Easy-To-Use Social Network Service for People with Cognitive or Speech and Language Impairments

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Abstract. Social media has become an important tool for social networking. However, most social networking services are very challenging for people with learning disabilities or cognitive impairments. The problems are mostly related to understanding the different concepts of the environment and related terminology, but the accessibility and usability problems common to all internet services also apply.

This paper describes some of the problems related to interaction in social network services and introduces solutions and implementation methods used in Kaveripiiri.fi web service. Kaveripiiri.fi is an easy-to-use social network service launched by Papunet Web Service Unit of The Finnish Association on Intellectual and Developmental Disabilities (FAIDD) in spring 2010. The main target groups for the service are young people and adults with intellectual and developmental disabilities (IDD), or any kind of communication, attention control or guidance problems. User studies conducted in the service soon showed that some of the features such as registering and logging in were challenging in many ways, also as a concept. Additionally, users with reading and writing difficulties could not fully participate because communication in the service is mostly done in written form.

Based on user study in the live service and usability tests of prototype designs, a new version of the service was created. The content was reorganised based on privacy level in order to make it more obvious what is the audience for the content posted. Also, supporting features for reading and writing were added: text-to-speech functionality for all messages, a text input tool with ready-made phrases to choose from, and login by selecting a sequence of symbols. Preliminary results indicate that the adaptations for the target group have a major impact on accessibility of the service.

At this point, three main conclusions can be drawn. Firstly, one of the main problems is knowing what kind of information is alright to share in different situations. Besides identifying sensitive information, it might also be unclear who will have access to it. Secondly, feedback shows that most of the problems for the users themselves arise from interaction with other users. A situation where people are communicating but can not see or hear each other can place an extra burden to interaction in social media to this user group. Thirdly, when developing applications for users with special needs, user-centered methods must be used. There are several examples from this project where important information could only be acquired by consulting users directly or by organizing user studies.

Keywords. social media, social network services, internet, accessibility, usability, cognitive impairments, speech and language impairments, facebook

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Introduction

Social media has become an important tool for sharing your thoughts with other people and keeping in touch with your remote friends.

Social networking services offer new opportunities for people with special needs, although many of them often find the existing social network services too difficult to use. For example, much effort has been put into making Facebook more accessible for certain special groups [1], but it is still quite challenging for someone with intellectual and developmental disabilities (IDD), speech and language impairment (SLI) or difficulties in reading or writing [2]. Also some senior citizens find social network services quite complicated to use.

The problems encountered by the above special needs groups in social media are mainly related to understanding the operating environment and the special terminology used. In addition to problems with the user interface and special terms, the new social networking environment in itself presents additional challenges. People with special needs may fail to understand the risks involved in social networking: some may, for example, reveal confidential personal information to strangers [3]. Others may feel that social network services are far too insecure and therefore decide to opt out completely.

Kaveripiiri.fi is an easy-to-use social network service developed by The Finnish Association on Intellectual and Developmental Disabilities (FAIDD). The main target groups for the service are young people and adults with IDD or any kind of communication, attention control or guidance problems. During the development process a lot of user data was collected, which pointed out the need for this kind of service, how should it be different from other similar services and what kind of design adaptations must be made to support target group users.

1. The need for this kind of service

1.1. Social background

Finnish government has made a resolution about organising accomodation and services of people with IDD in a new way [4]. Besides ramping down residential care, it means also applying a new working culture. Self-determination of people with IDD shall be respected and each person shall have the authority to make decisions concerning their own life.

In practice it also means that more people are living independently with the help of various support networks. A key success factor is a comprehensive social network.

At the moment some people living independently or in their childhood home say they are experiencing loneliness. For some, this feeling is a result of living in a small municipality with few social contacts and only very limited possibilities to be engaged in a hobby. Some are not able get around on their own as much as they would like because there are less assistants available than needed. Some are trying to find a life-companion and some just need company in general.
1.2. Social Media is a Challenge for People with Learning Disabilities or Cognitive Impairments

Existing social networking services are not very suitable for people with learning disabilities or cognitive impairments for variety of reasons.

For example Facebook, the mainstream social networking service, has its features placed quite unintuitively in the user interface, making a specific feature somewhat difficult to find. The terms used in buttons and links are not very familiar to those who haven’t been using these kind of services before, so there’s quite steep learning curve.

Another problem is privacy control. Most things are shared with all users of the service unless specifically set otherwise. One might also unintentionally allow a third party to access all the personal information while using an in-service application. That means one has to know quite a lot to understand where information about their actions actually ends up. This uncertainty makes some users to opt out completely.

There are also services not that complicated, even ones specifically designed for people with IDD, but those are available only in English.

However, social networking services could provide invaluable tools for enhancing the social skills and participation of people with special needs.

2. Development process

2.1. The Project

In the spring of 2009, the Papunet network service unit of The Finnish Association on Intellectual and Developmental Disabilities (FAIDD) launched a project to create an easy-to-use social network service. Different kinds of problems had arisen in public chatrooms and discussion boards for people with IDD or SLI, e.g. people were revealing personal information or deliberately picking on other users. A more controlled and secure environment was needed, where single users would be identifiable.

The main target group for the new service were people who have difficulties using existing social networking services. In addition to FAIDD project team, there were a group of youths from media workshop of Omapolku association as a project partner, who participated in the design process.

2.2. Methods

The service was implemented using user-centered design methods.

During the first year of the project a pilot version of the service was created. The pilot version was based on a social networking software platform where individual functions were improved with co-designers who gave their opinion about the usability, what they would like to do in the service, the colour theme and helped to pick a name for the service. They also participated in usability tests. The resulting pilot version was then opened to the public for target group users to try out.

Usage statistics and feedback was gathered from about a hundred users of the pilot version for about a year. Based on that information, a new, improved version of the service was created, with additional features such as text-to-speech functionality and a tool for text input. Individual features and the service a whole were usability tested with co-designers.
3. Key Findings and solutions

3.1. User interface usability

The design and testing phase made it absolutely clear that the main qualities of an easy-to-use and accessible network service are simplicity and clarity. At the first stage of development, we did our best to simplify the default user interface, but many users still had a hard time figuring out the various functions and concepts of the system.

When developing the second version of the service the user interface was simplified further. Layout became visually clearer by removing excess borders and background colors, and rather grouping items by proximity. The appearance of UI elements e.g. links was unified throughout the service so that active areas could be located more easily.

The number of separate functions was reduced by combining similar functions to the same view. This way users would only see the functions that are essential in the current context. For example everything that is related to your person, e.g. info about you, your friends, your photos etc. is located on your own profile page. Also the content is now reorganised based on privacy level. This is explained in detail in chapter 3.4.

![Figure 1. Profile page.](image)

3.2. Low literacy skills

Difficulties in reading and writing are common among people with cognitive or speech and language impairments. Based on user study and experiences with the design team we discovered that a lot of people in the target group read and write slowly and make errors, and some are illiterate. In a service, where most of the communication is done in written form, reading and writing support is essential.

There is a lot of experience which shows that people with low literacy skill benefit from the ability to hear the text. In Kaveripiiri.fi, a text-to-speech functionality was added to all messages, which transforms the message text to synthetic speech, highlighting the sentence currently being read.
A text input tool was also developed with a set of about a hundred ready-made phrases with picture symbols, which the user can enter in the text field by clicking on them. When clicking, the selected phrase is also read aloud by the speech synthesizer. The tool can be used with every text input field in the service.

Figure 2. Text input tool.

3.3. Terms of service

In many internet services, the terms of service is often written in "legalese", overly complicated but legally valid language, which most users fail to understand and usually don’t even read the text because of its length. As a result, the user might unintentionally grant the service an exclusive right to all his/her photos and writings.

Few services have their terms written in compact and intelligible form. That would be ethically correct for everyone, but especially for people with cognitive disabilities.

In Kaveripiirin.fi, the terms of service are written in plain language. Each section in the terms is also illustrated by a comic strip, which provides an example how the rules apply in practice.

Figure 3. An illustrated example telling people to upload only their own photos, with a permission from people present in the photos

3.4. Problems in interaction with other users

Interaction via the internet is very different from face-to-face communication. You cannot see other participants’ expressions or hear the tone of their voice, you only have the written message. This makes it harder to interpret the feelings of the other party. It is also hard to figure out why someone doesn’t reply to the message. This sometimes leads to misunderstandings, resulting in a feeling of being neglected, insulted or even bullied.
Some people don’t like to enter the chatroom because they feel this way. Once a month, a member of the staff is present in the chatroom and takes part in the discussion, which makes the environment comfortable for those who feel mistreated.

Good behaviour and respect for others is mentioned also in the terms of service. Active moderation ensures a safe environment, where misbehaviour leads to a notice or temporary or even permanent ban from the service.

3.5. What to share in different contexts?

One major problem for users in internet services is to understand what kind of information is appropriate to share in different kind of situations and also to identify the audience they are writing to. Besides identifying sensitive information, users might also find unclear who will have access to it.

To clarify these difficult concepts or social conventions the content is organised into three views based on privacy level: me and my friends (profile page), all users and private messages. The main purpose of his solution is to help the users to identify the audience they are messaging or writing to.

During the development process and based on previous experience, target group users seem to have a strong need to also get to meet people they don’t previously know. This is a clear distinction from other services, most of which are focused on interacting with the people you’ve met elsewhere. The risk of revealing personal information unintendedly is increased, but moderation will help the user in such cases.

![Figure 4. Views navigation bar.](image)

3.6. Signing up and signing in

A service where the user has to be identified and thus must sign up for an account is difficult for people with cognitive disabilities. In order to successfully sign in, the user has to fill in the registration form without spelling errors, have an e-mail account where the username and password would be delivered and then enter the credentials in the sign-in form. Completing all those steps without mistakes is necessary in order to sign in successfully, but requires good IT skills and memory.

Majority of feedback is about unsuccessful sign-ins. People often forget their passwords or misspell their username or password. In the earlier version, when both the username and the password had to be entered in separate fields on the same page, people sometimes left the password field blank.

This was improved by making the sign-in a two-part process. The username is entered first, and the password on the second page. The username input was also made less picky about whitespace and letter case. Those, who have hard time remembering and entering text strings, have an option to use a picture password, where you select picture symbols from a set in sequence.
4. Conclusions and ideas for further development

Kaveripiiri.fi social network service experienced a major transformation during 2010. User interface and sign-in process were simplified and new possibilities to produce content and to understand it were introduced. Also easy-to-read information about social interaction in service were given. Usage statistics show that people using the service seem to enjoy the changes: they visit more frequently and spend much more time per visit.

When developing services for people with IDD or SLI, user-centered methods must be used, because target group is so diverse and problems quite unexpected. As time passes, the gradually forming community defines how the service is used. Single users discover new ways of using the service, and others follow if they like it or find it useful.

References