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Risk and the Internet: Perception and Reality

Eric A. Zimmer and Christopher D. Hunter

Annenberg School for Communication, University of Pennsylvania

Abstract

This chapter addresses the differences between the perception of encountering objectionable material on the World Wide Web and the actual percentage of such material. The authors outline the interconnected history of new communication technologies and potentially offensive material and then discuss current public perceptions of such material on the Web. They present the results from a content analysis of web pages, using the Recreational Software Advisory Council's Internet rating system. The content categories were Language, Nudity, Sex, and Violence—each on a 5-point scale. The researchers randomly selected 1067 web pages from the WebCrawler search engine database of 50,000,000 pages and the results are accurate within 3% at the 95% confidence level. The authors find that 95.1% of selected pages registered minimally on the RSACi scale. No more than 3.6% of all pages had highly objectionable material, only 2.4% had provocative sexual content and only 0.7% had notable violent content.

Risk and the Internet: Perception and Reality

According to research overseen by Joseph Turow of the Annenberg Public Policy Center, fully one fourth of news articles on the Internet from October 1997 to October 1998 were alarmist in nature and two-thirds of these news articles raised disturbing issues about the nature and content of the World Wide Web (Turow, 1999). Additionally, parents express grave concerns about the content their children may encounter on the Web. Without a doubt, much exists on the Web that is troubling to parents of school-age children and to others who do not want to be assaulted by sexually graphic content. Yet, thirty years of agenda-setting research would suggest that a link exists between these stories of the prurient and hazardous nature of Web content and the concern of parents, many of whom do not completely understand what is available on the Web, let alone how to control their children's access to it.

Agenda-setting influences also lead the public-policy debate about the Internet. Concerns about the new media, driven by older media, help foster an alarmist state in which legislators define their roles in light of protecting citizens from the bogeyman of the Internet through legislative control of access to or dissemination of Internet content. Historically, however, the issue of curtailing objectionable material has not been solved by access controls; it is a long-standing social problem that will not likely be solved by legalistic or technical solutions. Politicians who might otherwise promote government taking a hands-off approach to many social issues are seen promoting legislation to monitor, cordon off, and choke off questionable sites. While they might deplore "Big Brother" in the boardroom, they vote for the Communications Decency Act, because they

desire to "protect" children from the evils of the Internet. Protectors in government and in lobbying bodies also promote the use of filtering software to keep the impressionable from the objectionable. Yet, the question arises: Why does Web content incite such fear in parents? Does it merit the press coverage it receives? Does the Web really emphasize the prurient and salacious, the vicious and the foul? Or is it, like the world around us, more a place where one must exercise caution in the dark places—but where these places are relatively limited in their number and scope?

This chapter attempts to grapple with some of these questions and to suggest public policy strategy in addressing these topics. First, we present historical background on the confluence of media scares and communication technologies, and an understanding of the nature of Internet risks and fears. Second, we present findings from a content analysis of newspaper coverage of families and the Internet, and a survey on current perceptions of the risks associated with an unfettered Web. Third, we then present new findings from our content analysis of the pages found in a popular search engine's database, contrasting the perceptions and the reality of web content. Finally, we offer some insights on reframing the policy debate in this area.

A Brief History of Fear and Censorship

Government and public fear about harmful Internet content, and the ensuing urge to censor such material, is nothing new. Rather, it is just the most recent manifestation of an age-old debate. Since the origin of the spoken word, communities and governments have feared the potentially corrupting influence of all new media. As Wartella and Reeves note, "With the development of each modern means of storytelling—books,

newspapers, movies, radio, comics, and television—social debates regarding their effects have recurred. A prominent theme in all these debates has been a concern with media's impact on youth (1985, p. 119).

Perhaps the first policy maker to focus on the dangers of media content was Plato who, some 2,000 years ago, called for extensive censorship to protect the education of children, the morals of citizens, and to generally achieve a good and just society (Wolfson 1997, p. 23). Indeed, in Plato's The Republic, he notes, "Then the first thing will be to establish a censorship of the writers of fiction, and . . . reject the bad" (1977). Plato goes on to argue for the censorship of playwrights, poets, and music. Warning of the influence of storytellers, Plato comments:

> Children cannot distinguish between what is allegory and what isn't, and
> opinions formed at that age are usually difficult to eradicate or change; it
> is therefore of the utmost importance that the first stories they hear shall
> aim at producing the right moral effect. (1977)

Based on these arguments Plato even called for the censorship of Homer.

While Plato and the Greeks merely had to worry about spoken stories and a few written manuscripts, the invention of the printing press around 1450, confronted the Catholic Church and European rulers with a truly revolutionary medium, capable of eliminating their long held monopoly over the dissemination of ideas. The printing press and Luther disintermediated the Catholic priest and laid the seeds for mass literacy, and mass political and religious dissent (Grendler, 1984; Eisenstein, 1980). Clearly the printed word was to be feared and, therefore, censored by the prevailing authorities.

Responding to this new technology of freedom, the Church developed one of the most comprehensive and long lasting censorship regimes in human history. In 1524, under Church guidance, Charles V of Belgium published a list of censored books. Forty years later in 1564, the Church formalized the listing of banned books by publishing the Index librorum prohibitum (Index of Prohibited Books). The Index consisted of several parts:

1. a listing of outright banned authors,

2. a listing of banned titles,

3. rules for expurgation of books with some "error," but which were not all bad, and

4. sweeping rules for the dissemination of printed works (Grendler 1984, p. 30). Generally speaking, the Index focused on doctrinal error, but it also included immoral and obscene works. This concern with the corrupting influence of content, once again seen as particularly dangerous for children, is reflected in rule number eight of the original Index:

> Books which professedly deal with, narrate or teach things lascivious or
> obscene are absolutely prohibited, since not only the matter of faith but
> also that of morals, which are usually easily corrupted through the reading
> of such books, must be taken into consideration, and those who possess
> them are to be severely punished by the bishops. Ancient books written by
> heathens may by reason of their elegance and quality of style be permitted,
> but may by no means be read to children. (Modern History Sourcebook,
> 1999)

Updated and published every fifty years until 1966, the <u>Index</u>, is a strong testament to the fear and regulation of media content.

In the 19th century, the rise of mass literacy and the penny press again focused government attention on the problem of dangerous and corrupting material. In England, the infamous Thomas Bowdler took up the cause. In 1802 he helped found the Society for the Suppression of Vice, whose goal was "To prevent the profanation of the Lord's Day, prosecute blasphemous publications, bring the trade in obscene books to a halt, close disorderly houses and suppress fortune tellers" (in St. John-Stevas, 1962, p. 104). From 1802 to 1807, the Society successfully prosecuted between thirty and forty obscenity cases (Tedford, 1993, p. 13). In addition to his legal crusading, Bowdler authored <u>The Family Shakespeare</u>, "bowdlerized" to exclude profanity, indecency, and blasphemy (Hoyt, 1970, p. 21).

The U.S. had a similar 19th century morality crusader in Anthony Comstock. In 1872 Comstock founded the New York Society for the Suppression of Vice, whose state-given mandate was to suppress "obscene literature" including "vile weekly newspapers" and "licentious books" (Hoyt, 1970, p. 22). One year after founding the New York Society, he lobbied Congress to pass federal legislation outlawing the sending of "obscene or crime-inciting matter" through the mails. Prohibited material, under what became known as the Comstock Law, included, "every obscene, lewd, lascivious, or filthy book, pamphlet, picture, paper, letter, writing, print, or other publication of an indecent character" not to mention any material regarding contraception or abortion (Hoyt, 1970, p. 23). Comstock would go on to destroy countless "obscene" works as a special agent of the Post Office.

The spirit of Comstock's moral crusading continued well into the 20th century, where new groups like the National Organization for Decent Literature (founded in 1955) and The Citizens for Decent Literature (1956) gained widespread support. New types of media, including pulp-fiction magazines, comics, and films, all came under the scrutiny of such organizations. For example, speaking to the dangers of film, the Christian Century (1930) noted:

> Movies are so occupied with crime and sex stuff and are so saturating the
>
> minds of children the world over with social sewage that they have
>
> become a menace to the mental and moral life of the coming generation
>
> (cited in Starker, 1989, p. 8)

Pornography Drives Technology—Which Drives Censorship.

Since the invention of the printing press, pornography has been a driving force behind the development of new media, which as a result has lead to efforts to censor all new media. Two of the most popular books produced by Gutenberg's new invention were the pornographic tales of Pietro Aretino's Postures (1524) and the satiric Gargantua and Pantagruel of François Rabelais (1530-40). Postures consisted of a series of engravings depicting various sexual positions; each accompanied by a ribald sonnet. Rabelais' work was more satirical, including passages such as a playful governess introducing Gargantua to sex; Gargantua's horse pissing away an army, and a woman scaring away the devil by exposing her vagina (Kendrick, 1987; Findland, 1993).

Pornography next played an essential role in the development of the paperback book. In the late 19th century, printers began publishing magazines made of cheap "pulp" paper, thus the term "pulp fiction." One of the most popular genres of the paperback was

pornography and erotica, a tradition that continues to this day, with cheap, cheesecake novels sold in the local supermarket (Johnson, 1996).

In the 19th century, pornography also accompanied the development of photography. Civil War soldiers sought more than just letters from home. Through the mails they also received large quantities of pornographic photographs. The traffic in such images was so great that Congress passed the nation's first law prohibiting the sending of obscenity through the mails. However, by the time the bill passed in 1865 the war was over, and soldiers returned home with pornography in their pockets (Johnson, 1996).

Several more modern media of communication can also attribute pornography as a contributing factor to their success. Pay per-view cable television's first lucrative use was broadcasting X-rated films. Videotaped pornography helped drive the nascent market for video cassette players and rented videos. Pornography also helped prove the market for "900" phone services, and CD-ROMs (Johnson, 1996).

Pornography's integral role in the development of most modern media is likely attributable to two factors. First, put simply, humans enjoy sex. Secondly, entrepreneurs recognize this fact, and will use any medium open to them to distribute pornographic content to an eager consuming public. The Internet merely represents the culmination of this trend, providing commercial pornographers with a distribution technology capable of reaching a vast international market. How eager is the public for such material? In 1998, Americans spent $1 billion on Internet pornography and $5 billion renting pornographic videos. Globally, legal pornography is estimated to be a $56 billion industry (Morais, 1999).

<u>Fear, Cyberporn, and the March to Censor the Web.</u>

Based on our historical fear and regulation of all forms of media content, it should be of no surprise that our newest medium, the Web, has been similarly attacked as an "evil influence," poised to "contaminate the health and character of the nation's children" (Starker, 1989, p. 5). The moral danger inherent in the Internet has been defined as the easy availability of pornography, hate speech, and violence. In the U.S., and many other nations, this fear has inevitably led to calls for government regulation. We thus outline U.S. and Canadian experiences with, and responses to, the perceived dangers of Web content.

<u>The U.S. Experience.</u>

On July 3, 1995, <u>Time</u> magazine carried the following cover article: "On a Screen Near You: Cyberporn." The article, by <u>Time</u> senior writer Phillip Elmer-Dewitt, cited the soon to be published research of a Carnegie Mellon undergraduate student named Marty Rimm (Wallace and Mangan, 1996). Rimm's study, eventually published in the <u>Georgetown Law Review</u>, claimed to be an exhaustive look at the amount and types of pornography available on the Internet. Rimm found that 83.5% of Usenet images were pornographic, and that over 70% of the sexual images on the newsgroups surveyed "originate from adult-oriented computer bulletin-board systems (BBS) whose operators are trying to lure customers to their private collections of X-rated material" (Elmer-Dewitt, 1995). Further, he found that many of the images analyzed were exceptionally kinky and violent.

Following the publication of the <u>Time</u> article and the actual Rimm study, many Internet analysts came forward to discredit Rimm's analysis. Taking the forefront in

pointing out the study's weaknesses were Vanderbilt University professors Donna

Hoffman and Tom Novak. They argued that Rimm's selection of a few sex related

newsgroups was simply not representative of the world of Usenet, or of the larger

Internet. "Also, no information is provided on the degree to which these 32 newsgroups

comprise the complete universe of Usenet imagery" (Hoffman and Novak, 1995). In

addition to his non-representative sample of newsgroups (of which there are thousands

mostly relating to news, recreation, and politics), Rimm used no clear definition of

pornography to classify images as pornographic.

The onslaught of articles, email, and Usenet posts discrediting the Rimm study led

Time to "admit that grievous errors had slipped past their editorial staff, as their normally

thorough research succumbed to a combination of deadline pressure and exclusivity

agreements that barred them from showing the unpublished study to possible critics"

(Wilkins, 1997). While for all intents and purposes the Rimm study had been

discredited—shown to be a methodologically weak study conducted by an attention

seeking undergraduate student—a heightened sense of the moral dangers of the Internet

endured.

In spite of this discrediting, the Time article and the Rimm study stirred a wild

moral panic about access to pornography on the Internet. In the months that followed,

several mainstream newspapers and magazines including the New York Times, USA

Today, and Newsweek ran stories regarding the "threat" of Internet content. Electronic

Freedom Foundation (EFF) lawyer Mike Goodwin referred to this situation as "The Great

Cyberporn Panic of 1995" (1998, p. 206). Several U.S. Senators and Congressmen soon

weighed in with legislation to protect children from the scourge of easily accessed

Internet pornography. As Margaret Seif notes, "the political football got blown up to gigantic proportions" (1997).

Senator Charles Grassley (R-Iowa) proposed the Protection of Children from Pornography Act of 1995. In support of his bill, Grassley introduced the entire Time article into the Congressional Record, and referred to Rimm's undergraduate research as "a remarkable study conducted by researchers at Carnegie Mellon University" (Wilkins, 1997). Grassley further noted that there is a "flood of vile pornography, and we must act to stem this growing tide" (June 26, 1995). Grassley's bill did not pass, but it led to several Internet censorship bills, culminating in the Communications Decency Act (CDA) sponsored by former Senator James Exon. The bill was attached to the Telecommunications Reform Act of 1996, which was passed by Congress and signed into law by President Bill Clinton in February 1996.

Following passage of the CDA, two polls found widespread support for government regulation of the Internet. An October 1996 survey by the Los Angeles Times found that 56% of respondents favored "a law that would make it illegal for a computer network to carry pornographic or adult material" (Harmon, 1996). Similarly, a May 1997 ABC News poll found that 80% of respondents favored government restrictions on Internet pornography (Richtel, 1997).

Despite Congressional and public support, on June 26, 1997 the U.S. Supreme Court ruled in the case of Reno v. ACLU, that the CDA was an unconstitutional restriction of First Amendment freedoms. Disappointed with this outcome, and boosted by polls supporting Internet regulation, one year later in October 1998, Congress passed the Child Online Protection Act (COPA), another attempt at limiting minors access to

adult speech on the Internet (Nickell, 1998). Most recently in 1999, Congress has debated

similar measures requiring Internet Service Providers (ISPs) to distribute Internet filtering

software (Bloomberg, 1999), and to require public schools and libraries to install such

programs (McCain, 1999).

The Canadian Experience.

Concurrent with battles in the U.S., Canada has experienced a very similar

development of public concern over the perceived dangers of the Internet. Just as in the

U.S., newspaper coverage of "hot button" issues, particularly child pornography and

online hate speech, have led many Canadians to wonder if government regulation is

needed (Jones in The St. Catharines Standard Press, 1998). For example, a 1997 Citizen-

Global poll of adult Canadians found that 66% favored government regulation of the

Internet (Cobb, 1997). Similarly, a 1998 poll, by Ekos Research Associates, found that

"two thirds of Canadians felt that the government should control or regulate the

publication of abusive content and pornography on the Internet" (Globe and Mail, 1998).

Likely due to such support, in July 1998 MP Chris Axworth (NDP-Saskatoon)

introduced Bill C-424, the Internet Child Pornography Prevention Act, before the

Canadian House of Commons. The bill called for the Canadian Radio Television and

Telecommunications Commission (CRTC) to license ISPs, who would be required to

block access to Internet sites where child pornography could be found (Campbell 1998).

In response to Axworth's proposal, the CRTC conducted a public review, but in May

1999 concluded "that any attempt to regulate Canadian new media might put the industry

at a competitive disadvantage in the global marketplace" (CRTC, 1999).

As with the U.S. Supreme Court's rejection of the CDA, the CRTC has put a damper on legislative attempts at Internet regulation. However, in light of continued public support, and a growing debate over library and school Web filtering, Canadians will likely see further attempts to regulate online content.

Risk

Parents with computers generally believe that it is important for their children to have access to the Web, yet many also fear what their children may encounter online. They also believe that the benefits outweigh the risks. What makes parents and legislators so concerned about their children and the Web when their children live in a world that presents more pressing dangers in everyday living?

The Web shares similar characteristics with other situations that the public finds risky. The public has a broad conception of risk that incorporates such characteristics as uncertainty, dread, catastrophic potential, controllability, equity, risk to future generations, and so forth. Some things we find risky, while others we may not, even though they might be equally likely to result in negative outcomes. Many people die each year from food poisoning, yet most of us give this hazard little thought. In contrast, when the news media reported the risks associated with the chemical Alar on apples, the apple industry sustained major damage to its image and a $125 million loss in income. This damage to the industry occurred even though Alar ceased to be used in 1989, only 15% of growers used it at all, and its deleterious effects were not well documented (Egan, 1991).

According to Paul Slovic, risk may be understood better when we consider two factors: how unknown the risk is, and how dreaded it is. He presents these two factors on

axes and suggests that when a risk is both unknown and dreadful, people are much more likely to want it regulated (Slovic, 1987). As an example, people find the risk from radioactive waste both unknown and dreadful, and have little toleration for its presence in their lives. It is something that they cannot fathom and this lack of information about its possible effects raises the demands that radioactive waste be avoided. In contrast, the risk from something like a bicycle is neither unknown nor dreadful. Almost certainly it is the case that more people die each year in the U.S. from bicycle accidents (761 in 1998) (National Highway Traffic Safety Administration, 1998) than from exposure to radioactive waste. People neither fear nor avoid bicycles, and they might find bicycle regulation silly.

As a society, we balance the risk inherent in different activities with the benefits they provide to us. Motor vehicle accidents result in over 41,000 deaths per year in the U.S. (National Highway Traffic Safety Administration, 1998) and are one of the major sources of air pollution, yet automobiles provides us with great benefits and so people overlook the risks inherent in their use. We know the risks, but do not find the dread too high.

Internet risks, in Slovic's paradigm, are unknown risks for many people. Whether or not the risk is dreadful varies within the populace. Some may find the risk of their children discovering pornography on the Internet too dreadful to allow and may thus choose not to give their children access. Others may find it no more dreadful than watching primetime television and thus allow the Internet in their home, subject to certain limitations.

Slovic's work also differentiates between risks that are voluntary and those that are involuntary. Research has found that "the public will accept risks from voluntary activities (such as skiing) that are roughly 1,000 times as great as it would tolerate from involuntary hazards (such as food preservatives) that provide the same level of benefits" (Slovic, 1987, p. 236). According to Slovic:

> An accident that takes many lives may produce relatively little social disturbance (beyond that experienced by the victims' families and friends) if it occurs as part of a familiar and well-understood system (such as a train wreck). However, a small accident in an unfamiliar system (or one perceived as poorly understood), such as a nuclear reactor or a recombinant DNA laboratory, may have immense social consequences if it is perceived as a harbinger of further and possibly catastrophic mishaps" (Slovic, 1987, p. 236).

The Internet generally, and the Web in particular, are still unknowns to many people and will remain so until the public has a general understanding of what is available on the Internet. At that point, the fear of the available content will likely decrease and with it the concerns.

The perception of risk to vulnerable portions of the populace will not likely decrease at the same rate as the perception of risk to adults. The public, and parents particularly, will attempt to protect children, vulnerable as they are, from the perceived chaos and risk on the Internet. Media coverage has signal value for the public's perception of risk. Each media presentation of a child molester attempting to meet a young girl he has met through an Internet chat room is like a stone thrown into a calm pool of water, the effects ripple well beyond the actual entrance (Slovic, 1987). As the

public hears about such an occurrence, and as the public finds the risk of the Web to be unknown, the news report imparts a greater signal than would otherwise be the case. The social impact will thus be great. The actual risk perception will not likely take into account neither the fact that the child was unsupervised in this chat room, nor the recent estimates of 107.3 million online users in the U.S. and Canada mean that the likelihood of a child encountering a deviant online is remarkably slim (NUA Net Surveys, 1999). This assessment does not deny the real concerns of parents and of others in charge of children, it simply offers a different perspective on the likelihood of harmful encounters on the Internet.

Stoking the Flames: The Press and Public Opinion Towards the Internet.

We notice a definite pattern in the development of Internet risks and the desire for regulation in the U.S. and Canada. First, the press treats isolated incidents of Internet pornography, sexual predators, hate speech, etc., as if they were the norm for the Internet. To read popular media coverage of the Internet, a concerned parent might think that lurking behind every web page link is hard-core pornography, and behind every email exchange a pederast. As Ann K. Symons of the American Library Association comments, "It's not news to say that millions of kids had a safe rewarding experience on-line today" (1999). Such negative coverage generates fear in the minds of the general public and of parents in particular. This fear is reflected in the many public opinion polls cited above. Once public fear has been piqued, it is almost too much for legislators to avoid overly simplistic regulatory solutions.

The recent above-mentioned survey and content analysis conducted by Joseph Turow of the Annenberg Public Policy Center of the University of Pennsylvania supports

the agenda setting-like process described above (McCombs and Shaw, 1972). The Annenberg study first surveyed a national sample of parents regarding their attitudes towards the Internet. They found that 76% of parents feared that their child might view sexually explicit images on the Internet. Only 40% of respondents agreed with the statement that "the Internet is a safe place for my child to spend time" (Turow, 1999, p. 14).

These survey results were compared with a content analysis of U.S. newspaper coverage of the Internet and the family. The content analysis encompassed all the articles on the Internet and the family that appeared in twelve major newspapers from October 15, 1997 to October 15, 1998. These newspapers include six of the ten largest in circulation as well as another six between the fortieth and fiftieth largest in circulation. For the purposes of selecting articles, all articles that used the terms "Internet," "AOL," "Web," or "online" and included the words "family," "families," "child," "children," "parent," "parents," "youth," or "teens." The search resulted in 668 relevant articles.

The researchers designed a questionnaire for content analysis that asked the broad questions

1. What issues do the papers raise about the Internet and the family?

2. What kinds of people speak about the Internet and the family in the articles, and what do they say?

Based on these questions, the researchers asked further questions on placement of stories, the positive or negative valence of stories, and whether solutions accompanied the presentation of problems.

The content analysis found that one in every four articles dealt with sex crimes against children, including sexual predation and child pornography. While 48% of stories dealt solely with negative aspects of the net, only 33% focused on the net's benefits. Two of every three articles presented disturbing issues on the Web/family relationship. Among the negative stories, 29% dealt with material improper for children, 21% with online sexual predators, 18% with pornography, and 17% with child pornography. The positively valenced stories rarely overlapped with those presenting the social ills, leaving little to counterbalance the problems associated with the Web. Making the agenda-setting connection between survey and content analysis results, Turow notes: "the press' portrayal of the Internet is particularly significant because it directly reflects the results of our national survey" (Turow, 1999, p. 35). While this finding is correlational, it does offer support for the connection between negative news coverage of the Internet and the reactions of parents of school-age children.

To complete the press, fear, and regulation cycle, FCC chairman William Kennard was invited to deliver a keynote speech at the conference unveiling the Annenberg results. Kennard used the opportunity to publicly support mandatory filtering policies for any public school or library receiving federal grants for Internet access (McCullagh, 1999).

The problem with this type of press, fear, regulation cycle is that the press may be overemphasizing the dangers of Internet content. If, as some anti-regulation, anti-censorship groups argue, the net contains only about 5% objectionable material, then public fear may be out of proportion to the actual risk. We thus hope to provide an

objective, social-scientific measure of just how much objectionable material exists on the World Wide Web.

Media coverage creates dread risk for the public. Additionally, many parents are concerned about the risk factor of their children encountering the unknown on the Internet (Turow, 1999). The risk literature suggests that in cases of high dread risk and high unknown risk, the public will have artificially heightened risk sensitivity. Thus, in contrast to the inflammatory press coverage of Internet risks, we hypothesize that the actual percentages of objectionable content will actually be much lower.

Methods

In order to rate the web sites, we used the standardized Recreational Software Advisory Council's Internet rating system (RSACi), designed by Stanford Communication professor Donald F. Roberts to rate the objectionable content of video games and to provide parents with a way to protect their children from excessive violence. While designed for video games, with the advent of the Internet the system was adapted to allow website owners to self-rate their content. Currently, RSACi is the most popular system for rating content on the Internet, with more than 100,000 web sites using it to self-rate (RSAC, 1999).

RSACi contains four content categories (language, nudity, sex, and violence) each with five levels of severity (0, 1, 2, 3, and 4). Within the language category, for example, a site may be rated 0 if it contains no objectionable language, 1 if it contains mild expletives, 2 if it has profanity, 3 with strong language, and 4 if it contains crude, vulgar language. Table 1 gives a summary of RSACi's rating categories.

Table 1

The Recreational Software Advisory Council Internet Rating System

Level	Violence	Nudity	Sex	Language
0	none of the below, or sports related	none of the below	none of the below, or innocent kissing; romance	none of the below
1	injury to human beings	revealing attire	passionate kissing	mild expletives
2	destruction of realistic objects	partial nudity	clothed sexual touching	moderate expletives or profanity
3	aggressive violence or death to humans	frontal nudity	non-explicit sexual acts	strong language or hate speech
4	rape or wanton, gratuitous violence	provocative frontal nudity	explicit sexual acts or sex crimes	crude, vulgar language or extreme hate speech

This system was used to rate the content of 1067 randomly chosen English

language web sites. Only the first page of all sites was rated. Links were not followed to

subsidiary pages. The only exception to this rule was on pages that had no other content

than an "Enter this site" link, in which case the link was followed, and the first fully

developed page was rated.

We chose our simple random sample, drawn from the WebCrawler database of

approximately 50 million Universal Resource Locators (URLs) (Add your URL on

WebCrawler, 1999), using the "Web Roulette" random link feature of WebCrawler. This

feature generates a web page containing 10 links randomly selected from WebCrawler's

database (WebCrawler, 1999). We determined that a sample of 1067 randomly chosen

sites would allow plus or minus 3% accuracy at the 95% confidence level (Salant and

Dillman, 1994). From September 14th through September 19th, 1999 we gathered all

links and placed them in a master sample file. Although this sample is an accurate random sample from the WebCrawler database, it does not represent a true random sample of all web content. Because of the web's vast size, currently estimated at some 800,000,000 individual pages, even the most powerful individual search engine only indexes about 16% of the web's content (Lawrence and Giles, 1999). As such, the random sample produced by WebCrawler is only representative of the percentage of the web indexed by the search engine.

We tested the reliability of our use of the RSACi rating system by conducting an intercoder reliability test on a 50-site subset of the larger 1067 site sample. Overall, use of the RSACi rating system was found to be highly reliable. For the 50 sites tested, coders rated sites with perfect reliability 96.5% of the time. Intercoder reliability across all RSACi content categories and web sites was high ($\alpha = .9313$).

While these results point to a highly reliable coding scheme, they may be artificially high due to the large amount of non-objectionable content in the sample. In other words, since the vast majority of sites were rated 0 for all categories by coders, there was little variation in the amount of objectionable content across the sites. This reduces the room for error among coders.

Content analysis of Web sites

Our content analysis of 1067 web sites produced the following results:

Table 2

Levels of RSACi Language Categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	1009	94.6	94.6	94.6
	Mild expletives	18	1.7	1.7	96.3
	Mod. expletives/profanity	1	.1	.1	96.3
	Strong lang./hate speech	9	.8	.8	97.2
	Crude, vulgar lang./extreme hate speech	30	2.8	2.8	100.0
	Total	1067	100.0	100.0	
Total		1067	100.0		

Table 3

Levels of RSACi Nudity Categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	1020	95.6	95.6	95.6
	Revealing attire	11	1.0	1.0	96.6
	Partial	7	.7	.7	97.3
	Frontal	5	.5	.5	97.8
	Provocative frontal	24	2.2	2.2	100.0
	Total	1067	100.0	100.0	
Total		1067	100.0		

Table 4

Levels of RSACi Sex Categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None, or innocent kiss	1038	97.3	97.3	97.3
	Clothed sexual touching	3	.3	.3	97.6
	Non-explicit sex acts	2	.2	.2	97.8
	Explicit sex/sex crimes	24	2.2	2.2	100.0
	Total	1067	100.0	100.0	
Total		1067	100.0		

Table 5

Levels of RSACi Violence Categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None, or sports related	1058	99.2	99.2	99.2
	Injury to humans	2	.2	.2	99.3
	Aggressive violence/death to humans	6	.6	.6	99.9
	Rape or wanton, gratuitous violence	1	.1	.1	100.0
	Total	1067	100.0	100.0	
Total		1067	100.0		

Overall, the rate of objectionable content was very low; 92.8% of all web sites in the

population have no content that rated even 1 on the scale. We find that 95.1% had no

scores above 1. Compared to the level of violence on television, where 61% of U.S.

television shows have violent content, these percentages are very low (National

Television Violence Study, Volume 3, 1999).

Discussion

The results from our content analysis suggest that the Internet contains a very small

percentage of offensive material. These data call into question the press's coverage of the

Internet as a dangerous place, the public's fear of the Internet, and government's attempts

to impose Internet content controls. Just as a large city will have some dangerous areas

among a majority of safer ones, the Internet and the Web consist of mostly constructive,

not to say innocuous, sites that offer sports scores, library supplies, dictionaries of email

"emoticons," and shingles for various professionals. The sample we obtained for this study did have its share of provocative sites. From graphic heterosexual sex to bestiality, from fecal eroticism to "barely legal" pictures of teenagers, the 2.8% of sites with graphic sexual content offered much that the prurient mind might desire and gave credence to the argument that pornography has and continues to drive communication technology. While online pornography is clearly very big business, the small percentage of objectionable content in this sample suggests that the people use the Web for far more than titillation. Yet it is not news that the vast majority of children are not getting into trouble on the Internet (Symons, 1999).

What does one say to the statement that children do not go randomly to sites, but follow links, click on banner ads, and punch in searches for any variety of interests? They can easily get into any variety of problematic areas on the Internet, from chat rooms to porno sites. Concerned parents and legislators may note that even a small percentage of objectionable Internet content should not preclude regulation. After all, although pornography, hate speech, etc., are only a small percentage of the total Internet, children can actively seek this content out. Unlike the real world where dirty magazines are stored behind the counter or placed behind blinder racks to prevent child access, there are few such barriers in cyberspace. Proponents of regulation argue that government enforced access controls are necessary to ensure that children do not wander into the "free-fire zones and red light districts of cyberspace" (Gore, 1999).

While this argument has some validity in a society in which children often grow up far too quickly, its implementation comes with a high cost. Due to the Internet's vast size and distributed nature, it is difficult to keep track of objectionable content subject to

government access restrictions. Software filters, or proxy servers that maintain lists of blocked sites, usually impose these restrictions. Artificial intelligence web spiders that classify content according to key words found in the text of a web page follow links and track the pages that fall inside or outside of the list boundaries. Unfortunately, these spiders have proved to be extremely context insensitive, blocking sites dealing with breast cancer and safe sex merely due to the presence of off-limits words. Such false positives create a situation where far more than the 3% of truly objectionable sites are blocked. Indeed, one study has concluded that filter software incorrectly blocks 21% of non-objectionable Internet content (Hunter, 1999). Such findings raise troubling societal questions.

Authorities throughout history have attempted, and often succeeded, in controlling access to information and various media. Yet, in most Western societies advocates of free speech have increasingly foiled these efforts. The value placed on unfettered access to information has resulted in fewer and fewer controls on speech content. The Web is a medium in its infancy. Like previous communication technologies, it has been used to disseminate pornography and violence of the most graphic kind. We postulate that, as with past technologies, time will show that the Web will be used in far more pedestrian and useful ways than we can possible predict. While pornography has been the cash cow of the Net to date, it will pale in comparison to the business to business uses that have already arisen, and will continue to arise in the future. Any use of legislation to regulate speech on the Internet will likely come into place too slowly to address the perceived issues and will be unable to address the international scope of Web content. Certainly, in

the future the technology of filtering will increase in its subtlety, but so to will the expert little fingers that desire to circumvent such filters.

In the meantime, parents rightly concern themselves about their children's access to the Web. What might one say to these concerned caregivers? The majority of parents, over 80%, in online households set limits on their children's use of the Internet and keep an eye on what the children do online. For such parents of children between the ages of 8 and 12, two-thirds do not allow their children to go online without a parent present (Turow, 1999). Currently, 32% of parents with online connections use filtering software. These parents have a solution of sorts already. These data suggest that parents, for the most part, are quite capable of minding their own children on the Internet. This finding is mirrored in the newspaper coverage of families and the Internet, where journalists placed the burden of addressing Web problems on the shoulders of parents. Certainly the less parents cede jurisdiction to government authorities, the better they will maintain control over their children in this and other potentially risky behaviors.

This study has addressed the history of concerns that arise when new communication technologies are introduced to the public. We have considered how print journalism inflames the fears of society about pornography, violence, and foul language on the Internet and how the agenda setting aspects of such press coverage correlate with the concerns of both parents and policymakers. Such concerns need to be tempered by the realization that the vast majority of web sites are benign and by the fact that parents, generally speaking, have the situation well in hand through their own supervisory powers and through their use of personal filtering software.

The debate will continue as to whether or not governments should move to block a significant percentage of non-objectionable and valuable content at the source in order to get at the much smaller percent of objectionable content. For now at least, the U.S. and Canada have concluded that this tradeoff is unacceptable. However, in light of continued negative press coverage of the Internet, public pressure may well lead to such an outcome.

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