes, observing and interviewing them while they were visiting the WegWijs website.

Before the 31 testers visited the WegWijs website, they had to fill in a questionnaire with some general question about their experience with computer, Internet and the WegWijs page in the newspaper. The results of this questionnaire indicated that all testers had experience with computers and Internet, but on different levels. Half of them visited the Internet every day and only half of them had experience with forums or newsgroups. Most of them (25) had reacted already on an item on the WegWijs page in the newspaper. Most of them (25) indicated they talk about the content of the WegWijs page in the newspaper with family, colleagues or friends regular.

All the testers visited the website during the test period. On average the website was visited about 22 times per person during the 3 weeks, with a mean time of 16 minutes and about 42 pages per visit. During the first week we saw a peak in the amount of votes compared with the other weeks as well as compared with other actions, properly because this was an easy first step to participate on the website. One person was very active and took care of 15% of all actions during the 3 testweeks on the website. Thirteen testers took care of 62% of all actions, 2 people only visited the website without being active, this means the remaining 23% of actions was done by the rest of the testers, 15 testers. This means we had much more active people on the website than normally is the case mentioned by Preece et al. [12] and Nielsen [10].

During the home visits people reacted very enthusiastic about the website. Some people indicated the website was good for their general knowledge. They also used their own reference books much more because they wanted to answer questions from other users.

The diaries showed that there were still some minor usability problems, although most testers really appreciated the website and thought it was a cosy and lively environment. After the first week, we saw that the testers became friendlier to each other, they thanked for example each other for answers on questions. The page with all the registered users was visited often. Some people wrote that the first thing they did when visiting the website was checking if there were new registered people and checking their profile to see if it would match their own profile. If someone's question was answered, they received automatically an email with a link to the answer on the WegWijs website. The testers really appreciated this, actually it felt for them like an invitation to contribute more. The testers also told us that they often checked their own submissions to see if they got compliments or answers to their questions. This means the implemented features encourage people to participate, were working.

The testers would appreciate it if there would be more interaction between the website and the paper version of WegWijs. This will be a point of attention in the future, because it was not realisable during the test period. They want to place some items from the website in the newspaper and the other way around. Some people also indicated they want the editors to contribute more, especially after a lively discussion about a question. So, they still miss the reliability of the newspaper.

## 6 Discussion and Conclusion

During this user-centred design process we saw that during the early design stages some WegWijs readers were a bit sceptical about the WegWijs website on the Internet and their ability to use it. By involving the users during the whole design cycle and through analyzing the users' needs and expectations we could design a community website adapted to their needs and skills. As a result we saw during the usability tests that most users could easily use the website and had an enjoyable experience when discovering those new social software components. This resulted in a contribution of almost every user on the WegWijs website during the field test. Half of the testers were above average active and took care of the majority of all the activities on the website. As already mentioned before, this is much more than normally is the case with community websites, probably partly caused by the fact that it was a test case of 3 weeks and people were encouraged to participate. But the results of the field tests showed confidence for the community website, that the people were encouraged by the features build in. During the field test we also saw that a lot of the features we had build in were working well, like the mission statement, rewarding contributions, the personal information in the website. This confirmed that the strategies to encourage people to become an active community member mentioned by Preece et al. [13] were working. Furthermore, there was not only a strong bond between the readers and the newspaper, but during the field test we saw that the users felt more connected with each other. This can be of major advantage for the newspaper to strengthen and secure their bond with their readers.

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