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ACCEPTANCE OF INTERNET CONTENT FILTERS: AN EMPIRICAL STUDY

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Content filters empower users to make choices about what can be downloaded from the World Wide Web. At home, parents can restrict what their children can and cannot see on the Internet. This can protect the young web surfers from unpleasant experiences. These tools allow the parents to understand electronic content by means of open and objective content labels. Web surfers may be unwittingly exposed to suggestive and explicit content. Many organizations across the globe, such as ICRA and GBDe, are working on content rating systems and software filters for the Internet. Generally, simple filters are bundled with common browsers. People are not motivated to buy commercial filters with more functionality. Also, there are few studies investigating a consumer's willingness and intention to adopt these tools. This paper presents an exploratory study of the acceptance of Internet content filters in publicly accessed computers. The relationship between demographic factors, such as gender and age, and perception factors, such as severity of Internet problems, are examined. Results show that the acceptance of blocking filters is significantly related to demographic factors and perceptions of the Internet. We discuss implications of the findings, from both the academic and applied perceptive.

Keywords: User acceptance; content rating; software filters; internet harms; objectionable contents.

1. Background

The Internet provides web surfers a myriad of information. Data passing across the Internet are generally less uncontrollable. Surfers can access images of violent and pornographic activities through the network. There are numerous web sites that broadcast adult-oriented content. Surfers have little control on the popup windows for advertisements. Content filters are software programs, which block the transmission of data over the Internet. Some not only filter adult content, but also allows the users to remove web advertising and popup windows as well as protect their privacy. According to statistics released by Contentwatch.com on 17 March 2003, their content filters have blocked 1.8 billion pornographic web page hits out

of 230 billion audited accesses. According to Nunberg (2001), 1.5% of indexable web servers consisted of pornographic material in 1998. It is proportion to around 80,000 servers at the present size of the web. Suppose one server can host two to three sites, a conservative estimate would be 150,000 to 200,000 sites that contain pornographic materials. The problems of access to websites are complicated by anonymity, censorship and decentralization.[13] In traditional media, such as television programs and newspapers, local and national legislation can alleviate such problems. However, in the global and international Internet, unscrupulous individuals can simply hold their content in countries with less restrictive legislation. Thus, uncoordinated regulations cannot be effective at the international level. To stop undesirable web traffic, content rating systems and blocking filters have been developed. In June 1996, Sir Clinton stated in the press conference on the Supreme Courts' decision to rule certain parts of the Communications Decency Act as unconstitutional "... we must give parents and teachers the tools they need to make the Internet safe for children." The USA government has spent nearly billion dollars on the e-rate projects throughout these years. Since that time, US Federal legislators, and special interest groups have continued in their efforts to impose various forms of regulation to control the content internet users can access. Related information can be found on the Internet.[2]

Simple content filters were incorporated into common browsers in the mid 1990s. Content filters allow the surfers to screen improper network content. Some advisory boards, such as the International Content Rating Association (ICRA) and the Internet Content Rating for Europe group (INCORE), have created open and objective rating systems, based on a standard known as the Platform for Internet Content Selection (PICS) established by the World Wide Web Consortium (W3C) to generate metatag data for web pages. The Global Business Dialogue on Electronic Commerce (GBDe) is a worldwide organization. It contributes to develop policies that promote global e-commerce for benefiting businesses and consumers. Members include CEOs of world leading corporations such as Cable and Wireless, Hitachi and Hewlett Packard. At their conference in Tokyo in 2001, GBDe supported the use of PICS labelling and filtering in general and of the ICRA system in particular. Apart from ICRA standards, some common browsers, including Netscape Navigator and Microsoft Internet Explorer (IE) use metatag data for content filtering. For instance, the Content Advisor in Microsoft IE screens web pages and only rated content that meets or exceeds the criteria can be viewed. With content filters, the public, especially parents, can easily monitor electronic media through these content labels. According to *Internet Business News* 21 March 2002, a new content filter has been developed. This filter not only blocks certain sites, but also shares information about undesirable sites with other users. Clearly, software providers are expending great efforts on Internet content rating systems and software filters. Individuals, on the other hand, have little motivation to actively purchase the commercial blocking software. The market for content filters is still not as big as expected. The sales volume only exceeded $150 million a year in 2001.[16] Understanding the factors

affecting one's rejection of Internet content filters can be crucial in the promotion success of content filters by these companies and international organizations.

The study of content filter acceptance is grounded in ethical and social issues and it is interdisciplinary in nature. In the United States, the general populations and the industry have realized the importance of Internet blocking systems. In 1995, the Communications Decency Act (CDA) was passed. The Information Highway Parental Empowerment Group (IHPEG), which is a coalition created by Microsoft, Netscape Communications, and Progressive Networks, developed standards for empowering parents to screen inappropriate network content. Blocking filters, such as CyberPatrol, Internet Filter, NetNanny, and SurfWatch, have been built. Content filters are used in some of the publicly accessed computers to manage Internet content. For instance, currently Internet filtering is being used by one in five public libraries in the USA, according to a study performed in 2000 by the University of Illinois, to improve the Internet management. In spite of an increasing awareness by the society, some academics remain unconvinced that these topics are appropriate parts of the information systems curriculum.[14] This study seeks to explore factors affecting attitudes towards the acceptance of content filter in publicly accessed computers, because restrictions and enforcement of content filter installation is more feasible in public computers than in home computers.

The paper is organized as follows. Section 2 depicts the literature background and method of this study. Section 3 describes the data analysis and findings, while Sec. 4 provides the discussion of the findings and implications for practitioners and researchers. A conclusion and suggestions for future research are presented in the final section.

2. The Study

The present study utilized publicly available data from GVU's WWW user survey (http://www.gvu.gatech.edu). The GVU WWW User Survey began in 1994. It collected data from Internet users worldwide twice per year and accumulated a unique store of historical and up-to-date information on the growth and trends in Internet usage. It is valued as an independent, objective view of developing web demographics, culture, user's attitudes, and usage patterns.

Two datasets under GVU's 10th WWW User Survey were employed. These datasets were *Software Filters and Content Rating on the Internet Questionnaire* and *General Demographics Questionnaire*. There were 1327 respondents to the first questionnaire and 5022 to the second. The two datasets were integrated, and 1323 complete responses were obtained for analysis. Though the GVU sample data are not strictly representative, it definitely gives insight on how web users generally view the severity of the Internet problem and the usefulness of content filters.

Adoption of blocking systems can be affected by personal demographics and perception variables. The GVU questionnaire contains items of the following factors which are suggested by previous literatures, may affect Internet content filter acceptance.

- Gender
  There are many studies on the gender differences in computer technology adoption. Some researchers considered gender to be a main factor in their application of technology acceptance model.[11,20] Gefen and Straub[11] found that there were differences between females and males in perceived usefulness and perceived ease of use of email. Venkatesh and Morris[20] identified the significant difference between females and males in introducting a system for data and information retrieval. They found that men emphasized more on perceived usefulness in determining behavioural intention to use, while women regarded perceived ease of use as a more significant factor in determining behavioural intention to use. Houtz and Gupta[12] found that males are generally more interested in information technology. Young[22] suggested that males regard computer technology as a male domain. Gattiker and Nelligan[9] showed that there is an association between gender and attitudes of computer technology. It seems that males have a greater tendency to try new technology. Do males have higher acceptance Internet content filters than females?

- Age
  Age and experience with computers all affect individuals' perception of information technology.[9] Willard[21] studied moral issues, such as copyright infringement and irresponsible speech, which are raised when young people interact in cyberspace. Gattiker and Kelley[7] showed that younger and older computer users make different moral judgments when facing ethical dilemmas involving computer technology. The impact of immoral materials on the teenagers might be greater, because they are easily influenced and shaped. Curiosity and need for the adult-oriented materials vary with age. The young are curious about sex, violence and drugs; whereas the old demand a higher morality. Age could be an important variable in the acceptance of content filters.

- Perceived Harm from the Objectionable Materials
  Parents can be influenced by the objectionable materials from both the Internet and the traditional media. Their acceptance of content filters should be affected by the severity of unscrupulous problems in their surroundings. Sproull and Kiesler[19] suggested that the identification of potential harm has become more abstract and difficult with the involvement of computer technology. It is difficult for computer users to recognize ethical dilemmas. However, Gattiker and Kelley[7] successfully demonstrated that computer users can assess ethical problems created by the Internet, and, likely, this perception affects the adoption of certain types of computer tools. Survey and telephone interviews conducted in Canada by Environics Research Group 2000 included discussion on parents' perceived risks to their children from the Internet. More than half of the 1081 respondents identified benefits and problems created by the Internet for their children. Respondents regarded blocking filters as a necessity.

- Perceived Benefits from the Content Filters
  An important element for the adoption of information technology innovation is perceived usefulness.[15] Agarwal and Karahanna[1] suggested that the perception of functionality explains 48% of the variance in behavioral intention to adopt technology.

Five hypotheses are employed to analyze the effect of demographics on the outcome variables.

$H1$: Female surfers have the same need to restrict objectionable materials on the Internet as male surfers.
$H2$: Female surfers have the same acceptance of blocking filters as male surfers.
$H3$: Old surfers have the same need to restrict objectionable materials on the Internet as young surfers.
$H4$: Old surfers have the same acceptance of blocking filters as young surfers.
$H5$: Family with higher income has the same acceptance of blocking filters as family with lower income.

The hypothesis testing is followed by a one-way ANOVA and a multi-variate regression between the outcome variables against the other perception factors.

3. Data Analysis and Findings

3.1. *Sample*

Information on the respondents' demographical profiles was obtained from the second questionnaire. Demographic measures included gender, age, household income and Internet experience. Descriptive statistics on the respondents are given in Table 1.

3.2. *Descriptive statistics*

Survey participants were asked to define objectionable content on the Internet. They identified the materials on the Internet to be rated and blocked. The result is shown in Table 2. About 60% of the participants regarded sexual and violent images, and information on explosive-making as objectionable materials.

Public computers are available in libraries, schools, airport, hotels, and Internet café. The participants were asked to decide whether the adoption of content filters should be mandatory in these computers. Tables 3, 4 and 5 depict their choices for installation policy of content filters for public libraries, school and other public venues respectively.

Content filters generally use two primary methods for blocking data: site blocking and word blocking. Keyword blockers stop webpages from loading when the filter encounters a word on its banned word list. However, word blockers cannot

Table 1. Demographics profile of respondents.

Age	Female	Male	Total
Below 25	44	191	235
25 to 40	156	402	558
Above 40	156	357	513
Don't Say	9	8	17
Total	365	958	1323

Annual Income (in US1000)	Female	Male	Total
<US40	99	253	235
41 to 74	115	335	558
> 75	95	229	513
Don't Say	56	141	17
Total	365	958	1323

Internet Experience	Female	Male	Total
Less than 6 months	15	28	43
6 to 12 months	26	42	68
1 to 3 years	131	264	395
4 to 6 years	132	402	534
More than 7 years	64	219	283
Total	368	955	1323

	Minimum	Maximum	Mean	S.D.
Comfort with the Internet	1.00	5.00	4.8675	0.4254
Comfort with computers	1.00	5.00	4.8683	0.4564

Table 2. Identification of objectionable materials on the internet.

	Materials to be Blocked	Materials to be Rated
Alternative lifestyles	379 (28.65%)	378 (28.57%)
Bomb-making and explosives	811 (61.30%)	810 (61.22%)
Cults	557 (42.10%)	556 (42.03%)
Gay and lesbian issues	378 (28.57%)	378 (28.57%)
Hate speech	777 (58.73%)	776 (58.65%)
Illegal activities such as drug use	716 (54.12%)	715 (54.04%)
Sexual content (text) designed to arouse	786 (59.41%)	785 (59.33%)
Sexual content (text) designed to inform	336 (25.40%)	336 (25.40%)
Sexual images designed to arouse	812 (61.38%)	811 (61.30%)
Sexual images designed to inform	362 (27.36%)	362 (27.36%)
Violence	791 (59.79%)	790 (59.71%)

Table 3. Policy of installing internet filters in computers in public library.

	Count
Not be mandatory	302 (22.83%)
Be mandatory for children computer	440 (33.26%)
Be mandatory for some computers for library patrons who want to use filters	277 (20.94%)
Be mandatory for all computers	239 (18.07%)
Not sure	65 (4.91%)

Table 4. Policy of installing internet filters in computers in public schools.

	Count
Not be mandatory	314 (23.73%)
Be mandatory for computer for students aged 5 to 10	40 (3.02%)
Be mandatory for computer for students aged 5 to 13	186 (14.06%)
Be mandatory for computer for all students	518 (39.15%)
Be mandatory for some computer for students who want to use filters	176 (13.30%)
Not sure	89 (6.73%)

Table 5. Policy of installing internet filters in computers in public venues (e.g. airports, copy centers, coffee houses and hotels).

	Count
Not be mandatory	501 (37.87%)
Be mandatory for computer for students aged 5 to 10	327 (24.72%)
Be mandatory for computer for students aged 5 to 13	282 (21.32%)
Be mandatory for computer for all students	164 (12.40%)
Not sure	49 (3.70%)

Table 6. Blocking mechanisms for internet filters.

	Count
Blocking a list of sites	545 (41.19%)
Blocking a list or particular words	342 (25.85%)
Block content with rating label	671 (50.72%)
Block images with rating label	604 (45.65%)
Software filters are unnecessary	361 (27.29%)

be implemented without filtering out some "innocent" sites. For instance, words like "breast" will block out breast cancer websites. Hence, some filters employ site blocking technology. Site-address blockers identify the IP addresses of the websites and filter those "objectionable" sites. Yet, if sites are blocked on an address basis, who has control of which addresses are blocked and which are not? Also, it is hard for the blockers to keep up with the rate at which sites change IP addresses.[2] Regardless of the methods used, no filter is perfect. All filters under-block and over-block.[4,16,18] For site blocking, private companies compile lists of sites for content filtering. Word

Table 7. Reliability scale.

Factor	Number of Items	Reliability
$FX1$	4	0.8844
$FX2$	4	0.7507
$FX3$	5	0.7996
$FX4$	2	0.5227
$FY1$	7	0.9129
$FY2$	2	0.6917

blocking is to filter sites that contain certain words and phrases. The participants were requested to choose the blocking mechanisms for content filters. Table 6 depicts the participants' choices.

3.3. *Instrument validation*

Convergent validity is assessed by factor loadings of the items in factor analysis. Principal Components Analysis is employed for factor analysis, whereas Varimax with Kaiser Normalization is used for factor rotation. The independent factors are *Attitudes Towards Objectionable Content* ($FX1$), *Perception Severity of the Unscrupulous Problem in the Traditional Media* ($FX2$), *Perceived Benefits from Content Filters* ($FX3$), and *Perceived Severity of the Unscrupulous Problem on the Internet* ($FX4$). These factors explain 65.24% of the total variance in the survey. All items, except $X1$ in $FX1$, load highly (> 0.60) on their associated factors. All dependent variables are factor analyzed. A two-factor solution is obtained. They are *Need Restrictions of Internet Objectionable Materials* ($FY1$) and *Content Filters Adoption in Public Area* ($FY2$). Items load highly (> 0.60) on their associated factors. Appendix A presents the test items and Appendix B depicts the factor matrices.

These factors are evaluated for reliability, convergent validity and discriminant validity. All statistical analysis is performed with SAS version 8.02. In the reliability test, the internal consistency for each factor is assessed by computing Cronbach's alpha (Table 7). In an exploratory study, Nunnally[17] suggests that a reliability value of 0.6 or above is acceptable. Hence, $FX4$ is marginally acceptable.

Convergent validity can also be demonstrated by high correlations between items in the same factors.[5] Pearson correlation coefficients are computed with the two-tailed t-statistic test. Appendix C provides the correlation matrix. All correlations between pairs of items within the same factor are statistically different from zero at the 0.01 level of significance. Thus, convergent validity is demonstrated.

Discriminant validity is demonstrated if an item correlates more highly with items within the same factor than with items in a different factor.[5] Validity is determined by counting the number of times an item has a higher correlation with an item from another factor than with items in its own factor. Campbell and Fiske[5] suggest that a count of less than one-half is acceptable. We make more than 300 comparisons by examining the correlation matrix of items (Appendix C). Only

Table 8. Descriptive statistics for $FY1$ (Need for restriction).

	Female				Male			
	Min	Max	Mean	S.D.	Min	Max	Mean	S.D.
Below 25	0.16	5.40	2.0248	1.3154	0.16	5.32	1.9775	1.1919
25 to 40	0.16	6.20	2.3438	1.5045	0.01	5.46	1.9529	1.2095
Above 40	0.13	5.77	2.6439	1.5291	0.16	5.68	2.1013	1.2751
Overall	0.13	6.20	2.4546	1.5076	0.01	5.68	2.0115	1.2332

Table 9. Descriptive statistics for $FY2$ (Content filter adoption).

	Female				Male			
	Min	Max	Mean	S.D.	Min	Max	Mean	S.D.
Below 25	0.20	6.05	2.7790	1.5970	0.45	5.75	2.5168	1.4843
25 to 40	−0.04	5.48	2.6914	1.5662	0.44	5.92	2.7890	1.4929
Above 40	0.52	5.94	3.0088	1.4126	0.13	5.71	2.6128	1.4095
Overall	−0.04	6.05	2.8341	1.5045	00.13	5.92	2.6718	1.4617

70 correlation values between items from different factors are higher those that between items within the same factors. Based on this assessment, items in each factor are discriminant from items in another factor.

3.4. *Findings*

Tables 8 and 9 provide descriptive statistics for the variables and factors. Individuals give scores smaller than 2.5 on the need to restrict objectionable materials on the Internet, and scores about 2.5 on the preferences to content filters. The multivariate tests suggest a statistically significant relationship between the six dimensions of the individual variables and the two outcome variables, *Need of Restriction* ($FY1$) and *Content Filter Adoption* ($FY2$) ($p < 0.0001$).

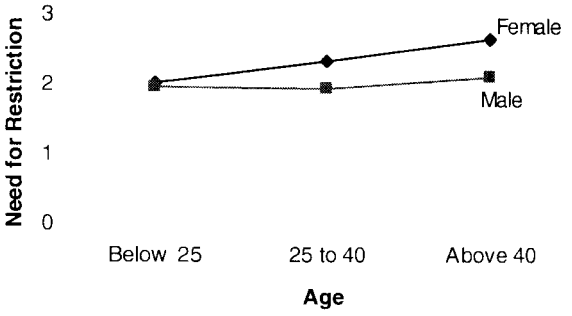

Fig. 1. Gender and age effects on need for restriction.

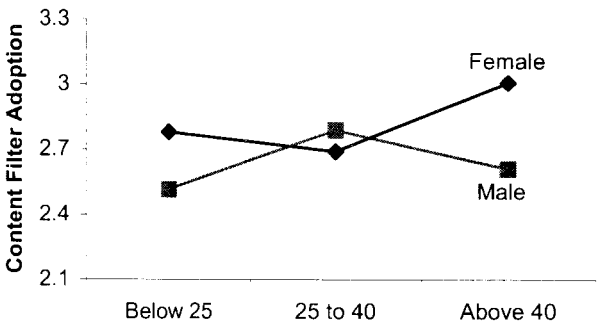

Fig. 2. Gender and age effects on blocking software adoption.

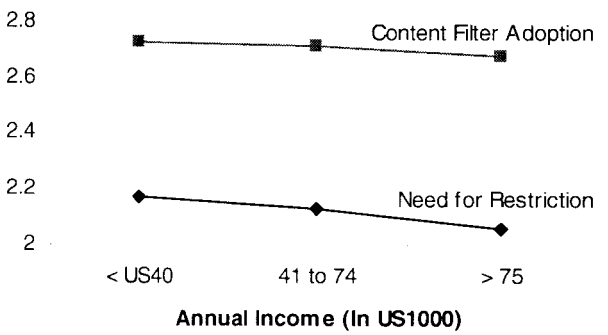

Fig. 3. Relationships between household income and need for restriction and blocking software adoption.

Results show that individuals, as a whole, do not favor restrictions to objectionable materials on the Internet. Figure 1 shows that females have the greater need to restrict adult-oriented materials, including pictures of drugs, explosives and sexual materials, than males. Figure 2 depicts that females over 40 have the greatest intention to adopt content filters in publicly accessed computers, such as those in libraries and airports.

Household income seems to have little effect on either the content filter adoption or the need for restriction of objectionable materials on the Internet (Fig. 3).

ANOVA tests are performed to test the gender and the age differences. For $H1$, the null hypothesis ($p < 0.001$) is rejected. There is difference between males and females on the need to restrict objectionable materials from the Internet. With critical value of 10%, the null hypothesis in $H2$ ($p = 0.074$) is rejected. Females have a higher intention to adopt blocking filters. On the other hand, there is an age difference in the need for restriction. The null hypothesis in $H3$ ($p = 0.011$) is rejected, but the null hypothesis in $H4$ ($p = 0.374$) is not rejected. The null hypothesis in $H5$ ($p = 0.905$) is not rejected as well. Also, we found little correlation between one's Internet experience and computer usage as shown in Table 10:

Table 10. Correlations between Internet experience, computer usage and the dependent variable.

	Internet Experience	Computer Usage
$FY1$	0.031 (0.352)	0.066 (0.051)
$FY2$	−0.023 (0.493)	−0.004 (0.911)

Table 11. Multivariate-regression model.

	$FY1$		$FY2$	
	Estimate	p-value	Estimate	p-value
Constant	−1.889	< 0.001	1.015	< 0.001
Gender	0.183	0.001	0.070	0.426
$FX1$	0.932	< 0.001	0.371	< 0.001
$FX2$	0.866	< 0.001	0.468	< 0.001
$FX3$	0.330	< 0.001	0.075	0.204
$FX4$	0.481	< 0.001	0.129	0.025

Realizing that gender is a factor affecting one's need to block objectionable materials on the Internet, we construct two multivariate regression models — one for females and one for males — to demonstrate the effects of other factors on content filter adoption. Both regression models have p-value < 0.001 and they are statistically significant. Table 11 shows the regression coefficients and the corresponding p-values in the two models.

Gender is a significant factor affecting the need for restriction of objectionable Internet materials ($FY1$). The web surfers' attitude ($FX1$), their perceived severity of the problem in the traditional media ($FX2$) and the perceived severity of the Internet problem ($FX4$) affect the need for restriction ($FY1$) and the content filter adoption ($FY2$). The factors, perceived benefits from content filters ($FX3$), only affect the need for restriction ($FY1$).

4. Discussion

In this study, we found that web surfers have little preferences to censor and restrict the Internet content by legislation. There can be two reasons. First, though the amount of objectionable materials is not small, the amount of useful and valuable contents from the web is very huge. The desire for free and convenient information gets over the need for clean and pleasant Internet travels. Second, the Internet penetrates into our daily life. People read newspaper and shop online everyday. It is reasonable that they do not want their life to be interrupted by legislation.

The findings also demonstrate that the acceptance of software filter is not affected by family income. There might be two reasons. First, the price of software filters is cheaper than other commercial software. Second, free content filter with reduced functionalities is bundled with the browsers. The users are not required

to "pay" for the content filters. However, gender does impact on one's perceived need to restrict objectionable materials from the Internet. Females, naturally, have greater concerns about adult-oriented materials on the Internet than males do and also have a higher intention to adopt the content filters. There are two implications for practitioners. First, females might generally more aware of the ethical problems created by the cyber world. However, the company should not solely tailor their advertisements to persuade mothers to use blocking software. Males aged above 40, who are sometimes family decision makers, give average scores on the acceptance of content filters in publicly accessed computers. They could be potential buyers. Second, surprisingly, the perceived benefit from the software is not a significant factor in the acceptance of content filters. Also, both females and males give average score on the filter functionalities. This implies that they do not understand the functionalities of content filters. The blocking software works too transparently in their browsers with little interferences to the web users. Hence, the users do not take this into account, or even ignore this factor, when making decisions. Software designers should let users have appropriate controls and interactions with the filters.

5. Conclusions and Future Research

In our study, the adoption of blocking software in publicly accessed computers is examined. Yet, the outcomes might be different if the use of content filters in private is investigated, because users definitely spend much more time on their private computers. Studying the installation of blocking software in public places is an important issue in future research.

Furthermore, limitations arise when secondary data are used. Though it is a cost-effective way to employ secondary dataset, it may leave the study open to biases from the original source. Also, some constructs, such as perceived ease of use of the content filters and outcome demonstrability, are not included in this study. It is reasonable that people appreciate easy-to-use and effective computer technology. But what is the optimal effectiveness? A too effective filter might block some innocent, valuable sites. This causes inconvenience to web surfers and they might feel frustrated during searches. Thus, surveys with additional variables should be conducted in order to gain a complete picture of acceptance factors of content filters. Also, the design of content filters can be another interesting research problem. What functionalities should be set as a default option? Moreover, since content filters mainly aim at protecting children from being able to access adult-oriented materials, filters for children and adults should be designed differently. How much can web users interfere with the blocking principles? This is an open question.

A balance among privacy, free speech and content filtering leads to ethical dilemmas. On one hand, libretarians are sincere about their desire for free speech and industries are fighting for effective markets. On the other hand, legitimate

parental desire control to stop access to unscrupulous materials increases demands on blocking systems. Many areas of research remain open. The proliferation of blocking schemes leads to the interaction of technical and social studies and implies that there will be new computer technologies.

Appendix A. Items from Software Filters and Content Rating on the Internet Questionnaire

Note: (Qn) is the original question number in GVU questionnaire.

*FX*1: *Attitude Towards Objectionable Content* (1 = not serious, 3 = serious)

*X*1: Where you, yourself, are concerned, which of the following statements best describes your attitude toward objectionable content on the Internet?

(a) It is not a problem.
(b) It is a problem, but not a serious one.
(c) It is an extremely serious problem.

*X*2: *Where children under* 10 *years of age are concerned*, which of the following statements best describes your attitude toward objectionable content on the Internet?

(a) It is not a problem.
(b) It is a problem, but not a serious one.
(c) It is an extremely serious problem.

*X*3: *Where children between the ages of* 10–13 *are concerned*, which of the following statements best describes your attitude toward objectionable content on the Internet?

(a) It is not a problem.
(b) It is a problem, but not a serious one.
(c) It is an extremely serious problem.

*X*4: *Where children between the ages of* 14–17 *are concerned*, which of the following statements best describes your attitude toward objectionable content on the Internet?

(a) It is not a problem.
(b) It is a problem, but not a serious one.
(c) It is an extremely serious problem.

Variables	Mean	S.D.
*X*1 (*Q*2)	1.6757	0.7011
*X*2 (*Q*3)	2.3129	0.6626
*X*3 (*Q*4)	2.2827	0.6637
*X*4 (*Q*5)	2.0159	0.7133

FX2: Perceived Severity in Traditional Media

$X5$: In your opinion, what percent of the content in traditional media (that is, *television*, *newspapers*, *radio*, etc., but not the Internet) is objectionable?

(a) 5% or less
(b) Between 6 and 10%
(c) Between 11 and 25%
(d) Between 26 and 50%
(e) More than 50%

$X6$: In your opinion, how easy or difficult is it to view objectionable content in traditional media?

(a) Very difficult.
(b) Somewhat difficult.
(c) Somewhat easy.
(d) Very easy.

$X7$: Where *you*, *yourself*, are concerned, which of the following statements best describes your attitude toward objectionable content in traditional media?

(a) It is not a problem.
(b) It is a problem, but not a serious one.
(c) It is an extremely serious problem.

$X8$: How frequently are *you*, *yourself*, exposed to content in traditional media that you find objectionable?

(a) Never
(b) Very infrequently
(c) Somewhat infrequently
(d) Somewhat frequently
(e) Very frequently

Variables	Mean	S.D.
$X5$ ($Q37$)	2.1875	1.2822
$X6$ ($Q38$)	3.0967	0.9244
$X7$ ($Q39$)	1.5699	0.6659
$X8$ ($Q43$)	2.4868	1.1408

FX3: Perceived Benefits

$X9$: Software filters are not 100% effective. That is, they not only block objectionable content, but may also block content that users find important. Given that, which of the following statements best describes your support for software filters?

(a) Strongly against software filters.
(b) Somewhat against software filters.
(c) Somewhat in favor of software filters.
(d) Strongly in favor of software filters.

$X10$: *Software filters* give me more control.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree or disagree.
(d) Agree.
(e) Strongly agree.

$X11$: Software filters can block access to content according to a label with a particular rating. Such ratings would describe the contents of the web site according to a particular standard. In your opinion, to what extent do you believe that content on the Internet should be rated so that it *can potentially be automatically blocked from view*?

(a) No content on the Internet should be rated.
(b) Some content on the Internet should be rated.
(c) All content on the Internet should be rated.
(d) Not sure. [This option will be regarded as (b) in data analysis.]

$X12$: Given the volume of material on the Internet and the subjectivity of rating, content ratings are not practical.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree or disagree.
(d) Agree.
(e) Strongly agree.

$X13$: *Content ratings* give me more control.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree nor disagree.
(d) Agree.
(e) Strongly agree.

Variables	Mean	S.D.
$X9$ ($Q19$)	2.7014	1.0004
$X10$ ($Q28$)	2.8005	1.2798
$X11$ ($Q29$)	2.7218	0.9382
$X12$ ($Q31$)	3.5616	1.2287
$X13$ ($Q35$)	2.9471	1.2748

FX4: Perceived Severity on the Internet

$X14$: In your opinion, what percent of the content on the Internet is objectionable?

(a) 5% or less.
(b) Between 6 and 10%
(c) Between 11 and 25%.
(d) Between 26 and 50%.
(e) More than 50%.

$X15$: How frequently are you, yourself, exposed to content on the Internet that you find objectionable?

(a) Never.
(b) Very infrequently.
(c) Somewhat infrequently.
(d) Somewhat frequently.
(e) Very frequently.

Variables	Mean	S.D.
$X14$ ($Q6$)	1.1172	1.1283
$X15$ ($Q10$)	2.3636	1.0306

FY1: Need for Restrictions (1 = Strongly Disagree; 5 = Strongly Agree)

$Y1$: There is a need to restrict *adults'* access to objectionable content on the Internet.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree or disagree.
(d) Agree.
(e) Strongly agree.

$Y2$: There is a need to restrict *minors'* access to content on the Internet.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree or disagree.
(d) Agree.
(e) Strongly agree.

$Y3$: The government should pass a law making it a crime for commercial distributors to post content on the web that is considered "harmful to minors".

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree or disagree.
(d) Agree.
(e) Strongly agree.

$Y4$: The government should pass a law requiring software filters to be installed on all computers connected to the Internet in schools and libraries that receive government funding for Internet connections.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree or disagree.
(d) Agree.
(e) Strongly agree.

$Y5$: The government should pass a law requiring software filters to be installed on all computers connected to the Internet in schools and libraries, regardless of whether they receive government funding for Internet connections.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree or disagree.
(d) Agree.
(e) Strongly agree.

$Y6$: It should be required by law that content on the Internet be rated according to a particular standard so that it can potentially be automatically blocked from view.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree nor disagree.
(d) Agree.
(e) Strongly agree.

$Y7$: It should be a criminal offense for anyone to post content to the Internet without first rating it and rating it accurately.

(a) Strongly disagree.
(b) Disagree.
(c) Neither agree nor disagree.
(d) Agree.
(e) Strongly agree.

Variables	Mean	S.D.
$Y1$ ($Q8$)	1.6606	1.1106
$Y2$ ($Q9$)	3.545	1.3333
$Y3$ ($Q11$)	1.9509	1.3338
$Y4$ ($Q25$)	3.7400	1.4945
$Y5$ ($Q26$)	3.9176	1.4402
$Y6$ ($Q32$)	2.2434	1.3258
$Y7$ ($Q33$)	1.9751	1.2349

FY2: Adoption of Software Filters

Y8: Installation of software filters on computers connected to the Internet in public libraries should be mandatory.

(a) Very disagree.
(b) Disagree.
(c) Neither agree nor disagree.
(d) Agree.
(e) Very agree.

Y9: Installation of software filters on computers connected to the Internet in public venues, such as airports, copy centers, coffee houses and hotels, where patrons typically pay for Internet access, should be mandatory.

(a) Very disagree.
(b) Disagree.
(c) Neither agree nor disagree.
(d) Agree.
(e) Very agree.

Variables	Mean	S.D.
Y8 (*Q22*)	2.7761	1.4593
Y9 (*Q24*)	2.4675	1.4731

Appendix B. Rotated Factor Matrix

Independent Variables:

	FX1	*FX2*	*FX3*	*FX4*
X1	0.615			
X2	0.873			
X3	0.892			
X4	0.794			
X5			0.795	
X6			0.732	
X7			0.626	
X8			0.733	
X9		0.604		
X10		0.705		
X11		0.686		
X12		0.715		
X13		0.807		
X14				0.683
X15				0.792

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 6 iterations.

Dependent Variables:

	FY1	*FY2*
Y1	0.696	
Y2	0.648	
Y3	0.828	
Y4	0.850	
Y5	0.852	
Y6	0.815	
Y7	0.812	
Y8		0.859
Y9		0.840

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 3 iterations.

Appendix C. Correlation Matrix

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}
X_1	1.000														
X_2	.510*	1.000													
X_3	.530*	.894*	1.000												
X_4	.579*	.682*	.765*	1.000											
X_5	.209*	.136*	.170*	.207*	1.000										
X_6	.102*	.088*	.103*	.162*	.382*	1.000									
X_7	.544*	.365*	.395*	.438*	.485*	.268*	1.000								
X_8	.296*	.203*	.222*	.277*	.585*	.319*	.541*	1.000							
X_9	.449*	.431*	.469*	.488*	.217*	.122*	.354*	.220*	1.000						
X_{10}	.316*	.377*	.388*	.422*	.114*	.044	.268*	.159*	.490*	1.000					
X_{11}	.337*	.369*	.388*	.377*	.175*	.057+	.270*	.176*	.432*	.347*	1.000				
X_{12}	.277*	.280*	.282*	.302*	.115*	-.002	.225*	.147*	.368*	.333*	.473*	1.000			
X_{13}	.340*	.388*	.411	.418*	.148*	.058+	.289*	.170*	.494*	.646*	.500*	.435*	1.000		
X_{14}	.277*	.275*	.306*	.312*	.373*	.099*	.268*	.249*	.269*	.193*	.233*	.157*	.220*	1.000	
X_{15}	.344*	.283*	.303*	.303*	.191*	.036	.262*	.355*	.196*	.182*	.218*	.140*	.150*	.376*	1.000

	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7	Y_8	Y_9
Y_1	1.000								
Y_2	.426*	1.000							
Y_3	.651*	.517*	1.000						
Y_4	.558*	.575*	.676*	1.000					
Y_5	.547*	.548*	.678*	.885*	1.000				
Y_6	.497*	.511*	.585*	.668*	.656*	1.000			
Y_7	.492*	.475*	.611*	.623*	.636*	.772*	1.000		
Y_8	.266*	.313*	.258*	.364*	.343*	.283*	.258*	1.000	
Y_9	.317*	.328*	.290*	.344*	.331*	.330*	.313*	.526*	1.000

*Correlation is significant at the 0.01 level (2-tailed).
+Correlation is significant at the 0.05 level (2-tailed).