

# Supporting Social Navigation in Usenet Newsgroups \*

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## ABSTRACT

In this paper, we argue that social activity indicators for reading activities in Usenet newsgroups are valuable for social navigation in newsgroups. Reading messages is a frequent as well as an important social activity when interacting with Usenet newsgroups. Specific indicators are required as newsgroups do not reflect reading activities. Appropriate indicators for these hidden activities, however, would provide valuable insights in the social dynamics in particular newsgroups as well as in the interests of individual newsgroup users. In what follows, we present a framework that visualizes Usenet reading activities for social navigation purposes. Social navigation is an active research area that aims at exploiting the behavior of crowds for supporting users in navigating information spaces. We present an implementation of social activity indicators for reading activities in newsgroups, discuss user experiences, and outline future research directions in this area.

## Keywords

Social Activity, Awareness, Social Navigation, Usenet

## HIDDEN ACTIVITIES IN NEWSGROUPS

Usenet news is widely considered as primarily consisting of newsgroups and thousands of news messages posted to these newsgroups every day. Investigations have shown that these messages are produced by a minority of Usenet users. The majority of Usenet users seems to be content with reading messages written by other users (e.g., [5]). Figure 1 shows that reading is the most frequent activity even in the case of those users who indeed post new messages. In terms of quantity, *reading* messages as opposed to posting messages is by far the most significant way of interacting with Usenet, and reading thus is an important way of interacting with Usenet newsgroups.

Observing the reading activities of Usenet users, however, is difficult to accomplish as reading activities cannot be observed in newsgroups. Requesting messages for reading is located in the private communication between the user and his or her news server. Accordingly, most empirical Usenet investigations have focused on Usenet's publicly accessible part that consists of newsgroups and the messages posted to these newsgroups (e.g., [8, 9, 10]).

NNRP readership statistics:						
Client	Conn	Arts	Groups	Post	Rej	Elapsed
1	9	537	98	2	0	02:42:13
2	5	499	19	2	0	00:48:21
3	3	455	101	4	1	10:40:11
4	1	164	29	0	0	00:20:23
5	3	108	10	0	0	01:45:23
6	10	87	15	0	0	00:28:02
7	24	80	274	2	0	01:41:20
8	2	53	44	0	0	00:24:46
9	2	11	1	0	0	00:05:28
10	1	11	2	0	0	01:04:57
11	3	10	3	0	0	00:17:25
12	2	9	17	1	0	00:26:22

**Figure 1:** Excerpt from a typical news server log file. Column 3 lists messages read by clients and column 5 lists new messages posted by clients. Data suggests that reading messages as opposed to posting messages is by far the most significant activity even among those users who actually post new messages.

However, reading messages is not only a significant way of interacting with Usenet but an important social activity as well. Reading messages is necessary in order to understand ongoing discussions and is a prerequisite as well as an indicator for social participation [4].

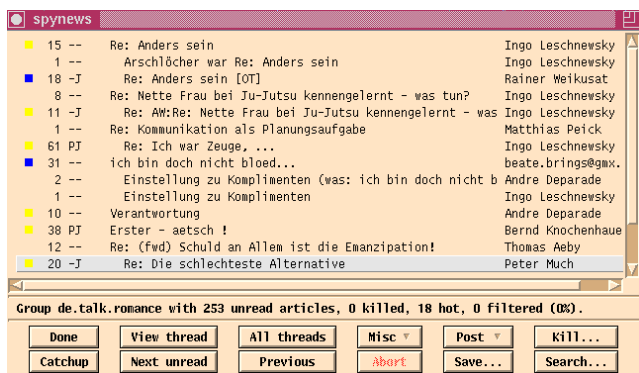
## SOCIAL NAVIGATION IN NEWSGROUPS

People typically pay a lot of attention to the behavior of others [1]. Social navigation denotes movement from one item to another influenced by the activity of others [2]. For example, selecting an item because others selected the item previously is an example of social navigation (see [6] for a broad overview).

An example for social navigation in Usenet newsgroups is the selection of a discussion for reading because certain users contributed new messages to these discussions. Support for this kind of social navigation can be accomplished by tracing the postings of particular users. Such tracing can be performed by using filtering mechanisms provided by most up-to-date news clients, such as *Gnus*, *TIN*, and *Knews*. However, such message-dependent kind of support cannot account for the important *reading* activities of other users in a newsgroup.

Appropriate social activity indicators [1] for reading activities, however, could provide users with valuable insights in the activities of other users and thus in the in-

\*CHI 2000 Workshop "Social Navigation: a design approach?".



**Figure 2:** A news client has been modified to include additional social activity indicators. The additional markers in the third column indicate the discussions read by two particular users who are user J (5 discussions read) and user P (2 discussions read). The news client *Knews* is courtesy of Karl-Johan Johnsson.

terests of particular users as well as in otherwise hidden social dynamics in their favorite newsgroups.

In order to implement social activity indicators for reading activities, we hooked into the communication between the user’s news server and his or her news client: the server now delivers specific traces of reading behavior upon request and the client requests and visualizes the delivered data. We implemented the support for social activity indicators as an application-specific extension to the Network News Transport Protocol (NNTP) [3] that is typically used for Usenet communication. The implementation is inspired by work done by David Maltz [5]. On the client side, we modified the state-of-the-art *Knews* news client to request and to visualize the trace data as social activity indicators for reading activities (see figure 2).

Clearly, the current implementation is not intended for Usenet in general but for small-scale information ecologies [7] in Usenet newsgroups. Such newsgroup-based ecologies typically consist of several persons using (or willing to use) the same Usenet news server and who are sharing interests in certain newsgroups. For privacy reasons, the implementation restricts the monitoring of users to those users who have agreed to provide data for social navigation purposes.

## EXPERIENCES AND FUTURE WORK

Several months of experience with social navigation in newsgroups suggest that the social activity indicators (see figure 2) provide valuable contextual information in terms of *who*, *when*, and *what*. First of all, the indicators are enormously useful in respect to observing what is going on in one’s newsgroup ecology. It is fascinating to see *when* particular persons read *which* discussions. It is even somehow motivating to see that interested users

keep reading discussions although they apparently disappeared from the newsgroup when they stopped contributing new messages. Finally, sharing the interesting discussions with friends without explicitly pointing at them is straightforward: “see what I read”.

Future work includes novel support for off-the-shelf news clients. We are injecting the data required by social activity indicators into the regular NNTP data stream from the news server to the news client. Then, even unmodified news clients can be used to benefit from the additional information. In addition, we are preparing a large scale empirical investigation into social navigation in Usenet newsgroups.

## ACKNOWLEDGMENTS

This research was funded in part by the Swiss Federal Office for Education and Science under contract BBW No. 98.0065 (EU SELECT project).

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