Individual Differences in Social Navigation

Kristina Höök, Jarmo Laaksolahti, Martin Svensson, Annika Waern
SICS
Box 1263, S-164 29 Kista, Sweden
+46-8-6331500
{kia, jarmo, martins, annika}@sics.se

ABSTRACT
Social navigation has been proposed as a means to aid users to find their way through information spaces. We present an on-line grocery store that implements several different aspects of social navigation.

In an initial study, we found that social trails seem to appeal to one group of users while another group is alienated by them. We discuss the implications for design of social navigation.

Keywords
Social navigation, on-line shopping, recommender systems

INTRODUCTION
In a typical on-line grocery store, there will be 10.000 different products to choose from. Navigating such a space is not only time-consuming but can also be boring and tedious. We have designed an alternative store, based on ideas from social navigation [1]. In a social navigation design other users' actions are visualised in the interface. It can be through direct contact with other users, as in chatting. It can be through trails or footprints, that is, the object bears signs of how it has been used by others. Or, finally, through how the information space is structured, as in recommender systems. Much in the same way as we consult or follow the trails of other people in the real world for solving different tasks, we also try to support this in the virtual world.

But does social navigation 'work'? What are appropriate designs that are not perceived as intrusive or unhelpful? We conducted a small-scale study where we tried to determine whether users are influence by the actions of others (as visualised in our on-line grocery store), and how they feel about this "intrusion".

ON-LINE GROCERY STORE
Through on-line grocery stores, users can order food to be delivered to their doorstep. The task of composing a shopping list is a tedious task in most of the existing services. In one of our user studies we found that subjects spent in average 12 minutes composing a shopping list consisting of only 10 items [2]. We also found large individual differences, where for example elderly subjects spent twice as much time as younger subjects (15.5 versus 8.6 minutes in average).

We decided to base our on-line store on recipes rather than having to search for each product separately. Through choosing a set of recipes the user gets all the ingredients from the recipes added to a shopping list. This list can then be edited and new items added prior to the purchase.

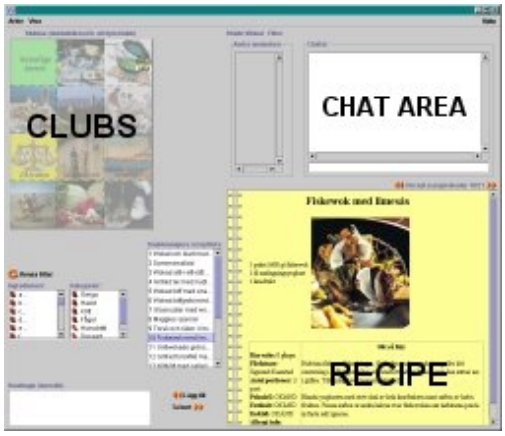

Figure 1. The recipe recommendation user interface.

The store has been enriched with a number of different functionalities that enhance social navigation. First and foremost, the recipes themselves are ordered by collaborative filtering methods [3]. Recipes are recommended to customers based on what other customers have chosen. In addition to recommending individual recipes, recipes are grouped into *recipe clubs.* A recipe club is a place with a special theme, for example 'vegetarian food'. Users can move around between clubs to get different recommendations. The selection and ordering of recipes available in a club are also maintained by collaborative filtering methods, and reflect what visitors of the club have liked. In addition, clubs may be moderated by a club owner [3]. In addition to the recommendation functionality, users have a virtual presence in the shop through icons (avatars) representing them in an overview map of the clubs. As the user moves from one club to another, the user's avatar will be shown in the map as moving from one club to another (see fig. 1). The system also provides chat functionality, so that users can chat with other users who presently are visiting the same recipe club. Finally, we also provide social annotations in more anonymous ways: each recipe bears signs of who put it there (the author) and how many times it has been downloaded.

STUDY

We believe that social navigation can contribute to the *efficiency* of the interface from the user's point of view, but that is not the only important metric. Social navigation is also useful if it leads to a more pleasurable or entertaining experience, or if it increases users' sense of satisfaction and comfort with the work they have performed.

In a study of our on-line grocery store, we tried to capture some of these issues. We focus on results concerning to what extent users felt that they were influenced by what others did, and whether this was intrusive or not.

Subjects

There were 10 subjects, 5 females and 5 males, between 21 and 30 years old, average 24. They were students from computer linguistics and computer science.

Task and procedure

The subjects used the system on two different occasions. They were asked to choose five recipes each time. Their actions were logged, and we provided them with a questionnaire on age, gender, education, a set of Likert-scale questions, and a set of open-ended questions on the functionality of the system.

RESULTS

Overall, subjects made use of several of the social navigation indicators. They chatted (in average 6.5 statements per user during the second occasion), they also looked at which recipe clubs other users visited, and followed them. Afterwards they answered the question "Do you think that it adds anything to see what others do in this kind of system? What in such a case? If not, what bothers you?" One subject said: "The system became alive and more fun when one could see other users". But not everybody was as positive: "No! I cannot see the point of it, I have never been interested in chat-functions".

Looking further into this difference, we found that the subjects could be divided into two groups. From table 1 we see that 5 subjects claim not to be influenced by what others do,

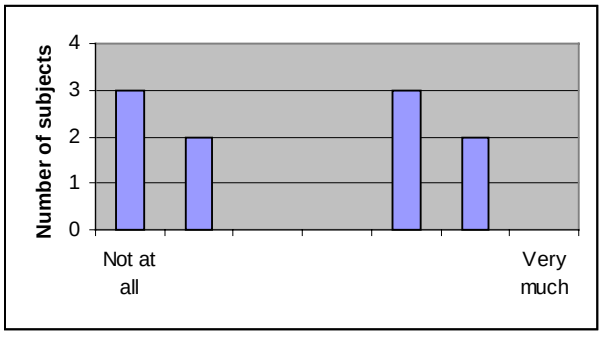

Table 1 "Were you influenced by what others did in the system?"

while 5 claim that they are. Looking further into how they answered other questions, we find that only 2 subjects are consistently claiming not be influenced.

The larger part of the group, 8 subjects, were consistently positive towards the different social annotations. The logs also backed up their claims: they chatted, and they all moved between clubs without hesitation. In their comments, they also stated that visible activity in clubs, influenced them: they were attracted to clubs where there were other users and they became curious about what the other users were doing in those clubs.

The remaining two subjects were consistently negative towards social trails. They say that they did not chat, they disliked being logged, they did not want more social functions added to the system (as e.g. being able to be in contact with the shop personnel or share a recipe with a friend), and they could not see an added value in being able to see other users in the system. Their claims were again backed up by log data: they did in fact not chat, and one subject did not even move between recipe clubs.

When going deeper into subjects' answers to the open-ended questions, certain aspects of social trails in the interface do not seem intrusive at all, while others are more problematic to some users. The fact that the recipes show how many times they have been downloaded and the author of the recipe is not a problem. Neither is the fact that choosing a recipe will affect the recommender system. Seeing the avatar moving between recipe clubs is more intrusive, and, of course, the chatting is even more so. In general, users are not bothered by being logged – they know that this happens all the time anyway, and they do not feel very secret about their food choice. It is when their actions are not anonymous and other users can "see them" that some users react negatively.

DISCUSSION

The main result of our study is that many users do in fact appreciate social navigation tools in the shopping scenario. In our study, the majority of subjects liked the social tools, used them, and was influenced by the behavior of other users.

However, an equally important result is that not everyone did. Social navigation is an important and useful tool, but all forms of social navigation will not fit everybody. We must appreciate that there are individual differences between users in this respect, as well as in many others that affect interface design.

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