By Lee A. Freeman *and* Andrew Urbaczewski

Why Do People Hate Spyware?

Privacy, more than performance, proves the more critical factor in spyware sensitivities.

Few people or corporations believe spyware is beneficial to the computing experience, but this issue has not been well studied [6]. This assertion is based on the trade press and countless Internet sites providing numerous articles and stories that mention slow Internet connections [5], slow computer processing [3], or privacy concerns [1], among many other reasons. To examine the reasons for this concern beyond anecdotes, a survey was conducted to empirically identify the rhetoric and the reasoning behind users' disgust of spyware.

Illustration by Ferruccio Sardella

It seems as though the respondents are saying they do not take responsibility for protecting themselves yet they **EXPECT INDUSTRY AND GOVERNMENT TO REGULATE SPYWARE.**

An 11-item survey was given to two groups of undergraduate students—one group at a Midwestern U.S. university (39 students) and one group at a Finnish business school (36 students). The average age of the respondents was nearly 23.5 years, with an average of 3.5 years of post-secondary education, indicating this group included some nontraditional undergraduate students. The demographic represented by the survey respondents matches the typical age of individuals who download vast amounts of software and files from the Internet [4].

The 75 respondents represented the U.S. (31), Finland (17), other European countries including Germany, Austria, France, and Switzerland (18), along with Russia, Lebanon, UAE, and China (9). The respondents included 46 males and 29 females. All but one had a computer at home, with 69 of these 74 (93%) running a Windows operating system. Also, 72 (97%) had Internet access, with 59 of these (82%) having high-speed connections.

The 11 items (listed in the accompanying table) covered privacy, focused marketing, industry regulation, government regulation, CPU cycles, license and clickware agreements, overall perceptions, and prior spyware awareness. All items used a 7-point Likert scale from strongly agree (1) to strongly disagree (7).

1.	The privacy concerns of spyware outweigh the potential benefits.
2.	The focused marketing efforts of spyware outweigh the potential privacy concerns.
3.	Spyware should be controlled, monitored, and regulated by industry.
4.	Spyware should be controlled, monitored, and regulated by government.
5.	The number of CPU cycles (computer processing speed) lost to spyware applications is acceptable.
6.	There should be a maximum amount of CPU cycles that can be acceptably used by spyware.
7.	When I install software, I read the license agreement.
8.	When I install new software that I believe contains spyware, I read the clickwrap agreement.
9.	In general, I feel that spyware is more beneficial than harmful.
10.	In general, I feel that spyware is an issue of privacy more than one of CPU cycles.
11.	Before completing this survey, I was aware of and knew about the issues associated with spyware.

Survey items.

The Results

The figure here shows the overall means of the 11 items across all respondents, including the response distributions and response frequencies. The colored columns indicate the response distributions for each item using the left-side vertical axis. The colored dots indicate the overall means using the right-side vertical axis. For example, over 45 respondents either strongly disagreed or disagreed with Item 5, and no respondents strongly agreed with this item, resulting in an overall mean between 5 and 6.

The underlying assumption of the study was that users find spyware to be harmful. Item 9 specifically asked whether spyware is more beneficial than harmful. The results showed that a vast majority of the respondents found spyware to be harmful with nearly two out of three respondents (64%) indicating they strongly disagreed or disagreed with the statement that "spyware is more beneficial than harmful," confirming our premise. Here, we seek to answer the question "Why?" from many perspectives in addition to shedding light on issues such as spyware regulation.

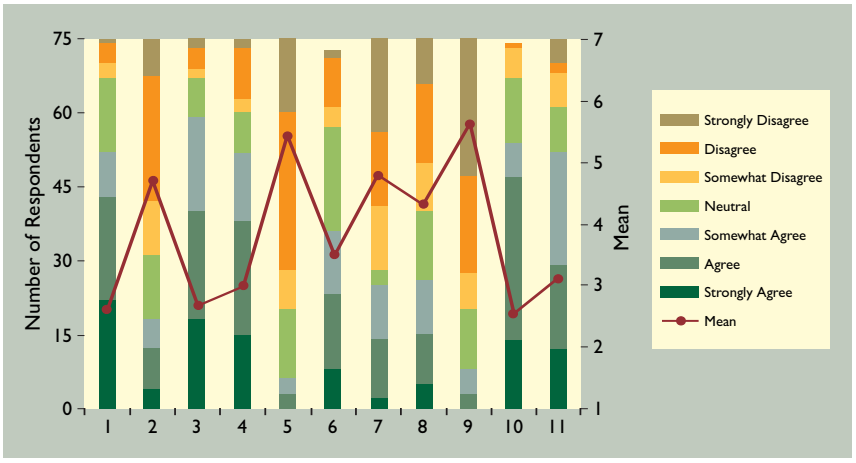
Privacy concerns. Three of the survey items dealt with the privacy concerns surrounding spyware. Responses to Item 1 indicated that privacy concerns outweigh the potential benefits of spyware (57% strongly agree or agree), and Item 2's responses indicated that privacy concerns also outweigh the focused marketing benefits of spyware (44% strongly disagree or disagree). Finally, responses to Item 10 indicated that privacy concerns are more important than lost CPU cycles (64% strongly agree or agree). This shows that privacy is a strong concern and an important issue to the respondents.

CPU cycles. Respondents made clear that the number of CPU cycles lost to spyware is not acceptable (63% strongly disagree or disagree on Item 5). In addition, Item 6 showed the respondents felt (though not exceptionally strongly) that there should be limits to the number of CPU cycles used by spyware. Together, these items indicate that lost CPU cycles is an important issue, but the respondents do not feel strongly about exercising controls on this aspect of spyware. However, given these concerns about CPU cycles, spyware was still more of a privacy concern as

shown earlier with regard to Item 10.

Nationality. Two of the items saw significant differences in the responses across the nationalities of the respondents. For Item 6, the Finnish respondents felt the strongest about the need for limits on the number of CPU cycles used by spyware. Additionally, the Finnish respondents felt that spyware was more harmful than beneficial (Item 9) than any of the other nationality groups.

Given the cultural differences between Europeans and Amercians with regard to privacy, it is not surprising that the Finnish respondents were more concerned with setting limits on the number of CPU cycles used by spyware. As a society, the Finns are more accepting of setting rules, restrictions, and controls, including limiting the ability of others to invade their privacy, than their U.S. counterparts [2].



Overall means, distributions, and frequencies.

Gender. Only one factor (Item 5) elicited a significant gender difference. Women were more accepting of the lost CPU cycles to spyware than were men. We do not have an explanation or theory to explain this finding, but it may indicate the need for additional research. On all other items, there were no significant differences across gender.

Other factors. One of the other issues the survey measured was the relationship between regulation and licensing—in other words, whether individuals felt it was their own responsibility to control and monitor spyware or if this responsibility fell into the hands of other entities. Specifically, the significant correlation between responses to items 3 and 9 indicated that the respondents felt that industry should control and regulate spyware and that it is more harmful than beneficial. A similar and significant correlation was noted for items 4 and 7 indicating the respondents felt that government should control and regulate spyware and that respondents do not read the license agreements.

Finally, the significant correlations among items 3, 4, 7, and 8 indicated that spyware should be controlled by industry and/or by government and that respondents do not read either the license or clickware agreements. In the end, it seems as though the respondents are saying that by not reading the license agreements, they do not take responsibility for protecting themselves from spyware, yet they expect industry and government to regulate spyware activity they find problematic.

Three other factors—age, post-secondary education, and prior spyware awareness—were examined for differences within the respondent group, but none were found to be significant.

Conclusion

Users dislike spyware for many reasons. This survey showed that while privacy and performance were both important issues, privacy was more important than performance. This is despite the fact over 60% of the respondents were male who are typically more concerned with lost performance than female counterparts. In addition, the survey showed an apparent desire for greater regulation by industry and government. C

References

1. Borland, J. and Konrad, R. PC Invaders: They're camping out in your hard drive—with your express consent; CNET News.com; news.com.com/PC+invaders+camp+out+in+hard+drives/2009-1023_3-885144.html (as of Dec. 15, 2004).
2. Hofstede, G. *Culture's Consequences*, 2nd Ed. Sage Publications, Thousand Oaks, CA, 2001.
3. Houghton, M. Spyware: Who is really paying the price? WinPlanet.com; www.winplanet.com/article/2497-3704.htm (as of Dec. 15, 2004).
4. New Jersey Institute of Technology (NJIT). Press release: June 17, 2003; www.njit.edu/old/News/Releases/381.html (as of Dec. 15, 2004).
5. Omega Internet Services. Spyware and adware—What is spyware?; fiveft12.odsgc.net/support/spyware.html (as of Dec. 15, 2004).
6. Stafford, T. and Urbaczewski, A. Spyware: The ghost in the machine. *Commun AIS 14*, (2004), 291–306.

Lee A. Freeman (lefreema@umd.umich.edu) is an assistant professor in the Department of Management Studies, School of Management, at The University of Michigan—Dearborn.
Andrew Urbaczewski (aurbacze@umd.umich.edu) is an assistant professor in the Department of Management Studies, School of Management, at The University of Michigan—Dearborn.