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# Studying the Effects of SNS Users' Alternative Privacy Strategies With an Activity Tracking Tool

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**Abstract**

We demonstrate how our methodological approach helps to understand social network sites (hereinafter SNS) users' alternative privacy strategies. To this end, we refer to one of our recent empirical studies and describe the effects of users' avoidance of provided privacy controls. Many studies document that users rarely use Facebook's friendlist feature because they consider creating, maintaining and applying lists as too burdensome and, thus, prefer to employ alternative strategies, such as withholding information. Based on our empirical results, we suggest to focus on the improvement of tools which do not require much a priori rule setting and could be easily adjusted at the moment of sharing.

**Author Keywords**

social network sites; networked privacy; privacy strategies; Facebook; empirical user studies

**ACM Classification Keywords**

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

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## **Introduction**

While social network sites (SNS) attract millions of users around the globe, trading off the wish to share and connect against privacy concerns remains challenging for many users. A large body of empirical studies highlights users' difficulties to manage their privacy on SNS with the technical features provided [3]. Studies suggest that users' privacy strategies rely only to a limited extent on privacy controls provided by the SNS software. Other means such as self-censorship, obfuscating information before sharing, using multiple SNS accounts or narrowly selecting contacts supplement, or replace, the use of SNS privacy controls [4].

Although these alternative strategies are advantageous in that they help users to avoid disclosure-related harm, they also involve some disadvantages. For example, self-censorship may prevent users from participating in communication on SNS and narrowly selecting "friends" may prevent users from accumulating "social capital".

In ethnographically informed studies we - an interdisciplinary team of computer scientists and cultural anthropologists - investigate a series of issues: How SNS users employ both SNS-provided privacy controls and alternative privacy strategies, how they manage provided privacy features, which alternative privacy strategies they employ, whether and how these strategies affect users' sharing practices and friending behavior, and why users prefer these strategies over provided privacy controls.

Our methodological approach is to provide an observational dimension in addition to self-reporting techniques like interviewing users. We achieve this by applying a privacy-preserving browser add-on developed by our team to track users' privacy settings and interactions, and to allow users to comment on their and other users' actions in situ.

In this paper, we demonstrate how our methodological approach allows us to gain a well-rounded picture of users' privacy strategies in SNS with Facebook's friendlist feature as a case in point. By providing an additional observational level, we contribute to research demonstrating how users experience a conflict between their wish to share and connect with others and their wish for privacy protection.

## **Methodological Approach**

The privacy-preserving web browser add-on we used in our studies is designed to provide an observational dimension. Unlike in ethnographic studies implying a physical field site, observing in situ in online environments like SNS is more intricate. For instance, SNS users interact with software at varying times throughout the day, partially in private settings, and through user interfaces hardly observably in an unobtrusive way.

Empirical studies, therefore, primarily rely on self-reporting. However, self-reporting is only of limited reliability because (a) it is of retrospective nature, resulting in users incorrectly recollecting their privacy settings and actions, and (b) users may hesitate to provide sensitive or even embarrassing information related to privacy.

Our data collection by means of a privacy-preserving web browser add-on installed on participants' web browsers combined with focused interviews allows us (a) to gather rich data on participants' practices, (b) to focus interviews on aspects that matter to interviewees, and (c) to contrast interview statements with collected data to better understand individual privacy strategies and their implications for sharing and connecting.

The web browser add-on works for Facebook on Mozilla Firefox and Google Chrome. It tracks users' interactions and privacy settings, and provides a diary function. The add-on tracks type and time for each action, adding identifiers. We also track if participants added or

deleted a "friend". The tool also integrates text fields in Facebook's user interface to allow users to comment on own and others' interactions.

An important point is that our tool collects data respecting participant's privacy: the tool does not send data to the researchers. Rather, data have to be deliberately sent by the participants to the researcher. The tool allows research participants to view the collected data in a human-readable and editable format, affording participants to decide which data they want to send to the researcher. Also, the tool does not collect any content, such as the content of private messages

Data collected by the tool provide an observational dimension and complement self-reported data from qualitative interviews. In order to get a statistical view on the data, we developed an additional visualization tool facilitating comparisons and identifying clusters and correlations.

### **Studying Facebook's Friendlists Feature**

Studies on SNS users' privacy management suggest that one of the challenges for users is the management of conflicting social spheres [2]. Friendlists are a feature on Facebook which is supposed to address this challenge. Friendlists allow users to "list" their friends, and, based on these lists, grant access to information.

Several studies found that users rarely use the means offered by friendlists [1]. Kelley et al. assume that friendlists's one-time grouping may not adequately assist users in their sharing decisions.

Findings from research focusing on the question as to whether users employ friendlists, how they create friendlists and why users do not use friendlists suggest that the effort to create and maintain friendlists deters users from employing lists. In response to these findings, some research strands consider automation to assist users in creating and maintaining lists.

Little is known, however, about the effects of users' rejection of friendlists for sharing and friending practices, and why users prefer alternative strategies over friendlists even though these restrict their options for action. For example, Kelley et al. find that instead of employing friendlists users carefully select on a one-to-one basis what to share with whom observing a fair amount of restraint.

In order to better understand the relation between the rejection of friendlists and users' alternative privacy strategies, we asked our 12 research participants to install the browser add-on on their machine and allow the tool to track their actions and collect data for two weeks. After that time, we dissected the data sent to us by the participants, and subsequently conducted semi-structured interviews with them based on information obtained from the data, including a grouping exercise and walk-throughs to understand how they create friendlists. The results from the analysis were fed into a survey in order to verify major tendencies. Our survey participants (n=112) were divided into two groups: users employing friendlists for sharing (n=20) and users not employing friendlists (n=75).

Our results show that users avoid creating and maintaining friendlists because of the effort involved. Moreover, interviewees indicated that they would have to change lists for each sharing decision as each sharing decision is very contextual. In summary, all interviewees did not use friendlists for sharing. In our corresponding survey (n=112), only 33% stated that they group their "friends" in lists. Of these 33% (n=37), only 54.1% actually employed these lists for sharing.

We also investigated users' alternative strategies to avoid improper information sharing. We encountered three alternative strategies: (a) narrowly selecting "friends", (b) withholding information and (c) using closed channels, such as private messages. Strategies

(a) and (b) imply lowered engagement in friending behavior and sharing practices. In the end, most interviewees' strategies are a mix of (a), (b) and (c), differing in emphasis.

We then compared interviewees' statements about their privacy strategies and the data gathered by our tool. While Facebook provides a multitude of different sharing functions, interviewees' practices to disclose or withhold information vary widely across different functions. All in all, over two weeks, our interviewees only wrote 16 status updates but sent 2065 private messages. Interviewees also stated that they carefully consider friend requests. Tracked data indicate that our participants ignored four friend requests in two weeks, and accepted three requests.

With the help of our survey data we verified these tendencies. Indeed, participants not using friendlists (n=75) less frequently wrote status updates and stated to be less motivated to share content on Facebook at all compared to users who employ friendlists (n=20). We could not observe statistically significant differences in friending behavior between both groups.

### **Conclusion and Outlook**

The aim of our paper was to present a novel technique to investigate into users' privacy strategies on SNS by providing an observational dimension in addition to self-reporting techniques. Our methodological approach adds to the discussion of best practices for empirical studies in this field and doing research in a privacy preserving-manner. Moreover, our approach enabled us to track the effects of users' rejection of Facebook's friendlist on their sharing and friending behavior. Tracked data reveals that users not employing friendlists rarely share status updates and prefer closed channels, such as private messages. Moreover, interviewees indicated to carefully select and maintain their "friends" in order to be in control of their audience.

We found that users reject friendlists because of the effort involved in creating and maintaining lists. Several studies suggest to automatically support users in creating and maintaining lists. However, our interviewees described each sharing decision as contextual decision. Design, therefore, should focus on tools which do not require much a priori rule setting and could be easily adjusted in sharing decisions.

We are currently revising our tracking tool in several ways: While the patterns our plugin tool uses to identify trackable actions are currently hard-coded in every plugin build, the next plugin release will support special online repositories that globally collect and distribute these patterns. The pattern repositories could provide researchers tracking patterns for different SNS and can be updated also while studies are running. This improvement over the current design allows for longitudinal studies, where the user interface design of SNS may change during the time period the researchers execute their study.

A second major change will be the adoption of further requirements of SNS researchers. We fit the current versions of the plugin specifically to our study requirements, and changes require coding effort and building new plugin versions. In the next major release, the plugin will provide special modes for researchers and pattern developers. Researchers will be able to easily setup a plugin configuration for their own studies they can deploy to their participants, and pattern developers can conveniently create and debug new tracking patterns they can deploy to repositories.

In a follow-up study we are currently investigating three peer groups whose members use Facebook to interact and share information (overall 12 participants); we focused on how peer groups manage information sharing collaboratively. We apply the same mixed-method approach as described in this article which provides us with three distinct perspectives on peer group members' actions on Facebook: the self-reports

of participants (interview data and in-situ comments) provide us insights into (a) how participants perceive their own actions on Facebook, and (b) how they perceive the actions of other members of their peer group. Finally, we have a third perspective brought up by the tracking data showing us on a technical level, how and with whom the group members interact on Facebook, and the channels they choose to share information.

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Our software is open source and available for download on our project website and on Github:

<http://dipo.sit.fraunhofer.de>

<http://github.com/secure-software-engineering/rose>

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