Chapter I

Virtual Research Ethics: A Content Analysis of Surveys and Experiments Online

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ABSTRACT

This chapter presents a content analysis of Internet surveys and experiments. Our study explores guidelines for the conduct of online research by describing the extent to which psychological studies comply with Reips' (2000) recommendations for Web researchers. Our study also explores ethical considerations and problems in the conduct of virtual research by describing the extent to which behavioral studies on the Internet comply with ethical standards for research (American Psychological Association, 2003). The chapter concludes with a discussion of aspects of virtual research ethics pertinent to future participants, Internet scientists and institutional review boards.

"We need not invent new ethical rules for online research. We need only increase our awareness of and commitment to established ethical principles."
— Jim Thomas, 1999, p. 8

INTRODUCTION

This chapter reports on a content analysis of psychological research on the Internet. Our interest in studying how psychologists do surveys and experiments online derives from a professional involvement in both research and ethics. In the late 1990s, we became intrigued by other psychologists' use of the Internet as a tool for conducting research. At first we served as participants in some online surveys and experiments. Later we explored ways to implement our own research on the Web by talking to information technologists and by reading the scattered literature on Internet science.

Our experience as participants raised initial questions and concerns about virtual research ethics. For example, we participated in online studies that differed markedly with respect to inducements for research participation. Although some researchers paid all their participants and others employed a lottery or random drawing for monetary prizes, many Internet scientists provided no inducements other than an opportunity for the participants to contribute to science. A discussion with institutional review board (IRB) members initially revealed a genuine quandary about how participants, who should remain anonymous, could be paid. The IRB members also raised eyebrows when we asked about how students in the departmental pool could receive credit for participating in online research.

Our experience with information technologists prompted further questions and concerns about virtual research ethics. The individuals who were helping us implement our own studies on the Internet did not understand our concerns about informed consent and debriefing. In fact, they often seemed to regard these pages as blemishes on the face of an otherwise attractive website.

While we were participating in online studies and exploring how to implement our own surveys and experiments, we began to search the literature. We quickly learned that relevant articles appeared in rather diverse and scattered sources. We also learned that many articles about psychological research on the Internet focused on methodological issues. Nonetheless, we detected an emerging awareness and interest in virtual research ethics, the topic of this volume.

Our contribution to this volume is empirical and analytical. First, we provide the rationale and method for our content analysis of Internet surveys and experiments conducted by psychologists in the early months of 2002. Our study explores guidelines for the conduct of online research, a goal of this volume, by describing the extent to which psychological studies comply with Reips' (2000) recommendations for Web researchers. Our study also explores ethical considerations and problems in the conduct of virtual research, another goal of this volume, by describing the extent to which behavioral studies on the Internet comply with ethical standards for research (American Psychological Association (APA), 2003). Second, we analyze and interpret specific findings in terms of recent comments and developments in the current literature on Internet science. Finally, we discuss the more general aspects of virtual research ethics pertinent to future participants, Internet scientists and IRBs.

BACKGROUND

What a difference a decade makes in terms of technology and behavior in cyberspace. In the early 1990s, the Internet was virtually unknown to the general public and the

relatively exclusive province of academics and scientists (Musch & Reips, 2000). Within a few years the Internet evolved into the World Wide Web (Web) and began to attract more and more users. For example, one projection estimated 500 million "netizens" online in 2003. At present many people incorporate online activities into their daily routines and regard continuous, or 24/7, access to the Web as a necessity. The growing number of people and the incredible diversity of behavior in cyberspace also produced numerous opportunities for researchers in general and psychologists in particular. For example, researchers from different disciplines examined various aspects of online communities and other interactions in cyberspace (Jones, 1999). As early as 1995, clinical psychologists began to offer psychotherapy online and research psychologists began to conduct surveys and experiments online.

In the late 1990s, we became aware of the many ways psychologists used the Internet. As we examined the sites of online therapists and served as participants in Internet research, we soon realized that use of the Web by helping professionals for telehealth services and by social scientists for research raised a number of methodological and ethical questions. Quite predictably, the initial discussions regarding these methodological and ethical issues appeared in diverse and scattered sources. Below we review a portion of the literature that led to our content analysis of online surveys and experiments by psychologists.

An early article by Jones (1994) essentially defined the domain of virtual research ethics. Jones expressed doubt that the guidelines for traditional face-to-face research could be applied directly to online research. He pointed out that traditional guidelines for obtaining informed consent via paper-and-pencil procedures did not translate unequivocally into the domain of cyberspace. For example, one the ethical standards of the APA (2003) indicates that consent procedures must use language comprehensible to the participants. Although a recent article by Paasche-Orlow, Taylor and Brancati (2003) demonstrates that accomplishing this goal is difficult in face-to-face medical research, the problem is greater in online research. The practical problem is that the pool of online participants is potentially demographically, geographically and linguistically quite diverse. As an aside, Jones (1994) also posed an interesting question: What kind of Internet research activities would constitute a clear violation of professional ethics?

Hewson, Laurent and Vogel (1996) discussed the Internet as a tool for research. These authors argued that the Web was a way to gain access to participants for surveys and experiments. To this end the authors translated the prevailing methodological guidelines for face-to-face research into the domain of online research. For example, they advocated an indirect method in which researchers solicit participants who, in turn, must contact the researcher to participate in the study. The indirect approach resembles conventional procedures for recruiting face-to-face participants. The indirect method also contrasts markedly with the now dominant direct method in which researchers post their surveys and experiments on the Web. We note that these authors recommended the indirect approach on the basis of methodological, rather than ethical considerations. Moreover, Hewson et al. focused so much on methodological issues that they did not address ethical issues at all.

An article by Michalak and Szabo (1998) addressed both methodological and ethical issues in Internet research. These authors listed 30 guidelines for Internet researchers that were derived from an amalgamation of personal experience, general standards for research and the APA (1992) ethical standards regarding face-to-face research. For

example, they advised Internet researchers to encourage participation by offering a promise to disseminate findings or papers. Apparently, the issue of payment as an inducement for participation in Internet research is a controversial point. On one hand, the Department of Psychology at University of Calgary posted a policy statement regarding lotteries as participant remuneration ("Lotteries," 2000). This document notes that lotteries represent an alternative to paying all the participants; however, the practice should be used only after careful deliberation. An alternative perspective is that lotteries are a form of gambling and, therefore, are somewhat immoral and should be avoided— a sentiment expressed on the website for Jonathan Baron's questionnaires late in 2002. To be fair, this statement subsequently disappeared by February of 2003. Nonetheless, the issue of paying participants represented a genuine concern for Baron and Siepmann (2000), who devoted several pages to a discussion of this issue.

Eventually, new forums emerged for discussions about Internet research. The new forums included a new association and two new journals. For example, the Association of Internet Researchers formed in 1998 and CyberPsychology and Behavior and The Journal of Online Behavior published their first issues in 1999 and 2000, respectively.

One landmark event occurred in June 1999 when the American Association for the Advancement of Science (AAAS) convened a panel. The diverse panel included social, behavioral and computer scientists, representatives from the legal and ethics communities and members of IRBs. The panel addressed ethical issues entailed in empirically assessing the Internet as an instrument and medium for research. Frankel and Siang's (1999) report of the panels' proceedings examined issues regarding benefits and risks, informed consent, privacy and confidentiality and justice. For example, the report indicated that the survey was the most common form of Internet research. The report also indicated that online surveys potentially entailed more risks with regard to privacy and confidentiality than more traditional survey methods. Furthermore, the report considered issues such as informed consent in online studies like those raised by Jones (1994). For example, the report raised the question whether a mouse click to "I agree" is a valid counterpart to a signature when the age, competency and comprehension of the online participant are unknown. The report concluded with a statement of goals. In particular, their agenda for action called for studies of Internet research practices like our own.

The issues surrounding virtual research methods and ethics eventually were distilled and presented to the general audience of psychologists as emerging trends. For example, the *Monitor on Psychology* is a traditional forum exploring contemporary issues affecting the practice of psychologists that is read by many members of the APA. At first, reports in this publication focused on the novelty of research online (e.g., Bourke, 1998). Soon, however, a special issue focused on the various ways in which the Web was changing the complexion of contemporary psychology ("Psychology and the Internet," 2000). This special issue introduced readers to various aspects of online research in four articles. The first article ("A Web of Research," Azar, 2000a) reported methodological pros and cons of online surveys and experiments. The article ended with a list of tips for researchers who wanted to implement their own studies on the Internet. A second article ("A Web Experiment Sampler," Azar, 2000b) encouraged readers to examine and/or participate in online research by listing the Internet addresses for studies available as the special issue went to press. The third article ("Free of Charge, Open All Hours," Beans, 2002) described how an established online lab could be used for research by faculty and students in smaller psychology departments. The final article ("Online

Experiments: Ethically Fair or Foul," Azar, 2000c) specifically addressed issues of virtual research ethics. The later article noted that informed consent and debriefing pose new challenges for the ethically responsible conduct of research in online studies. Furthermore, the article indicated a new twist on the topic of virtual research ethics by delineating and discussing a potential risk to researchers. Quite simply, conducting a study online reveals a researcher's methods and procedures well in advance of publication and thereby provides an opportunity for intellectual piracy.

The domain of online behavioral research acquired a new status when psychologists started publishing books about online research. For example, Birnbaum (2000) published an edited volume about psychological experiments on the Internet and followed it the next year with a textbook (Birnbaum, 2001). Reips and Bosnjak (2001) contributed an international perspective regarding dimensions of Internet science. The content of all three volumes focused largely on methodological rather than ethical issues. For example, the term ethics does not appear in the index of the Reips and Bosnjak volume and the Birnbaum textbook devotes only two pages to a discussion of ethical review.

Several authors in the Birnbaum (2000) volume explicitly confronted ethical issues in their Internet research. Reips (2000) indicated that the public nature of Web experiments encourages compliance with ethical standards and further noted that the ethical regulations vary internationally. An example is that American and British institutions require a consent form for participants, whereas European institutions typically do not. Buchanan (2000) indicated that both practical and ethical considerations regarding test security and copyright issues influenced the choice of instruments in his online studies of personality. Mueller, Jacobsen and Schwarzer (2000) commented on some of the issues that arose when they tried to apply the paper-and-pencil informed consent procedures of face-to-face research to Internet studies. They recommended using brief consent forms and fostering a sense of anonymity by avoiding any requests for an e-mail address. The latter recommendation runs counter to the advice of Michalak and Szabo (1998). Moreover, Mueller et al. regarded clicking "I agree" as an acceptable analog to a signature and noted it was courteous to provide a debriefing statement after participants submit their responses to a survey. Finally, they opposed use of Reips' (2000) high barrier technique, a procedure aiming to produce early dropouts and ensure the participants who remain actually complete the study. As an aside, Mueller (1997) posted one of the earliest statements about ethical issues entailed in human participant research on the Internet. While we were preparing this chapter, our Internet searches for policy statements by institutions revealed many more colleges and universities now have guidelines in place for Internet research (see, for example, "Guidelines," 2002).

Our reading of the then current literature suggested two discernible trends. One trend was that behavioral researchers were soliciting participants for surveys, personality tests and experiments in ever increasing numbers. For example, Birnbaum (2001) indicated that the number of psychological studies on the Internet doubled from 1998 to 1999, and Azar (2000b) stated that this number doubled again from 1999 to 2000. Further evidence of this trend comes from an examination of a prominent gateway or portal to psychological surveys and experiments: the Psychological Research on the Net page of the American Psychological Society (APS) hosted by John Krantz at Hanover College. Early in 2002, the APS site listed 117 studies; however, one year later this number had grown by approximately 25 percent to 150 studies. The second trend was that the literature focused largely on how to do surveys and experiments on the Internet and

whether the results obtained in laboratory studies compared favorably with those obtained in Internet studies (Birnbaum, 2001, 2002; Reips & Bosnjak, 2001).

Despite these clear trends, what seemed to be missing was an empirical assessment of what Internet researchers were actually doing, both with regard to methodological and ethical practices. One noticeable exception was a survey of the first generation of Web researchers by Musch and Reips (2000). These authors surveyed online researchers who had conducted an experiment as opposed to a survey online. Interestingly, Musch and Reips (2000) said "ethical problems were not considered a problem by most Web experimenters" (p. 71). Later in the chapter, they addressed the issue of inducement for participation in Internet research. Musch and Reips (2000) reported 13 of 34 experiment-ers said they offered a monetary reward to participants. The studies included 10 lotteries with prizes ranging from $11 to $1,224, and three studies that paid every participant a sum from $6 to $15 dollars. In light of Baron's comment and the University of Calgary guidelines mentioned previously, one must wonder what the threshold is for deciding whether the chance for $1,224 in a lottery represents an ethically excessive inducement.

In the next section, we describe a content analysis of Internet surveys and experiments by psychologists. Specifically, we assessed how researchers conduct their studies online and also how well online researchers follow ethical guidelines. First, we used Reips (2000) list of recommendations for Web researchers to create a coding sheet that allows us to describe how psychologists conduct online surveys, personality tests and experiments. We used Reips' guidelines rather than those of Michalak and Szabo (1998) because the former guidelines were based on empirical analysis. It was also relatively easy to operationally define items that represented specific instances of the more general advice that Web researchers (a) create an attractive site, (b) emphasize the site's trustworthiness, (c) employ other features attractive to participants and (d) employ a high entrance barrier technique. Second, we used a draft of the pending version of what became the new APA (2003) ethics code to create a second coding sheet that allowed us to analyze and describe the extent to which these Internet researchers comply with fundamental ethical principles for research.

A CONTENT ANALYSIS OF PSYCHOLOGICAL RESEARCH ON THE NET
Sources

We identified 22 Internet labs or portals to surveys and experiments that were active in the early months of 2002. Table 1 lists the portals still active in February 2003 and the number of studies in our sample from each of these Internet labs. Originally, we located these sites by means of searching and linking. For example, we entered various key words (e.g., online experiments, psychological research) into search engines, such as Alta Vista, Google and Yahoo, that led us to many portals. In turn, these portals often provided links to other Internet labs. As we were preparing this chapter, we discovered some new gateways to online surveys and experiments.

Table 1: Number in Sample from Online Portals Active in 2003

10	Psychological Research on the Net http://psych.hanover.edu/research/exponnet.html
2	Yahoo Directory [for Tests and Experiments] http://dir.yahoo.com/Social_Science/Psychology/ Research/Tests_and_Experiments/
1	Psychological Science on the Net http://www.psychologicalscience.net/pages/Tests_-_ Research_Online/
2	Language Experiments: The Portal for Psychological … http://surf.to/experiments
3	Web Experimental Psychology Lab http://www.psych.unizh.ch/genpsy/Ulf/Lab/WebExp PsyLab.html
2	Decision Research Center http://psych.fullerton.edu/mbirnbaum/dec.htm
1	Current Online Experiments U of Saarland, Germany http://www.uni-saarland.de/fak5/ronald/home.htm
4	SE Missouri State University http://www4.semo.edu/snell/survey.htm
1	Trier Experimental Server http://cogpsy.uni-trier.de:8000/TEServ-e.html
1	Interactive CyberLab for Web Experiments http://we-by-jiro.net/english/exp/exp_e.shtml
2	Online Surveys http://www.psych-central.com/online1.htm
1	UCI Cognitive Science Experiments http://psiexp.ss.uci.edu/
3	University of Nebraska-Lincoln http://psych.unl.edu/psychlaw/research.asp
1	Leaf Experiment: U of Liverpool in England http://wwwcgi.liv.ac.uk/~rlawson/leafH/leafHex.html
1	Theoretical Social Psychology Experiment http://www.iit.edu/~reevkev/hard/
1	Jonathon Baron's Questionnaire Studies http://www.psych.upenn.edu/~baron/qs.html
1	Laughlab: United Kingdom http://www.laughlab.co.uk/home.html
4	Social Psychology Network http://www.socialpsychology.org/expts.htm#studies
2	Social Psychology Research on the Internet at USC http://www.usc.edu/dept/LAS/psychology/socialpsycexpt/

Materials

We created two coding sheets. Table 2 presents data obtained from the first coding sheet. To accommodate the format of this volume, we rephrased some of the labels and statements and also omitted the demographic items for the rater, date of participation, portal, research topic, research method, investigator and country of origin. This coding sheet used simple yes or no questions to evaluate compliance with Reips' (2000) recommendations for Web researchers to (a) create an attractive site, (b) emphasize the site's trustworthiness, (c) employ other features attractive to participants and (d) employ a high entrance barrier technique.

We adapted Reips' (2000, pp. 110-111) guidelines by devising three to eight items for each of the four categories in Table 2. For example, our operational definitions for compliance assessed whether the website: (a) is generally attractive (e.g., No or Yes: website is free of advertising such as commercial banners); (b) emphasizes its trustworthiness (e.g., website emphasizes its scientific purpose); (c) employs features attractive to participants (e.g., No or Yes: website provides a chance of prize or payment such as a fee or lottery) and (d) uses high entrance barrier technique (e.g., No or Yes: Instructions say participation is serious and/or science needs good data).

Table 3 presents data obtained from the second coding sheet. Once again, we rephrased some of the labels and statements to accommodate the format of this volume. Table 3 omits the four items assessing ethical standard 8.07 regarding deception in research because no online study reported use of any deception. This coding sheet also used simple yes or no questions to evaluate compliance with the APA's (2003) ethical principles of psychologists and code of conduct. As above, we devised one to 12 items to assess compliance with each of the following 12 ethical standards that seemed applicable to online research:

Table 2: Ranked Percent Compliance with Reips' (2000) Recommendations

%	**Website is generally attractive**
2	Site offers alternative versions of a study in formats such as frames, no frames, or text
10	Site offers multilingual pages
33	There are signs that site could be interesting such as awards or comments
84	Site looks good: nice graphics, good functions, fast loads
96	Site is free of advertising such as commercial banners

%	**Website emphasizes it trustworthiness**
22	There is an active link to the institutional Web page
39	Site offers more than one study
39	Site allows asking for information before doing study
67	Site emphasizes its scientific purpose
78	Site ensures (and keeps) confidentiality
88	Site provides name of researcher's institution
90	Site provides contact information: e-mail or phone number
96	Study conducted by an academic or non-profit institution

Table 2: (continued) Ranked Percent Compliance with Reips' (2000) Recommendations

%	Website employs other features to attract participants
16	Site provides a chance of prize/payment: fee or lottery
	If YES, 2 of 8 (25%) guarantee certain payment or prize
	If YES, 7 of 8 (88%) say completion required for gratuity
36	Site tells participants "how near finish" they are [n = 42]
43	Site design results in shorter load times for ensuing pages [n = 23]
%	**Website employs high entrance barrier technique**
8	Instructions say participant can be traced by Internet Protocol (IP) address or cookie
35	Study employs an experimental manipulation
37	Says participation is serious and/or science needs good data
37	Instructions warn about sensitive aspects or risks [n = 30]
41	Instructions promote credibility of researcher: Who am I?
43	Instructions "personalize" by asking for e-mail or phone
74	Instructions state how long the study will take to complete
84	Instructions say compliance and/or completion is a requirement for gratuity [n = 8]
88	Instructions provide institutional affiliation

- 2.01 Boundaries of Competence: two items;
- 3.06 Conflict of Interest: one item;
- 3.10 Informed Consent: four items;
- 4.01 Maintaining Confidentiality: three items;
- 6.01 Documentation of … Work, and Maintenance of Records: one item;
- 8.01 Institutional Approval: two items;
- 8.02 Informed Consent to Research: 12 items;
- 8.04 Client/Patient, Student and Subordinate Research Participants: one item;
- 8.05 Dispensing with Informed Consent for Research: one item;
- 8.06 Offering Inducements for Research Participation: one item;
- 8.07 Deception in Research: four items;
- 8.08 Debriefing: six items.

Procedure

Interrater Agreement. We evaluated our initial coding system and established interrater accuracy and reliability on several online studies. Initially, each of three raters independently evaluated the same studies for compliance with Reips' (2000) recommendations for Web researchers and for compliance with ethical standards for research (American Psychological Association, 2003). We discussed all disagreements and

Table 3: Ranked Percent Compliance with APA (2003) Ethical Standards

%	**2.01 Boundaries of Competence**
55	Site indicates the credentials (degree) of researcher/PI
57	Site provides a way to confirm these credentials easily
%	**3.06 Conflict of Interest**
2	Site declares any incentives or restrictions on publication
%	**3.10 Informed Consent**
22	Site permits asking a question at any point during study
45	Site states person must be 18 years old to participate
51	Site documents informed consent such as clicking: I Agree
63	Site permits asking questions before giving consent
%	**4.01 Maintaining Confidentiality**
19	Site says private and study data go in separate files [n = 21]
20	Study employs a secure site; a lock icon appears on site
45	Study asks for personal information: name, phone, e-mail
%	**6.01 Documentation of Professional … Records**
39	Site describes data creation, maintenance, and disposal
%	**8.01 Institutional Approval**
27	Site provides way to confirm IRB approval by means of a case number or link to IRB contact person
31	Site states that the host institution approved the study
%	**8.02 Informed Consent to Research**
4	Site encourages participant to print or save consent form
16	Site offers financial or other inducements for participation
20	Site states foreseeable consequences of declining to participate or withdrawing anytime during the study
31	Site identifies IRB contact for any questions about rights
31	Site makes it easy to reach IRB contact by e-mail/phone
43	Sites states procedures for and limits of confidentiality
45	Site indicates potential benefits to participants or others
55	Site says one can decline to participate/withdraw anytime
71	Site states foreseeable factors affecting willingness to participate: potential risks, discomfort, or adverse effects
74	Site describes the expected duration of the research
76	Sites describes the procedures used in the research
84	Site states requirements to receive/qualify for incentive
86	Site describes the purpose of the research

Table 3: (continued) Ranked Percent Compliance with APA (2003) Ethical Standards

%	**8.04 Student and Subordinate Research Participants**
5	Site allows students to meet requirement or get extra credit [n = 42]

%	**8.05 Dispensing With Informed Consent for Research**
29	Sites dispenses with informed consent on grounds that study is truly anonymous

%	**8.06 Offering Inducements for Research Participation**
100	Site avoids excessive or inappropriate inducements

%	**8.08 Debriefing**
27	Site gives references or links for more information on topic
29	Site tries to minimize harm: says who can help [n = 17]
33	Study ends abruptly (dead end) with nowhere to navigate
40	Debriefing provides appropriate information about the study either at its conclusion or indicates a date when this information will be e-mailed or posted on the Internet
54	Study gives debriefing statement at end of data collection
85	Contact person answers e-mail inquiry promptly [n = 13]

revised our coding sheets. Subsequently repeating this entire process produced the final coding system depicted in Tables 2 and 3 and demonstrated that interrater agreement was high (i.e., > 90 percent for all three pairs of raters).

   Content Analysis. The first author evaluated 19 sites, 12 of which were included in our sample, and the second author evaluated 26 sites, 18 of which were included in our sample. A third rater evaluated 14 sites, nine of which were included in our sample. Each rater surfed to a research portal, participated in one or more studies at each Internet lab or portal and then completed both coding sheets. In addition, each rater printed copies of all of the Web pages for archival purposes. Collectively, we evaluated 59 sites, 49 of which were unique and comprised our sample. Finally, our analysis of the 10 studies evaluated independently by two different raters revealed that we had maintained high levels of interrater accuracy and reliability during our content analysis of these online sites for surveys and experiments.

RESULTS AND DISCUSSION
Sample Demographics

   We identified the demographic characteristics of the online studies in our sample such as the country of origin, investigator, method and topic area (after the categories on the APS Psychological Research on the Net website: http://psych.hanover.edu/research/exponnet.html). We used N = 49 to calculate all of the percentages unless noted

otherwise. The majority of the online studies originated in the USA (55 percent) followed by Germany (10 percent), United Kingdom (10 percent) and Canada (8 percent). The majority of investigators posting studies identified themselves as university faculty (35 percent), undergraduates (27 percent) or graduate students (14 percent); however, we were unable to identify the remaining 24 percent of the Internet researchers. Online surveys (65 percent) outnumbered online experiments (35 percent). Finally, the online studies represented 12 different content areas: biological psychology/neuropsychology, cognition, developmental psychology, emotions, forensic psychology, general issues, health psychology, industrial/organizational, personality, psychology and religion, sensation and perception, and social psychology.

Although previous studies have focused on the demographic characteristics of the participants, our study is the first to report the demographic characteristics of the Internet researchers. We found that the majority of the Internet researchers are from the USA and Canada. Our result superficially resembles those of Krantz and Dalal (2000) who indicated that 80 percent to 90 percent of the participants for online studies in English say they are North Americans. Our finding that surveys outnumber experiments is consistent with the claim of the AAAS report that the survey is the most common form of Internet research (Frankel & Siang, 1999). Finally, our sample included a few studies from the various content areas; however, our sampling was not proportional to the number of studies available in each category. For example, in February 2003 the APS portal listed over 40 social psychology studies and only five industrial/organizational studies.

Compliance with Reips' (2000) Recommendations for Web Researchers

We evaluated compliance with Reips' (2000) recommendations for Web researchers to (a) create an attractive site, (b) emphasize the site's trustworthiness, (c) employ other features attractive to participants and (d) employ a high entrance barrier technique. Setting the threshold for compliance at 50 percent, we found that Internet surveys and experiment sites did not achieve the threshold for compliance on 15 of the 25 (60 percent) of recommendations. Table 2 describes "compliance" with Reips' suggestions within each of the four categories by ranking items from lowest to highest percent Yes scores. Overall, the studies complied most with the recommendation to emphasize trustworthiness and least with the recommendation to employ other features to attract participants.

Website is Generally Attractive. Three of the five recommendations about making the website attractive did not achieve the 50 percent threshold of compliance. The study sites produced low compliance with recommendations to provide alternative versions of a study (2 percent), offer multilingual pages (10 percent) and include awards and comments that signal the Web could be interesting (33 percent). These study sites achieved high compliance with recommendations to look nice in terms of graphics, functionality and loading quickly (84 percent) and avoid commercial advertising (96 percent).

The dominance of North American researchers who themselves speak English and use current technology may explain why so few Internet research sites either offer multilingual pages or provide alternative versions of their study. Moreover, sites that did

offer these amenities all originated in Europe. We seldom encountered commercial advertising. In one case, the website included a link (Amazon.com) to a book by the author, and in the other case the website included an advertisement for the foundation supporting the research.

Website Emphasizes its Trustworthiness. The online studies complied most with Reips' recommendations to emphasize the site's trustworthiness. Five of the eight recommendations in this category exceeded the 50 percent threshold of compliance. For example, the site indicated the study was a product of an academic or non-profit institution (96 percent), provided researcher contact information via e-mail or phone number (90 percent), named the researcher's institution (88 percent), ensured confidentiality (78 percent) and emphasized its scientific purpose (67 percent). On the other hand, the online studies produced low compliance with recommendations to ask for further information before doing the study (39 percent), offer more than one study (39 percent) and provide an active link to the institutional home page (22 percent).

Most of the higher scoring items reflect ethically appropriate activities; however, one exception pertains to allowing participants to ask questions before agreeing to do the study, an aspect of informed consent. Only a few sites offered a single study; however, a single study does not always indicate the site's trustworthiness. For example, Jonathan Baron offers a single study at a time; however, new studies appear at regular intervals. In addition, several online researchers, who previously listed a single study, have relocated their study to one of the larger portals such as the APS site or Reips' Web Experiment Psychology Lab.

Website Employs Other Features to Attract Participants. The online studies complied least with Reips' recommendations to employ other features to attract participants because all three items fell short of the 50 percent threshold for compliance. For example, the website provided a chance of prize or payment (16 percent), informed participants about how near they are to the finish (36 percent, where n = 42) and produced shorter loading times for successive pages (43 percent, where n = 23). Further examination of the eight studies offering any inducement revealed most employed a lottery (75 percent) and only 25 percent guaranteed a certain payment or prize for research participation. All but one of the eight studies (88 percent) clearly stated that participants had to complete the study to qualify for the gratuity.

Musch and Reips' (2000) survey revealed 13 of 34 (38 percent) of the experiments employed monetary incentives as opposed to 16 percent of our studies. Perhaps there is a systematic difference between experiments and surveys in this regard, and our lower percentage is influenced by the 2:1 ratio of surveys to experiments in our sample. Overwhelmingly, researchers preferred a lottery as a method for inducement for participation; however, two studies paid all the participants.

Website Employs High Entrance Barrier Technique. Six of the nine recommendations fell short of the 50 percent threshold for compliance. For example, the sampled studies indicated the participant could be traced by an Internet Protocol address or cookie (8 percent), employed an experimental manipulation (35 percent), stated participation is serious or science needs good data (37 percent), prepared the participant for any sensitive aspects of the study (37 percent where n = 30), promoted the credibility of the researcher (41 percent), and personalizes the study by asking for an e-mail address or phone number (43 percent). On the other hand, the sampled sites performed above

threshold by stating how long the study will take (74 percent), stating completion is required to qualify for a gratuity (84 percent where n = 8), and providing an institutional affiliation (88 percent).

The online studies in our sample did not appear to implement the high barrier technique. This outcome is consistent with the sentiments of Mueller et al. (2000) and again may reflect the predominance of surveys that typically require shorter time commitments. The use of this technique may be much more appropriate for experiments that take some time to complete.

Compliance with APA (2003) Ethical Standards

We evaluated compliance with 12 ethical standards applicable to virtual research (APA, 2003). Again setting the threshold for compliance at 50 percent, we found that Internet surveys and experiment sites did not achieve the threshold for compliance on 22 of the 35 (63 percent) items. Table 3 describes "compliance" with 11 ethical standards by ranking items from lowest to highest percent Yes scores. Overall, the studies complied most with the items measuring avoidance of deception and excessive inducements and least with the items assessing informed consent and debriefing. Note that Table 3 omits the four items pertaining Ethical Standard 8.08 (Deception in Research) because no online studies in our sample employed deception, and the three subsequent questions about such things as allowing deceived participants to withdraw their data were gratuitous.

Boundaries of Competence (2.01). Both items exceeded the 50 percent threshold for compliance. For example, 55 percent of the studies indicated the credentials of the researcher or principal investigator and 57 percent of the studies provided a way to confirm these credentials easily.

Although the online studies in our sample scored above the 50 percent threshold for compliance, the scores could and should be higher. Quite simply, Internet studies that indicate the credentials of the researcher and make them easy to confirm comply with Reips' recommendation to promote trustworthiness. Also, these simple measures avoid any hint of deception that may arise from the perception that the researcher is cloaked in anonymity (Frankel & Siang, 1999). Furthermore, presenting appropriate credentials distinguishes the research from commercial endeavors and indicates the scientific legitimacy of the study that may promote the public perception of psychology.

Conflict of Interest (3.06). The one item about declaring any conflicts of interest, such as financial incentives for the research or restrictions on publication, did not achieve the threshold for compliance (2 percent). One reason for this low compliance score may be that social scientists receive relatively fewer corporate grants for research, especially in comparison to the biomedical disciplines. Hence, Internet researchers feel little need to make a formal statement about conflict of interest. Nonetheless, the issue is important as evidenced by the recent "Statement" (n.d.) of the American Association of University Professors that discusses prominent cases and reviews potential hazards.

Informed Consent (3.10). Two of the four items fell short of the 50 percent threshold for compliance. The lower scoring items pertained to allowing participants to ask questions anytime (22 percent) and to stating that you must be 18 years old to participate (45 percent). The above threshold items included appropriately documenting consent by clicking: "I Agree" (51 percent) and allowing participants to ask questions before consenting to participate (63 percent).

Although it is technically possible to allow participants to ask questions at any time by restricting the availability of the study to the time when the Internet researcher is online (e.g., in a chat room), it would be difficult for studies that employ the direct method by posting their study on the Internet with an open invitation for anyone to participate (Hewson et al., 1996). A greater concern pertains to the age of participants. Nosek, Banaji and Greenwald (2002) discussed the issues of Internet research with children (under the age of 18 years old) and the more difficult issue of controlling participation in research not designed for children. To this end, they presented four strategies for minimizing the opportunity for children to participate in Internet studies. In addition, Nosek et al. advised Internet researchers to review the U.S. regulations regarding protection of the privacy of children under the age of 13.

We thought it noteworthy that only one-half of the studies in our sample formally documented consent (by clicking "I Agree"). In short, documentation of informed consent stands out as a focal issue especially when the age, competency and comprehension of the online participant is unknown (see Frankel & Siang, 1999). For example, the guidelines for conducting Web-based survey research from the University of New Hampshire ("Guidelines," 2002) specifically require Internet researchers to request the IRB waive the requirement for obtaining a signed consent from each participant (i.e., in order to use clicking on "I Agree").

Finally, many studies in our sample allowed participants to e-mail the researcher with questions before consenting to participate in the study. Unfortunately, we did not explore this option by systematically contacting researchers before participating in the study.

Maintaining Confidentiality (4.01). None of the three items achieved the 50 percent threshold for compliance. For example, personal information and responses will go into separate data files (19 percent, where n = 21); the study employs a secure site as indicated by a lock icon (20 percent) and the study asks for personal or private information such as name or phone number (45 percent).

Although psychologists are expected to protect confidential information, our results indicate considerable room for improvement. For example, Nosek et al. (2002) noted that one way to protect the privacy of online participants is to encrypt data; however, our results show use of a secure site to collect data is infrequent. These authors note that there are both more and less sophisticated and costly ways to effectively protect participant confidentiality. It is also discouraging to see that one-half of the studies that solicit personal information do not indicate that this information and the participant's responses will go into separate files. Nosek et al. also raised the important point that post-study interactions with participants pose problems with regard to confidentiality as well (see also Frankel & Siang, 1999).

Documentation of Professional and Scientific Work, and Maintenance of Records (6.01). The one item assessing whether the site states how the researcher will create, maintain and dispose of record and data fell short of the 50 percent threshold (39 percent). Nosek et al. (2002) noted that data stored on servers connected to the Internet pose more risks to the confidentiality of participants than data stored in locked file cabinets. Frankel and Siang (1999) noted that data disposal could be hazardous as well because erased material can often be recovered. The more general issue of the privacy of participants and security of data is an important one and one addressed at length in guidelines for Internet research (see, for example, "Guidelines," 2002). For example, this document specifically

lists 10 questions that Internet researchers should consider ask their Web host. The list includes questions such as "What security measures are in place to protect data during transmission from the browser to the Web server?" and "What are the organization's data storage and back-up policies and processes?"

Institutional Approval (8.01). Neither of the two items achieved the 50 percent threshold. For example, only 27 percent provided a way to confirm IRB approval by providing a case number or link, and only 31 percent actually stated that the host institution had approved the study. It is noteworthy that only one-third of the studies indicated institutional approval of the online study, a statement that would emphasize the trustworthiness and scientific merit of the study (Reips, 2000). There may be several explanations for these low scores. First, some Internet researchers contend Internet research is inherently innocuous and need not be reviewed (see ES 8.05 below about dispensing with informed consent). Second, our study included several European studies. As noted previously, ethical regulations vary internationally. For example, Elgesem (2002) noted that there is no ethical review of projects within the social sciences and the humanities in Norway. Finally, Internet researchers may have omitted this information inadvertently. On the other hand, we encountered one (medical) study during the development of our coding system that actually included a link to a readable copy of the IRB approval form. Furthermore, the majority of studies posted on the PSYCHEXPERIMENTS site (http://psychexps.olemiss.edu/) in February 2003 included a link to a copy of the IRB approval form.

Informed Consent to Research (8.02). Seven of the 13 items produced compliance scores below the 50 percent threshold. For example, only 4 percent of the online studies encouraged the participant to print or save the consent form, provided financial or other inducements to obtain participants, stated the foreseeable consequences of declining to participate or withdrawing anytime (20 percent), identified the IRB contact person for any questions (31 percent), made it easy to reach the IRB contact by providing an e-mail link or phone number (31 percent), stated the procedures for and limits of confidentiality (43 percent) and described potential benefits to participants or others (45 percent). Alternatively, the online studies exceeded the threshold for compliance by saying one can decline to participate or withdraw anytime (55 percent) and describing foreseeable factors affecting the willingness to participate (71 percent), the expected duration of the research (74 percent), the procedures to be used in the research (76 percent), requirements to receive or qualify for an incentive for participation (84 percent, where n = 8) and the purpose of the research (86 percent).

Appendix B in the guidelines for conducting Web-based survey research from the University of New Hampshire "Guidelines" (2002) provides a template for informed consent that incorporates all 12 of our items. To the extent the New Hampshire guidelines represent the emerging trend, we would expect much higher compliance scores on all of these items in future Internet studies.

The virtual research ethics literature revealed various concerns regarding the process of informed consent; however, one special concern is the extent to which virtual research participants fully comprehend the details of the research to which they are consenting to participate. The more general concern is heightened both in the case of medical research (Paasche-Orlow et al., 2003) and online (therapeutic) intervention research (Childress & Asamen, 1998). Recent articles have proposed some interesting

solutions. For example, Nosek et al. (2002) indicated that consent forms could benefit from inclusion of FAQs (frequently asked questions) that anticipate potential questions and concerns. Stanton and Rogelberg (2001) suggested the use of streaming video in place of traditional text. The idea is that the video will engage the attention and interest of online participants and thereby better inform participants. Stanton and Rogelberg also suggested use of "quiz" items that participants must answer correctly (to indicate their comprehension) in order to gain access to the actual study materials. In fact, we encountered such quizzes in a couple of the studies in our sample.

Client/Patient, Student and Subordinate Research Participants (8.04). Only 5 percent of the studies (where n = 42) indicated that the site allowed students to meet a course requirement or get extra credit for participation. On one hand, the low scores on this item are surprising given that about one-half of the researchers were faculty or graduate students who previously might have recruited participants from institutional subject pools. On the other hand, the researchers may explicitly seek a more demographically diverse sample.

We wonder whether the rise of Internet studies will have some negative impact on institutional participant pools. We have encountered two solutions to the problem of giving students credit for participation in research. On the one hand, we recently learned about a study that allowed students to print a page documenting their participation in an online study as part of the debriefing procedure. On the other hand, we also encountered a more secure solution (i.e., one not so amenable to counterfeit certificates of participation). One commercial site for Internet research advertises that it can handle "extra credit" for subject pools. Moreover, the Web master at personality/science.org (http://www.personalityscience.org/csh/PSO.nsf/about) collaborated with the IRB at the University of Minnesota in the development of this Internet site, and it certainly represents a model for others who aspire to comply ethically. Unfortunately, there were no studies were available at this site during our period of data collection.

Dispensing with Informed Consent for Research (8.05). About 29 percent of the sites included a statement that the study could dispense with informed consent because it entailed a truly anonymous survey. Further analysis revealed two things about the studies in our sample that dispensed with informed consent. First, 11 studies were surveys and three were experiments. Second, nine of the 14 studies in our sample involved investigators who were faculty or graduate students and only two involved undergraduates. The status of the remaining three investigators was unknown.

Offering Inducement for Research Participation (8.06). The one item determining whether the online studies avoided excessive or inappropriate inducements to obtain participants produced 100 percent compliance. In our sample, eight studies provided some form of financial incentive, and none seemed excessive. Participants received a certain payment in two studies ($3 in one study and $8 in the other) and entry into a random drawing for a larger sum ranging from $10 to $500 in six studies. One study actually paid all participants and awarded an additional $25 to a single participant. In some cases, the odds were clear: one participant of the 200 participants would receive $200. In other cases, both the odds and payment were uncertain. For example, a random process determines whether a payment of $500 goes to an individual or whether the same $500 goes in various sums to 19 different individuals (i.e., one at $100, three at $50, six at $25 and 10 at $10).

Our results resemble those of Musch and Reips (2000). They reported 13 of 34 studies entailed payments to participants: 10 studies with lotteries offering $11 to $1,224 and three studies that paid all participants a sum from $6 to $15. Clearly, the range of payments to all participants are comparable; however, the lottery for $1,224 is much larger than any one we encountered and again raises the question regarding the threshold for deciding whether the chance for $1,224 in a lottery represents an ethically excessive inducement. The random drawings in our sample generally conformed to the policy statement about use of lotteries for payment of participants mandated by the Department of Psychology at the University of Calgary ("Lotteries," 2000). They mandated that informed consent procedures must include:

- A clear statement of the amount of the reward(s) involved;
- A statement of the exact odds of a participant actually winning;
- A clear timetable of the draw(s);
- A clear description of the actual process of selection and
- An indication of exactly how and when payment will be made

Debriefing (8.08). Four of the six items fell short of the 50 percent threshold for compliance. For example, the low scoring items included providing references or links for more information on the topic (27 percent), taking steps to minimize the harmful impact of procedures by saying who can help (29 percent, where n = 17), ending abruptly in a dead-end with nowhere to navigate (33 percent), debriefing that provides appropriate information about the study either at its conclusion or that indicates a date when this information will be e-mailed or posted on the Internet (40 percent). The above threshold items entailed providing a debriefing statement at the conclusion of the data collection (54 percent) and a contact person who responded to inquiry by e-mail in a timely manner (85 percent, where n = 13).

In many studies in our sample, the debriefing procedures were dismal. Quite simply, only about one-half of the studies even provided a debriefing statement, and one in every three studies ended abruptly and required closing and reopening the browser. Furthermore, most of the debriefing statements were cursory. We were not surprised by these results. First, our original interest in virtual research ethics was prompted, in part, by similar experiences during our informal period of participation in online research. Second, the early literature regarding Internet research ethics said little about debriefing. Third, Musch and Reips (2000) indicated that their online experimenters answered the question regarding feedback about the design of the experiment by saying: "About half of the experiments conveyed the experimental design to the participants, either immediately after participation (four) or with some temporal delay (12). Participants in 18 experiments were not informed abut the design of the study in which they participated" (p. 81).

The current trend is toward much greater emphasis on more thorough debriefing procedures. This is markedly different from the view of Mueller et al. (2000) who said that it was a matter of simple courtesy to provide a debriefing statement after participants submit their responses to a survey. For example, the guidelines for conducting Web-based survey research from the University of New Hampshire's "Guidelines" (2002) mandated:

"Researchers should provide feedback (debriefing) to participants at the end of the survey. Effective feedback should: acknowledge participation, thank participants, sum up the purpose of the research, provide participants with instructions to request results (if applicable), relay any special instructions, provide hyperlinks to Web pages containing related information and provide an e-mail link to the researcher(s) in case of any questions. To ensure that after reading the debriefing information participants want to keep their submitted responses as part of the data file, researchers can present participants with options to either keep in, or remove from the data file their responses before exiting the site" (p. 2).

Recent articles (e.g., Nosek et al., 2002; Stanton & Rogelberg, 2001) specifically address additional concerns about Internet debriefings. For example, both articles note that participants can opt out of an online study without reading the debriefing. Furthermore, no experimenter is there to help in the case of either confusion or adverse reactions of the participants who complete the study. The latter concern is heightened in the case of online (therapeutic) intervention research (Childress & Asamen, 1998). Both articles listed several options for Internet researchers to enable debriefing even if participants withdraw early from the study. Suggestions included: (a) e-mailing debriefing statements, (b) use of a "leave the study" button on every Web page that directs participants to the debriefing materials and (c) programming that overrides closing the browser prematurely. Stanton and Rogelberg (2001) also proposed use of FAQs and multimedia, such as streaming video, to better engage participants in the debriefing process and even limiting the time that the research was available online to a time when the researcher could be available in a chat room to address concerns or answer questions.

Recent guidelines for Internet research (see, for example, "Guidelines," 2002) also forcefully address the issue of debriefing in online studies. For example, the "Ethics Handbook for Psychology Students" at http://www.psych.ucalgary.ca/Research/ethics/apply/handbook.doc emphasizes the importance of meaningful educational gains for participants, apparently in response to skepticism from the university community regarding the value of participation in research by students. Specifically, this document calls for face-to-face interaction with participants (a) outlining the aspects of your content area, (b) answering participant questions and (c) discussing the study and how it relates to the content. A similar emphasis is apparent in the guidelines for Internet research in the "Guidelines" from the University of New Hampshire (2002). Appendix C provides an example for a substantive Debriefing Sheet for Internet surveys. Furthermore, the debriefing sheet says: "Click here if you have read this information and want to keep your responses to the survey" as opposed to "Click here if you have read this information and want to remove your responses from the data file." No studies in our sample allowed participants to remove the data after the debriefing. In fact, submitting the data always preceded any debriefing.

One obvious question is why Internet researchers do a less than adequate job of debriefing their participants? First, we speculate that the researchers believe the details of their study are transparent and require little further explanation. That is, researchers are egocentric and fail to realize that their participants are not immersed in the culture of psychology. Second, Internet researchers do not think about the value-added aspects of participation in research that may encourage participants in their study to return in the

future. Perhaps, Internet researchers should regard participants as a renewable resource rather than as a limited commodity. In short, psychologists must realize that the prospects for future research may be limited if the growth in the number of individuals who will participate in research does not exceed the growth in the number of Internet researchers.

FUTURE TRENDS AND CONCLUSION

We have reported the methods and findings for our content analysis of Internet surveys and experiments by psychologists. In review, we have described the extent to which psychological studies comply with Reips' (2000) recommendations for Web researchers and the extent to which behavioral studies on the Internet comply with ethical standards for research (APA, 2003).

We are confident about our findings even though our sample of online psychology studies is not exhaustive. First, our method was sound because our coding system was simple, and we established high levels of interrater agreement prior to the study and maintained them during the study. Second, our sample represented a relatively generous proportion of the Internet studies available during our period of data collection, even though the absolute number of studies in our sample may appear small. Third, our results resemble those from prior studies whenever we have comparative data. On the other hand, we acknowledge some limitations with regard to our methods and conclusions. Our sample did not include studies that either target specific populations or employ psychotherapeutic Internet interventions (see Childress & Asamen, 1998); however, these studies should comprise only a small portion of those online at any one time. In addition, our sample did not include any studies from PSYCHEXPERIMENTS (http://psychexps.olemiss.edu/), a site that listed nine studies in February 2003. Despite attempts to access these studies by different coders from different computers, we repeatedly encountered problems with incompatible software. Finally, we neglected to examine compliance with ethical guidelines regarding assessment issues such as the use of obsolete tests and test security.

In the previous section we presented and discussed our results in the narrower context of specific recommendations for Web researchers and compliance with specific ethical standards. In the remainder of the chapter, we address emerging trends and larger issues pertinent to online participants, Internet scientists and IRBs.

Participants

In addition to other advantages of Web research (Reips, 2000), Internet researchers benefit from easy access to a large number of demographically diverse participants and online participants benefit from easy access to surveys and experiments. In some sense, the motivation for online researchers is much more apparent than the motivation for online participants. We forecast two trends with respect to participants in the next decade. One trend will entail much greater interest in the psychology of participation (Buchanan, 2000). The second trend will focus on the rights of online participants.

To date the literature on the psychology of participation in Internet research is sparse. For example, Buchanan (2000) reported the results from two experiments in which participants explain why they were subjects. Some 45 percent of the participants

indicated that they were "curious or interested" or "enjoy tests or surveys" and only 9 percent indicated they were "helping research." Other evidence indicates that participants appear to be motivated by monetary compensation. For example, Musch and Reips (2000) indicated significantly more participants completed studies that offered an individual payment or lotteries as opposed to no monetary compensation. In addition, offering financial incentives tended to generate higher rates of participation than in ones with no monetary compensation.

A couple of studies in our sample included questions related to the psychology of participation. One study assessed participants' agreement with items such as:

- I am interested in the subject matter of this study.
- I am participating in this study for the chance to win money.
- It is important to help researchers conducting psychological experiments.

Another study asked participants:

- Did you enjoy filling out the questionnaire?
- In the future, would you like to participate in another study?
- To what degree do you think your answers are anonymous?
- How would you rate the seriousness of your submission (i.e., you gave honest answers)?

Future Internet researchers should consider including items like these as well as items asking about participants' online research history.

The second trend concerns the rights of online participants. In our introduction we noted that Jones (1994) posed the rhetorical question: What kind of Internet research activities would constitute a clear violation of professional ethics? Although our study identified various shortcomings with respect to compliance with ethical standards in virtual research, we do not regard these as clear violations as much as they are a product of the newness of Internet research. On the other hand, an important question is whether these shortcomings affect participants adversely. We do know that despite good intentions and the researchers' best efforts, harm can be done to participants in Internet research (Bier, Sherblom, & Gallo, 1996). What we do not know is how online subjects balance a sense of increased empowerment and ownership from participation (Buchanan, 2000) from a sense of exploitation and irritation produced by inadequate and uninformative debriefings, studies that terminate in dead ends and "oversampling." The later concept refers to the resistance to responding within organizations to a request to complete another survey that eventually may spread to and through the Web (Stanton & Rogelberg, 2001). The benefit of empowering participants is that they may return and contribute to other studies in the future whereas the liability of irritating participants is that they will not return and may also discourage others from participation in online research in the future. It is important to note that the issue of participation in future online studies is quite different from the methodological concern widely discussed in the literature regarding participants who do the same study more than once (e.g., Buchanan, 2000; Reips, 2000).

The practical problem is how to make online participants proactive and encourage them to ask questions if they do not have adequate information and speak up if they feel

exploited. Perhaps, there is a need for an online participants' bill of rights (Stanton & Rogelberg, 2001). According to these researchers, "This bill of rights would promote norms concerning what online research participants can expect and demand from researchers who seek their participation. These norms would pertain to the whole networked research experience—from receiving solicitation all the way to obtaining reports of the research results" (p. 213). Although Stanton and Rogelberg did not provide any details, Internet researchers might find a useful starting point in the bill of rights developed by Rogers (1996). Perhaps such a bill will garner support from an Internet counterpart to the Alliance for Human Research Participation (http://www.researchprotection.org/). This organization represents lay people and professionals dedicated to advancing responsible and ethical medical research practices, to ensuring protection of the human rights, dignity and welfare of human participants and to minimizing the risks associated with such endeavors. In preparing this chapter, our search revealed several universities that incorporate bills of rights into the process of face-to-face research. For example, the University of California at Davis posted its Experimental Subjects Bill of Rights online (http://ovcr.ucdavis.edu/Forms/hs/BillofRightsSocialBehaviorStu dies.PDF). It is also noteworthy that this document states California law requires researchers to provide participants with a bill of rights and also to obtain a signature on both the bill of rights and the informed consent form. Future online researchers may have to provide a bill of rights to their online participants as well.

Internet Scientists

Our own results and reading of the literature lead us to forecast two trends with respect to Internet scientists or online researchers. One trend is that many Internet scientists will face much greater regulation and scrutiny with regard to all online research studies in the future. The second trend is that Internet scientists as a matter of necessity will become public relations agents.

Most Internet researchers in the future will have to deal with more regulation and scrutiny than the initial cohorts of online researchers. In fact, the initial generations of Internet researchers have had it relatively easy because IRBs have had more questions than answers about online research. For example, we must remember that inquiries and uncertainty about research in cyberspace on the part of IRBs was one driving forces that led the AAAS to convene its panel in June 1999. Since that time, associations such as the Association of Internet Researchers (2003) and institutions such as the University of New Hampshire have implemented specific guidelines for Internet research ("Guidelines," 2002). Other institutions will implement guidelines of their own that will increase the demands on Internet researchers. As an example noted before, the University of New Hampshire specifically requires Internet researchers to request the IRB to waive the requirement for obtaining a signed consent from each participant (i.e., the clicking on "I Agree" as a way to document informed consent). In the previous section we described recent developments regarding bills of rights for research participants. Will it be long before IRBs require Internet researchers to distribute a bill of rights to participants? The common advice for Web researchers to keep their informed consent pages short to minimize putting off participants may no longer be an option. On the other hand, online researchers may be able to employ intrinsically more entertaining methods for their

informed consent and debriefing procedures such as the use of video streams discussed above.

Internet researchers will also become public relations agents who reconsider their views about participants. The emphasis here is both ethical in the sense of promoting and protecting the dignity of research participants as well as practical in the sense of recruiting new and experienced subjects to share among the growing number of Internet studies.

Stanton and Rogelberg (2001) argued that researchers must treat Internet research participants as a finite and depletable resource. Furthermore, they stated "the potential for overuse of participant resources argues for some type of networked research consortium. Such a consortium could provide a similar project registry function, but this could be paired with guidelines and assistance to help researchers avoid alienating potential research participants" (p. 213).

What we have here is an instance of the tragedy of the commons (Hardin, 1968). Hardin described the common as a grazing area that belongs to a community. Herders can graze a few cattle or sheep, and everyone in the community benefits from the common resource. The practical problem is that as soon as too many herders assert their individual interests, they will overgraze the common and render it unusable by anyone. In preparing this chapter, a quick search of the Internet revealed that others had applied the concept of the tragedy of the commons to other instance of behavior in cyberspace. For example, Howard Rheingold illustrated an online commons that was violated by lawyers who "spammed" every online newsgroup with advertising for their services (http://www.well.com/user/hlr/tomorrow/tomorrowcommons.html). Clearly, future Internet researchers must recognize that the population of online participants may be another instance of a commons that we must maintain and nurture rather than exploit for individual or scientific gain.

IRBs

The results of our content analysis and review of the contemporary literature have implications for IRBs. For example, our results provide norms regarding current online surveys and experiments and a baseline for evaluating future proposals for online research. We forecast two trends with regard to IRBs in the next decade. One trend is that IRB will face more proposals for online research. As noted previously, there is a steady increase in the number of Internet surveys and experiments from year to year. Thus, IRBs will have more proposals to consider. The second trend is that IRBs will devote more attention to the various issues raised by this chapter and this volume. In the discussion above, we have identified a number of proposals and procedures that IRBs may need to consider as they evaluate online research proposals. For example, IRBs may decide to establish their own guidelines specific to Internet research such as those of the University of New Hampshire. In addition, IRBs may have to take a stand on specific practices such as clicking on "I Agree" as an acceptable alternative to a signature on the informed consent. Finally, IRBs may consider the wisdom of adopting guidelines pertaining to a bill of rights for participants in both face-to-face as well as online research.

Ideally, IRBs and researchers should be partners in the effort to protect the welfare of human research participants. Nonetheless, the prospect of greater regulation of

Internet research is daunting to online researchers who may believe that bill of rights, longer instructions and informed consent documents with quizzes may turn off participants. In other words, procedures put in place to protect human participants may in fact deter them from participating in online surveys and experiments either at the moment or ever again. In sum, there may be a delicate balance between protecting and alienating online participants, both in the short term as well as the long term.

We opened the chapter with a quote from Jim Thomas (1999) that indicated online research requires a commitment to established principles rather than the invention of new ethical rules. We concur and hope that Internet researchers and IRBs can work together to this end.

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