# The Illusion of Online Privacy

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**ABSTRACT**
After providing a brief discussion of differing conceptions of privacy, studies of Internet users' privacy-related behaviors and their online privacy concerns are reviewed. Next, the evidence concerning the effects of their concerns on their privacy protection behaviors is discussed. Finally, methods for studying these issues are evaluated, and recommendations for improving these methods are made.

**Keywords**
Privacy, ethics, World Wide Web, Internet users

## CONCEPTIONS OF PRIVACY

While there is certainly not consensus on a definition of privacy, Introna [11] clarifies the notion by identifying three distinct conceptions of privacy. The first focuses on privacy as limiting access to a person or his/her personal realm. This view is based on the seminal paper by Warren and Brandeis [28], which defined privacy as "the right to be let alone" (p.205). One weakness of this conception is that it does not define what is in the "personal realm," so it is not support detection of the loss of privacy. A second conception is that privacy is one's control over one's own personal information. It is based on Westin's [29] definition of privacy as "the claim of individuals, groups or institutions to determine for themselves when, how and to what extent information about them is communicated to others" (p.7). While this conception is useful in highlighting the importance of the loss of privacy, it lacks the relational notion that the loss of privacy has consequences within one's community. The third conception takes up this idea by seeing privacy as freedom from judgment or scrutiny by others. Johnson [13] defines the personal realm as those "aspects of a person's life which are culturally recognized as being immune from the judgment of others." Even with this conceptualization of privacy, there is still no universally-accepted definition of these culturally recognized aspects of one's life. In addition, some (e.g., [32]) have argued that this relational aspect of privacy declines in cyberspace. Introna concludes his discussion by noting that privacy is a relative concept, best envisioned as a continuum.

## INTERNET USERS' PRIVACY BEHAVIORS

The behaviors of Internet users seem to indicate that they either are not concerned about their privacy or they do not understand their loss of privacy during Internet use. For example:

- Navy Reservist Paul Berkley was recently murdered, allegedly by his wife, her lover and a friend of the lover. During the investigation, it was revealed that Berkley, as well as his wife and their two teenage children, all maintained blogs in which a variety of personal information was revealed. The local newspaper used these blogs as source material for their reporting, arguing that "people who are blogging don't have an expectation of privacy, because it's on the Internet. Anybody can find it" (Deputy managing editor Linda Williams, quoted in [27]). These issues were further complicated by the fact that the children's blogs contained postings from friends, offering them assistance and providing those friends' personal contact information.
- Many college students are revealing significant amounts of personal information in their Facebook entries, causing security concerns on some campuses [8]. The students seem to be aware of the risks associated with providing such information, but provide it anyway [7]. More than 80% of the Carnegie Mellon students in the Govani and Pashley study revealed their email address, birthday, high school, hometown, favorites, interests, and screen names. More than half the students in another study of Facebook provided information about their interests, their political views, and the status of their personal relationships, as well as their name, email address, mailing address, and picture [24].
- Illinois Attorney General Lisa Madigan has expressed concern about teenagers and the information they post to their blogs [22], and the personal risks that that information could eventually pose for those teens. Youn's [31] survey of teenagers found that teenagers (i.e., high school students) were willing to provide a website with their name (76%), email address (84%), phone number (23%), and mailing address (30%).
- Corporations are concerned about the possibility that their employees may reveal proprietary information via personal blogs [3]. Most employers do not yet have

policies governing employee blogs or what could be posted on them [10].

These examples are just a few illustrations of the way that people seem willing to provide private information, i.e., they are willing to experience a loss of privacy. However, some studies have indicated that people are willing to take action to protect their privacy. Based on a factor analysis of a number of user behaviors, Chen and Rea [1] identified three categories of protective behaviors in which Internet users might engage: falsification of personal information, passive reaction (e.g., ignoring or simply deleting spam), and identity modification (e.g., using a gender-neutral ID or multiple IDs). As long as five years ago, some American Internet users were providing false information to avoid giving a website their personal information (25%), using encryption to send email (9%), and using anonymizers for browsing (5%) [5]. Almost 40% of Jensen, Potts, and Jensen's [12] respondents reported installing software to protect their online privacy and almost 43% have taken other steps to protect their privacy. Sheehan's [20] respondents who were very concerned about their privacy reported registering at websites less often and providing incomplete or inaccurate data when they do register, in comparison with those who were not concerned about their privacy. Over half of the respondents to each of two surveys conducted by Milne, Rohm, and Bahl [18] reported that they engage in several behaviors intended to prevent identity theft: making sure that online forms are secure before filling them out, opting out of third-party information sharing, and managing multiple (work and personal) e-mail accounts. However, less than 20% of the respondents encrypt their email, use anonymous re-mailers, or use anonymizers while browsing the Web. The same surveys also investigated other privacy protection behaviors and found that a majority of respondents have refused to give information to a website if they consider the information too personal, have asked a website to remove their names from mailing lists intended for marketing, have asked a website not to share their name and personal information with third parties, and have decided not to use a particular website because they were unsure of how their personal information might be used. At least 20% of Facebook users at Carnegie Mellon use some of the system's privacy options, hiding the See Profile, See Contact Info, and Last Login data/features [7].

## INTERNET USERS' DESIRE FOR PRIVACY

A 1998 national survey indicated that 40% of U.S. Internet users are "very concerned" about the confidentiality of their interactions [4]. A national Pew survey [5] found that a majority of respondents were concerned that businesses and others could access their personal information (84%) and that hackers could steal their credit card information (68%), and 31% of respondents were worried that someone might know what websites they'd visited. Using data from Georgia Institute of Technology's Graphic, Visualization, and Usability (GVU) Center, O'Neil [19] found that almost 54% of the respondents were very concerned about security (including privacy) on the Internet and 20% named privacy as the most important issue facing the Internet. A more recent Jupiter survey [16] found the 70% of respondents worry that their privacy is at risk on the Internet. In a very recent study, Jensen, Potts, and Jensen [12] found that 72% of their respondents expressed concern about their privacy online (while only 59% expressed concern about their privacy "in everyday life"). Chen and Rea's [1] study decomposed online privacy concerns into two groups: concerns about giving out personal information and concerns about unauthorized use of personal information. These studies inform us about the specific concerns being expressed about online privacy.

Other studies have focused on the varying levels of concern among subset of the Internet user population. A Harris Interactive poll [25] divided their respondents into three categories: privacy fundamentalists, who feel very strongly about privacy issues (26% of the respondents), privacy unconcerned, who have no real anxiety about their online privacy (10%), and privacy pragmatists, who have strong feelings about privacy and work to protect their online privacy (64%) (see [15] for a review of Westin's work on these indexes). Sheehan [20] tested the applicability of this typology to particular online situations, and found that a four-level typology (unconcerned, circumspect, wary, and alarmed) was a more accurate representation of people's concerns about online privacy. Results from all these studies support the proposition that a substantial proportion of people are concerned about their potential loss of privacy during Internet use.

## THE (MIS)MATCH BETWEEN DESIRES FOR PRIVACY AND PRIVACY-RELATED BEHAVIORS

A number of studies have directly examined the consistency of people's desires for a certain level of privacy and their online behaviors that may result in a loss of privacy. Some studies have found a relationship between privacy concerns and online behaviors. Kim and Montalto [14] found a relationship between perceived risk of privacy invasion and respondent's online shopping behaviors. Utz [26] found that German email users provided a more anonymous email address (i.e., an address revealing fewer personal identifiers) in situations where they had concerns about privacy. Milne, Rohm, and Bahl [18] found that online privacy concerns were moderately correlated with efforts taken to prevent identity theft and to protect online privacy. Youn [30] found that teenagers' willingness to provide information to websites was affected by the severity of the perceived risk, as well as the perceived benefits.

Other studies have mixed results or find that people's privacy concerns do not affect their online behaviors. While 72% of Jensen, Potts, and Jensen's [12] survey respondents expressed concern about online privacy and 69% felt it is important that websites publish a privacy policy, only 43%

said they were likely to read a privacy policy on a website before making an online purchase and only 19% said that a website's privacy policy would affect whether they would use that site. In a multi-country study (U.S. and Belgium) of employment application systems, Harris, Van Hoye and Lievens [9] found only weak relationships (no *r* over 0.24) between concerns about the privacy and security of these systems and the respondent's willingness to submit employment-related information via such a system. While the vast majority of participants in Govani and Pashley's study of Carnegie Mellon students were aware of the privacy options available in Facebook, very few chose to use any of them. Chen and Rea [1] found only a few relationships between privacy concerns and privacy protection behaviors. Concerns about unauthorized use of personal information were related to passive control over online privacy, and there was a negative relationship between concerns about giving out personal information and identity modification as a control technique.

The divergence of people's desires for privacy and their privacy protection behaviors is worthy of further investigation. If tools that make it possible for people to establish their desired level of privacy during online interactions are to be both acceptable to their intended users and effective for achieving those users' goals, we must learn more about people's desires for privacy and their willingness to take action to achieve those desires.

## METHODS FOR STUDYING PRIVACY DESIRES AND BEHAVIORS

Most studies of people's online privacy concerns have used a simple survey as their primary data collection tool. Often these use a single question about privacy concerns (e.g., "How concerned are you, if at all, about businesses and people you don't know getting personal information about you and your family — very concerned, somewhat, not too, or not at all?" from [5]) or a small number of questions (e.g., the four questions used by Westin [30] to categorize people based on their level of concern). A major weakness of the survey approach is that the reliability and validity of the measures cannot be determined.

Smith, Milberg, and Burke [21] improved our methodological repertoire by developing and validating a multi-faceted measure of online privacy concerns. It reliably measures concerns about information collection, errors in the information stored, unauthorized secondary use, and improper access. Additional psychometric work aimed at improving this measure has also been conducted by Stewart and Segars [23].

Malhotra, Kim and Agarwal [17] also have developed a multi-faceted measure of online privacy concerns, specifically focused on Internet user's privacy concerns (and compared their instrument to that in [21]). They found this construct to have three dimensions: concerns about the amount of personal information collected in relation to the value of benefits received, concerns about the individual's control over the process of sharing information, and awareness of organizational information privacy practices. These three constructs were validated in connection with people's intentions to provide information at the request of a marketer.

A third effort at development of a valid instrument of online privacy concerns was undertaken by Earp, Antón, Aiman-Smith and Stufflebeam [2]. After developing a taxonomy of privacy protection and vulnerability goals, they generated a questionnaire and investigated its reliability and validity. They found that the questions represented six factors: personalization, collection, transfer, notice/awareness, storage, and access/participation. The means on the subscales ranged from 3.93 to 4.77, with the most important concerns being related to transfer of information.

As Jensen, Potts, and Jensen [12] point out, most studies of people's desires concerning their privacy have been conducted via surveys. They took a novel approach by augmenting their surveys with an experiment investigating participants' online purchasing behaviors (with or without the TRUSTe logo). While the participants knew that they were not really making purchases, this study did go beyond asking them of their intentions to make the purchases.

While these attempts to improve the methods used to investigate online privacy concerns and behaviors are a step in the right direction, further methodological improvements are needed. First, philosophical/ethical theories related to privacy should be used to undergird attempts at measurement. Second, existing and new questionnaire measures should be validated. Third, validated measures should be implemented in future studies. Only by building on existing work in this area can we make progress in understanding people's online privacy concerns and designing systems and practices that address those concerns.

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