

Symbols of Privacy

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ABSTRACT

In the United States, privacy information is conveyed online via posted privacy policies and privacy seals [8]. This information is meant to inform and guide people in their decision-making as they visit businesses and corporations on the Internet. This study examines, experimentally, the impact on consumer behavior of “Privacy Rating” icons appended with actual privacy policy information and ambiguous “Merchant Rating” icons. We find that there is no significant difference between the effects of these icons on a control and an experiment group, indicating that ambiguous site rating icons play a large role in the decision to select an e-commerce site from which to make a purchase.

1. INTRODUCTION

When asked, most Americans feel that their right to privacy is “under serious threat” [6] and are concerned about companies collecting their personal data [9]. One method industry and the government have taken to address privacy concerns is to recommend that businesses post privacy policies to convey their privacy practices. Unfortunately, 70% of people in a recent study disagreed that “privacy policies are easy to understand,” [9] and few people make the effort to actually read them [7]. To facilitate user access to privacy information, the Platform for Privacy Preferences (P3P), a machine-readable code, was developed to display privacy information. Based on websites’ P3P policies, users can use software tools or user agents to define their privacy preferences and determine if websites match those privacy preferences [1].

We conducted a user study to examine the impact of privacy information on online shopping behavior. The CMU Usable Privacy and Security Laboratory (CUPS) developed a P3P-enabled shopping search engine named Privacy Finder Shopping (<http://shopping.privacybird.com>). This is a shopping comparison tool similar to Google’s Froogle (<http://froogle.google.com>). In addition to the search results and product prices, it displays privacy information based on the privacy setting selected by the user. We evaluate the ability of the Privacy Finder icons to communicate privacy information to users as well as participants’ willingness to pay more money to purchase from websites with better privacy policies.

2. BACKGROUND

People are reliant on companies, corporations, and the government to protect their privacy. To display a commitment to privacy, various organizations have developed symbols to convey trust to users. In this section we examine trust and the impact of privacy-related icons and the Privacy Finder Shopping interface.

2.1 Privacy Symbols and Trust

One method developed to increase trust in e-commerce is the display of privacy or web seals. These symbols are “meant to instill trust” [5] by conveying to the online consumer that the web site of interest has received a certification of their privacy policy from a well-known and highly regarded source. A recent study examining the understanding of web seals found that consumers do not “fully understand the form or function of privacy seals... and ‘recognize’ seals that do not exist” [4]. This suggests that people will place trust in symbols that may not have any real meaning. In fact, “privacy policies themselves serve as ‘trust-marks’” [3]. A survey conducted by the Annenberg Public Policy Center found that 75% of “Internet-using adults did not know the correct response – false – to the statement ‘When a website has a privacy policy, it means [that] the site will not share my information with other websites and companies,’” [9]. People assume that if a site has a link to a “Privacy Policy,” their privacy will be protected. Privacy policies, then, are part of the decision-making process, even if they are not read.

Other icons or symbols may also serve as trust indicators. In another study, credit card icons on e-commerce web pages also conveyed a sense of security and privacy to the participants [3]. That study also found that privacy icons or trust indicators must be made highly visible, or they will be ignored. The Privacy Finder search engine was designed to increase the visibility and usability of privacy by annotating search results with standardized privacy information.

2.2 Privacy Finder Shopping Engine Icons

In the version of Privacy Finder tested in a previous study, red and green bird icons were used to indicate whether a site’s policy matched a user’s privacy preferences. Study participants avoided web sites with red bird icons, choosing websites with unknown policies over sites with policies that did not match their preferences. [2], Participants appeared to view the red icon as a danger sign. A new set of privacy icons was developed for Privacy Finder, replacing the bird icons. These icons continue to represent how well a web site’s P3P policy matches the user’s privacy preferences with a privacy “meter” where, the greater the number of green boxes, the closer the match to the user’s selected privacy preferences. Websites that do not match users’ privacy preferences are annotated with a set of white boxes, while sites without P3P policies appear without any boxes. The icon set is shown in Table 1 .





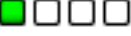

<i>Icon</i>	<i>Meaning</i>
	Matches privacy preferences  Does not match privacy preferences
	
	
	
	

Table 1: The New Privacy Finder Privacy Indicators

3. METHODOLOGY

Participants were told that the purpose of the study was to test a “new online price comparison search engine developed at Carnegie Mellon University.” To reduce any framing effects, Privacy Finder was renamed “Finder,” and participants did not see or have access to the privacy preference setting. Instead, the Privacy Finder Shopping engine was configured to use the “medium” privacy setting.

The conditions for the user study are as follows:

For each condition:

- Participants purchased two items: a non-privacy sensitive item (pen) and a privacy-sensitive item (personal lubricant). The order in which they made the purchases was randomized between participants.
- Privacy icons for web sites with P3P policies were appended to the search results.
- The same 10 search results for each product, ordered by lowest price, were presented too all the participants.
- Participants were given \$40 with which to make their purchases and told they could keep any left over money.

For the control group (16 participants):

- Participants were given a handout describing the search engine that depicted the privacy icons as “Merchant Ratings.”
- The interface returned search results appended with “Merchant Rating” icons.

For the experimental group (16 participants):

- Participants were given a handout describing the search engine that depicted the privacy icons as “Privacy Ratings.”
- The interface returned search results appended with Privacy Ratings and Privacy Reports. When moused over, the privacy reports would display the short summary of privacy violations. “Privacy Reports” were also linked to the full Privacy Finder privacy report for that site.

3.1 Purchasing Decisions

The boxes used to annotate the search results were an attempt to convey privacy information to the user. One of the goals of this study was to determine whether having clearly defined privacy indicators made a significant difference in purchasing decisions over the ambiguous “Merchant Rating” boxes seen by the control group. Although the presence of green

boxes influenced some participants to purchase the product at a site other than the least expensive site, overall, we found that there was not a significant difference between purchases made when viewing an ambiguous “Merchant Rating” or a “Privacy Rating.” Specifically, the only case where one group was significantly more likely to make a purchase at a site with green boxes was when members of the experimental group bought the non-privacy sensitive item first, and then went on to purchase the privacy sensitive item ($p=0.046$).

The privacy icons and accompanying privacy reports did appear to provide useful information to participants who were interested in learning more about the sites’ privacy policies. Those who clicked on the privacy report links were significantly more likely to read a company’s full privacy policy than the other participants.

4. CONCLUSIONS

We found that the presence of a positive indicator, even if it is ambiguously defined, will make a user more comfortable with doing business with an otherwise unknown website. But we also saw that users who were genuinely interested in learning about companies’ privacy practices received useful information through Privacy Finder’s policy summaries. Thus, there is evidence that users may be influenced by rating symbols displayed in search engines regardless of meaning. However a tool like Privacy Finder that makes privacy policies easier to understand would be well received by those with an interest in protecting their privacy online.

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