

**Innovative Web Use to Learn about Consumer Behavior and Online Privacy**

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## **Innovative Web Use to Learn about Consumer Behavior and Online Privacy**

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### **Bios**

**Julia B. Earp** is an assistant professor of information technology at The College of Management, North Carolina State University. She received her M.S. in statistics and Ph.D. in information technology from Virginia Tech. She is Co-Director of the NCSU E-Commerce Studio, a senior researcher for *theprivacyplace.org* and is a member of the IEEE and ACM. She has authored several articles on e-commerce security, information privacy, network routing and artificial intelligence.

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## **Innovative Web Use to Learn about Consumer Behavior and Online Privacy**

Except for online transactions involving medical or financial records, or those involving information collection from children, *there is little legal protection of consumer information that is acquired online, voluntarily or involuntarily.*<sup>1</sup> The Federal Trade Commission (FTC) has statutory authority to prohibit “unfair and deceptive” trade practices, which includes many tactics used by web sites to acquire information online. The FTC, however, does not have the resources to comprehensively regulate the Internet. This implies consumers should be aware of privacy risks when visiting Web site.

Although the FTC has intervened in one high-profile case in which a web site did not adhere to its stated policies concerning acquisition, storage, and use of information gathered from its customers, enforcement of privacy promises made in cyberspace is perceived to be erratic at best.<sup>2</sup> This study suggests that consumers protect themselves by being selective in providing information that could be used in ways that are adverse to their interests. It uses an online survey that incorporates web site screen captures to investigate consumer privacy fears and looks beyond consumer attitudes to investigate what web sites can do to assuage consumer concerns about privacy.

### **THE SURVEY**

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<sup>1</sup> The lack of legal protection for information acquired or disclosed online is a point made by Volokh (2000) in this journal. The Gramm-Leach-Bliley Act provides consumers privacy protection for their bank records, regulations issued pursuant to the Health Insurance Portability and Accountability Act (HIPAA) do the same thing for medical records, and finally, the Children Online Privacy and Protection Act (COPPA) regulates acquisition of information from children online.

<sup>2</sup> FEDERAL TRADE COMMISSION Geocities; Analysis to Aid Public Comment, 63 Federal Register 44624 AGENCY: Federal Trade Commission, Thursday, August 20, 1998.

The data was collected during the latter half of 2000 and represents the opinions of 415 respondents. The survey was constructed to randomly provide each respondent with one of thirty web pages to view while responding to the survey items. The thirty web sites were equally divided between retail, medical/health and financial sites. Within each of these three categories, 15 were well-known web sites (as listed in the top 1500 sites, ranked by unique users, PC Data Online 2000 <http://www.netscoreonline.com>) and 15 were lesser known. Lesser-known sites, although professionally designed, are those that are not listed in the top 1500. The survey consisted of 34 privacy-related statements where respondents answered using a 5-point Likert scale anchored by “Strongly Disagree” (1) and “Strongly Agree” (5).

## **RESULTS AND DISCUSSION**

### **Willingness to Reveal Information Online**

Survey respondents were first asked to respond to the statement “I would provide the following information to this web site” with regard to demographic, personal, medical, and financial information. According to our results, consumers are most willing to reveal their gender and age (mean responses of 3.52 and 3.45 respectively on the 5-point scale), and least willing to reveal their social security numbers (mean response of 1.46 on the same scale).<sup>3</sup> This clearly indicates that consumers are protecting themselves by discriminating about information they are willing to reveal to certain web sites.

### **Impact of Type of Web Site**

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<sup>3</sup> The other categories of information respondents were asked about are listed in Table 1. Mean responses to these inquiries are available on request from the authors.

Multivariate Analysis of Variance reveals a significant ( $p < 0.05$ ) overall effect for the type (retail, financial, or medical/health) of web site with regard to the willingness of respondents to reveal information. Exploring these differences individually, five items were significantly different with respect to the type of site: age, gender, race, employer, and medical information (Table 1). Respondents were more likely to provide their gender, race, employer information and medical information *to the health sites* when compared to the retail sites. They also indicated they would have more confidence in the privacy practices of the *retail* site if it possessed a web seal. When comparing health sites with financial sites, the differences were less striking, but respondents were more inclined to provide their employer and medical information to the health site. These results could be attributed to the legislation that protects bank records and medical records, as well as the lack of legislation surrounding retail sites.

### **Impact of Being a Well-Known Web Site**

Of the 415 respondents, 217 observed one of the 15 lesser-known sites while 198 observed one of the 15 well-known sites. The stated willingness to provide phone number, home address, email address, social security number, and credit card number to web sites was significantly different with respect to whether the web site was well known or not well known. Although the respondents as a whole responded negatively to providing these five pieces of information to the observed web site, the level of negativity was much higher with the lesser-known web sites (Table 1). We can infer that consumers are more willing to provide their home address, phone number, email address, social security number and credit card number to a well known site compared to a lesser known site, in part because they do not have confidence that the e-commerce legal environment is secure.

Table 1: Statistically significant response differences based on the type of web site (Retail, Financial, Health/Medical) and the brand name status of the web site (well-known, lesser-known)

<i>Information</i>	<i>Is there a difference between willingness to provide information based on type of site?</i>	<i>Is there a difference between willingness to provide information based on brand status?</i>
Name	No	No
Address	No	Yes
Phone Number	No	Yes
Age	Yes	No
Gender	Yes	No
Race	Yes	No
Email address	No	Yes
Credit Card #	No	Yes
Employer	Yes	No
Income	No	No
Social Security #	No	Yes
Medical Information	Yes	No
Prescription Drug History	No	No

The Graphics, Visualization & Usability (GVU) Center at Georgia Tech implemented a privacy/security survey in 1998 that indicated 75% of their respondents would be willing to use their credit card number online.<sup>4</sup> Our survey went a bit deeper to discover what influences this behavior and we discovered that it depends significantly on the *brand name* status of the web site. Shown a well-known web site, 18% of our respondents indicate willingness to provide their credit card number online while only 3% indicate willingness to provide the same information when shown a lesser-known site.

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<sup>4</sup> [http://www.gvu.gatech.edu/user\\_surveys/](http://www.gvu.gatech.edu/user_surveys/)

We also discovered several items that are significantly influenced by age, particularly when comparing consumers between 15 and 35 with those over 35. Statistical tests reveal significant differences in the 2 groups for the following items:

1. The younger group was more inclined to:
  - Provide their name, age and gender
  - Read the privacy policy of the web site
  - Provide their information in exchange for cash or a gift offered by the web site.
2. The older group was more concerned about identity theft, losing control of their information, unauthorized redistribution of their information, and exposure to unscrupulous people.

### **Other Behavioral Influences**

Furnell and Karweni (1999) implemented a survey of consumers and businesses that showed 87.5% of surveyed consumers expect to see comprehensive information regarding privacy policy when visiting a commerce web site. Interestingly, respondents in our study were not consistent about reading privacy policies. Only 54% of respondents indicated they would read the privacy policy upon first visiting the observed web site. This percentage did not differ significantly between site categories or brand status. However, 66% indicated increased confidence in the web site if a privacy policy is present. This might imply that most Internet users are reassured by the presence of a privacy policy, but are less concerned about specific provisions of the policy. In addition, some visitors may naively believe that because a privacy policy exposes a web site to potential legal action, a Web site will always adhere to its policy.

Somewhat surprisingly, 39% of respondents in our survey indicated that seeing a well-designed web site would positively influence their behavior relating to privacy. Not surprisingly, 76% of our respondents consider having the option to "opt-out" (or disallow distribution or sale of personal information) as a factor that influences their confidence in the privacy practices of the web site (Table 2). Thus, Internet companies should consider employing the "opt-out" option on their sites. The 107<sup>th</sup> Congress is currently debating a bill that would make it mandatory for web sites that collected personally identifying information to offer "opt out" options to consumers.<sup>5</sup>

Table 2: Rank ordering of stated influential factors in confidence of privacy practices of web site

<i>Rank of Most Influential Factors</i>	<i>Factor</i>
1	Company name
2	Option to "opt-out"
3	Presence of a privacy policy
4	Presence of a web seal
5	Design of the site

The typical offerings web sites use to induce consumers to reveal information about themselves include the opportunity to receive targeted postal mail, targeted email, cash, coupons, gifts, and participation in a contest or lottery. None of these inducements were very appealing to the survey respondents, although they reacted more favorably to cash, coupons, and gifts than they did to targeted postal mail or email.

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<sup>5</sup> H.R. 237, Consumer Internet Privacy Enhancement Act.

## **IMPLICATIONS**

Lack of legal remedies for misuse of information provided to web sites causes consumers to be discriminating about the information that they will reveal online and to what web sites they will reveal the information. It is possible that the growth in e-commerce is slowing and the potential efficiency of the Internet is affected because of consumer unwillingness to supply information. Relative to retail and financial web sites, consumers appear more willing to reveal personal information to health-oriented web sites. For several categories of information, consumers appear more willing to provide information if the web site is a well-known web site. Web sites that have privacy statements, opt out features, and third party seals can allay some consumer concerns about unexpected privacy invasions, but the evidence is not particularly strong. Survey respondents were very aware of the possible negative consequences of allowing personal information to fall into the wrong hands and appeared particularly concerned about lack of control of their information and unauthorized redistribution. In general, the respondents to our survey did not appear particularly impressed with the typical emoluments offered by web sites in return for information, though these offerings were relatively more attractive to young people. Overall, the responses of consumers reveal what you would expect; since the legal environment is uncertain, people protect themselves by being very careful as to what and to whom they reveal personal information.

## REFERENCES

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