

Foreword

The Internet has become a part of the research process. Many younger scholars who use the Internet to do research, whose graduate studies commenced after the Internet diffused to universities, barely know of the research processes, controversies, and problems that preceded the Net. Sometimes this is a great loss: Many methodological and ethical issues that now appear to be Internet-related were addressed in the long pre-Internet era, and elude the Internet-native generation. Many more senior researchers whose foci do not involve Internet-based phenomena must think creatively, and no less skeptically, whether there are sampling, stimulus presentation, or instrumentation advantages that online techniques can offer that will economize, enhance, or extend what they can do with traditional media and data-gathering methods (see Watt, 1999). Internet-enabled research, whether it focuses on Net-related or unrelated phenomena, offers great advantages and abilities but, which methods and which measures? What have others done that can be replicated, co-opted, or remodeled? The *Handbook of Research on Electronic Surveys and Measurements* will help researchers sort out the otherwise confusing and disparate approaches that have been and could be used to get useful data.

Electronically supported research methods can and do focus on at least four domains, each with its own methodological genre and issues.

Online measures about off-line phenomena. Much attention has been paid to methods of facilitating research using online resources when the focus of the research has nothing topically related to the Internet. In this domain, the Internet is a medium only, taking its place among slide projectors, telephones, and print questionnaires. These include Web-based questionnaire forms, computer interfaces that measure reaction times to different stimuli, eye-tracking sensors, and other adaptations. Research is accruing that evaluates whether new interfaces introduce new errors; whether electronic interfaces remove systematic distortions (e.g., they encourage greater disclosiveness and reduce social desirability biases; Richman, Kiesler, Weisband, & Drasgow, 1999), or whether they encourage more mindless, response set repetitions. These are critical questions. It is clear, however, that such systems facilitate research, removing the steps between raw information acquisition and data entry into statistical analysis formats. That step is not merely a temporal and financial cost; manual data entry also involves potential transcription error. Their economic efficiencies and ease of use cannot be doubted.

Online measures about online phenomena. Online transactions have created a host of sufficiently novel behavior that occurs in no other venue the way it occurs online; demanding methods to evaluate it. We educated ourselves very quickly that inferences about Web site visitation from Web site “hit” data are fraught with validity and reliability error, but we have learned just as quickly to treat clickstream data carefully, and sometimes in controlled experimental ways, to suit novel hypotheses. Studying how

Web sites link to one another has opened up not only new methods of search-engine design, but vast sociometries of association and identification. Studying basic email and discussion boards yields new artifacts to analyze, from the use and meaning of emoticons, to sensitivity, to time stamps. How people respond to rule violations in virtual communities tells us not only about these important species of human behavior, but about rules, communities, and behavior writ large.

Online measures about online variations. The field of human computer interaction (HCI) has moved from analyzing single-user human-factors-type usability to discovering how to facilitate social interaction, feedback systems, the utility of notifications about others' behaviors, and ways to monitor various systems', transactions', and partners' progress in interdependent activities. The experimental approach that HCI has long used has become a mainstay in testing alternative site designs, evaluating users' responses, and evaluating different versions of information provision, in fields ranging widely from virtual libraries to community health applications. Retrospective research, data-mining, and triangulation allow experts to learn why some online services work whereas others do not, and new research methods allow strong conclusions to be made without resort to armchair speculation or coolness judgments.

Online measures about online action. In the words of Zuboff (1988), when you automate, you informate: electronic methods to facilitate users' behavior have built-in methods to track those behaviors, and whether the tracking of those behaviors is for good or for bad is not inherent. While marketers develop sophisticated methods to measure and use the crumbs we leave behind on our travels through the Internet forest, the measurement of presence and associations, messaging and replying, offers researchers potential profiles about people's concerns and social structures through stark empirical glimpses. Ten-years ago we viewed estimates of Usenet news readership, to learn among other things that 8,100 people used presumably uncooperative hands to read the arthritis online support group (Reid, 1995). Now, Microsoft's experimental Netscan tool (<http://netscan.research.microsoft.com>) shows us not only that alt.support.arthritis had 147 different writers last month (as well as every other Usenet newsgroup), that they generated 1,258 messages altogether, 1,104 of which were replies; we can see who are the central contributors, what kinds of questions and answers have online longevity, and a host of other extrapolations from innocuous user activity. We may learn more about what online discussion groups really do for people—rather, what people do for people when they share with one another online—as new methods to harness data are slowly caught up with by new ways to make sense of the traces people inadvertently leave. (We could crudely estimate gender ratios if we wished, on the basis of posters' names, since in many cases, those show, too.)

As new phenomena and new techniques have developed, there have been missteps and concerns. For instance, in taking advantage of the low-cost, high-volume potential of a Web-based survey offered to any and all takers, Internet Addiction researchers posed exceedingly lengthy questionnaires online, with exhaustive new scales, personality measures, and concurrent validity measures for comparison. It may be no surprise that a large proportion of those who completed the voluntary, hour-long questionnaire revealed high scores on compulsive Internet use. Unfortunately, these most probably skewed samples were extrapolated to the whole Internet-using population, making good headlines if not good science.

Other concerns have arisen about the ethics of research that new techniques and new behaviors enable. For instance, it has been questioned whether a researcher really knows if a research participant, contacted only via the Internet, understands informed consent information without the traditional oral and handwritten agreement, and perhaps the head nod, that accompany face-to-face interviews (as if these artifacts actually guarantee understanding; see Walther, 2002). What of the case that many participants in virtual communities believe that researchers should not be privy—indeed have no right-to read,

analyze, and above all reproduce the comments they exchanged in the seemingly confidential spaces of their virtual fora (Hudson & Bruckman, 2004) despite the fact that many of the very spaces they inhabit are, by design, publicly and openly accessible. Virtual communities simply would not work were people not privy to the Internetworked storage and reproduction of those very comments. U.S. law appears to allow researchers the use of such things (Jacobson, 1999), so it is not a matter of researchers' rights, but it is an emotional issue where, right or wrong, researchers must tread carefully.

New, online methods for old behaviors; new methods for new behaviors; measures assessing online presence and activity; and comparative methods, are different species of research approaches, and these four types merely scratch the surface of what is known and what is to be developed in exploring the online world. In this respect, *The Handbook of Research on Electronic Surveys and Measurements* is more than needed, as are the theories and revelations these methods will help us illuminate.

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