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Online Survey Research: Benefits and Limitations

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Abstract

Internet-based survey research is a practical option for social science researchers to administer low-cost and convenient questionnaires to various populations. In order to effectively serve these populations, researchers must consider the benefits, limitations, and implications for using this form of data collection. A comprehensive review of online survey research was conducted, which included the strengths of online data collection and areas for consideration. Convenience, flexibility, and ease of administration were identified as advantages of online survey collection, while low response rates and issues involving sampling bias and representativeness were reported as limitations. Implications for practical application of online surveys are noted.

Online Survey Research: Benefits and Limitations

The Internet has served as a resource to conduct social science research; often, this takes place through the distribution of surveys or questionnaires (Sax, Gilmartin, & Bryant, 2003; Van Selm & Jankowski, 2006). Granello and Wheaton (2004) reported that Internet-based surveys are appealing to professionals and researchers due to reduced response time from survey participants. Other advantages of online survey research include convenience in use, low administration cost, flexibility in survey design, and the ability to obtain a large sample (Couper, Kapteyn, Schonlau, & Winter, 2007; Evans & Mathur, 2005; Granello & Wheaton; Sax et al.). Van Selm and Jankowski stated that online survey research could be advantageous in terms of possible anonymity, as respondents who may be difficult to recruit in-person may feel safer disclosing their feelings or opinions from the comfort and privacy of their home environments.

Granello and Wheaton (2004) validated how Internet-based research is useful to locate hard-to-find respondents, as well as persons with potential mental health issues who have not yet sought treatment. However, there are several limitations to online survey research, including technical difficulties (Granello & Wheaton), poor survey design (Dillman, Tortora, Conradt, & Bowker, 1998), and respondents' lack of online experience (Evans & Mathur, 2005). Another concern is problematic response rate, as there are conflicting views regarding whether or not online surveys generate higher response rates than surveys sent through postal mail. Evans and Mathur reported that low response rate is a concern of Internet-based surveys. Additionally, Granello and Wheaton posited that it is difficult to know actual response rates of online surveys unless a sampling method is used that allows a certain number of participants to access the survey. Sampling bias in online surveys also is a reported concern, as Van Selm and Jankowski (2006) noted that Internet-based surveys should be reserved for "studies among non-probability

samples" (p. 439). These surveys are not representative for the total population of persons who use the Internet; however, these types of samples may be representative for subgroups within the total population (Van Selm & Jankowski).

As both sampling bias and nonrepresentativeness are among the reported concerns of Internet-based survey research, researchers must ensure that all members of a carefully defined population have access to online surveys as well as the necessary technological components (Dillman et al., 1998; Granello & Wheaton, 2004). Moreover, researchers should consider the current literature regarding Internet-based survey research and the benefits, limitations, and implications of this popular form of data collection. In this literature review, these issues will be addressed concomitantly with how participant response rates are affected by online data collection.

Benefits of Online Survey Research

Evans and Mathur (2005) addressed the strengths and potential weaknesses of Internet-based survey research. One of the most evident strengths includes the ability to access online surveys, as the number of Internet users continues to increase (Evans & Mathur; Pealer & Weiler, 2003). Another strength includes a reduction in response time (Evans & Mathur; Granello & Wheaton, 2004), as surveys that are distributed and returned through the Internet are not delayed by the "snail mail" process (Vaux & Briggs, 2006, p. 187). Shortened response time may be an asset to researchers who are concerned about the timeliness of survey response, as it can assist in following up with participants who have not yet responded. Evans and Mathur reported that with online surveys, researchers are more likely to send out follow-up notices by electronic mail (e-mail), which may assist in generating higher response rates. The convenience of e-mail and online surveys are helpful to both researchers and participants, as Internet-based

surveys can be completed during participants' leisure time (Sax et al., 2003). Respondents also could find online surveys to be interesting, especially if questionnaires are interactive in nature (Sax et al.). For example, surveys may be tailored to individual respondents depending on the answers they choose (Evans & Mathur). Online surveys also can have an added benefit in requiring respondents to complete all answers prior to survey submission (Evans & Mathur).

The technological capabilities within Internet-based surveys also can simplify data collection and control for duplicate responses. Alreck and Settle (2004) reported that online survey programs assist researchers in screening potential respondents either before or after survey completion; if respondents do not meet certain qualifications or criteria, their responses can be discarded by the researcher. Efforts to control duplicate responses in online survey research include (a) limiting the number of responses per Internet protocol (IP) address, as each computer has a different address; (b) giving potential participants unique URL codes to ensure individual participation; and (c) distributing individual passwords to participants in order to limit their submissions (Alreck & Settle).

There are different levels of online survey technology to meet the needs of different populations (Evans & Mathur, 2005), and numerous possibilities for creating and implementing online surveys. Software applications such as Survey Pro, Survey Monkey, and iResearch vary in price, ease of use, and complexity of survey design (Alreck & Settle, 2004; Andrews, Nonnecke, & Preece, 2003; Dillman et al., 1998). Evans and Mathur, as well as Granello and Wheaton (2004), reported that the cost of distributing online surveys may be lower than postal mail surveys; however, software applications, start-up fees, and technical support may be costly. Nevertheless, the benefit of reaching a large number of participants may supersede these costs.

A potential benefit of Internet-based survey research is the possibility of reaching populations who may be resistant to interpersonal survey methods in which names, addresses, and other personal information could be disclosed. Conboy, Domar, and O'Connell (as cited in Granello & Wheaton, 2004) reported that Internet surveys may offer a notion of anonymity to respondents with sensitive health-related issues; this anonymity may provide researchers with more accurate data. Although it could be argued that IP addresses offer a form of respondent identification, respondents may view Internet-based surveys as more secure than other methods (Granello & Wheaton; Van Selm & Jankowski, 2006). Therefore, respondents who seek assistance or treatment may find the perceived anonymity of the Internet to be a place for answers to their personal questions or concerns. One of the most important benefits to online survey research is the assistance it may bring to people who have not yet received treatment for mental health issues (Granello & Wheaton). For persons with potentially life-threatening conditions, such as eating disorders or substance abuse, online surveys may be a catalyst for finding treatment resources (*Alcohol screening questions*, n.d.; Jantz, 2005).

Limitations of Online Survey Research

While there are many benefits to online survey research, Evans and Mathur (2005) and Granello and Wheaton (2004) addressed some limitations, including (a) technical difficulties, (b) poor response rates, and (c) representativeness of selected samples. Researchers must be aware that while the majority of households with computers have Internet access (Swartz & Hancock, 2002), many of these homes have dial-up connections that could impede survey completion and submission (Evans & Mathur). Other technical difficulties stem from using survey software that is too advanced for some computer systems, as computer browsers may load information slowly or crash (Granello & Wheaton).

Poor response rates could stem from technical difficulties or other survey-related issues. Evans and Mathur (2005) reported that survey respondents may have a lack of Internet experience which could affect overall response rate. Dillman et al. (1998) reported that online surveys may have poorer response rates if elaborate questionnaires are used rather than questionnaires with simple colors and designs. Potential respondents may find it difficult to read or interpret surveys that are poorly designed; this leads to survey incompletion (Dillman et al.).

Another issue relating to low response rates is how surveys are presented to potential respondents. The simplest method to collect online survey research is through sending "plain text" (Alreck & Settle, 2004, p. 181) e-mail messages, in which respondents complete the survey questions and e-mail directly to researchers. Surveys also can be attached in HTML within e-mail messages or made accessible by a hyperlink to a URL address in e-mail messages (Vaux & Briggs, 2006). However, potential respondents could perceive e-mailed online surveys as impersonal, spam mail, or mail that contains viruses; these outcomes lead to survey non-response (Evans & Mathur, 2005). Those who are solicited via e-mail also may not reply as they fear their personal information may be disclosed to outside businesses or organizations (Evans & Mathur). Potential respondents may further be dissuaded from participating due to confidentiality and anonymity concerns, as even anonymous survey responses can be traced back to respondents' IP addresses (Evans & Mathur; Sax et al., 2003). Due to issues such as these, Sax et al. reported that online survey response rates are usually no better than postal mail survey response rates. Additionally, those with e-mail addresses may be perceived as available respondents; however, they may have limited access to the Internet, as Van Selm and Jankowski (2006) implied that online access within various areas, cultures, and countries is limited.

Respondents' limited Internet access also can be an issue of representativeness, as Granello and Wheaton (2004) reported that "access to the Internet remains unequally distributed" (p. 389) throughout the United States population. In exploring gender factors and Internet access, the majority of Internet users are male (Granello & Wheaton), although the rate of female Internet users continues to increase (Pealer & Weiler, 2003). The rise of Internet use and computer-related technology may be attributed to employment experiences, as Chesley (2006) reported that, when compared to men, women are more likely to use computers while at work. In reviewing survey response rates according to gender, Sax et al. (2003) found that male college students were more likely to take online surveys, yet female students were more likely to complete online surveys.

Formal education, age, race, ethnicity, and income are integral in understanding issues of representation among potential respondents of Internet-based surveys (Chesley, 2006). In terms of education, Redpath et al. (2006) identified educational level as a significant predictor of Internet use, as those who completed high school were more likely to use the Internet. Granello and Wheaton (2004) reported that most Internet users have obtained at least one college degree. The age of persons who access the Internet is also a factor, as persons over the age of 65 have a disproportional rate of Internet accessibility when compared to other demographic groups (Riggle, Rostosky, & Reedy, 2005). When exploring race and ethnicity, Granello and Wheaton indicated that most Internet users are White, while Sax et al. (2003) reported that minorities may have less access to the Internet and less experience with computer-related technology. Greenspan (as cited in Riggle et al.) stated that "Blacks and Hispanics use the Internet proportionate to their population; and individuals with more…household income are more likely to be online" (p. 2). Kalichman et al. (2002) found that income level was significant in predicting Internet use among

persons obtaining online-based health information. Chesley stated that technology use is a function of "adequate economic and social resources" (p. 589), as those with higher levels of income could have easier accessibility to new forms of technology. Therefore, it is necessary to consider how populations can be underrepresented due to technological advances in data collection and research (Sax et al.).

Implications for Online Survey Research

When developing an online survey, it is essential to research the population under study to determine what proportion has Internet access and whether or not this population would take advantage of online surveys (Dillman et al., 1998). Researchers may obtain favorable response rates by distributing online surveys to groups with regular Internet and e-mail access (Granello & Wheaton, 2004; Pealer & Weiler, 2003). However, Internet-based samples are generally unrepresentative of general populations (Vaux & Briggs 2006); this creates sampling bias and error (Alreck & Settle, 2004). In order to control for sampling bias, researchers must be aware of both visible and marginalized populations, as well as how online populations differ from those who do not have online access (Andrews et al., 2003; Vaux & Briggs). Pealer and Weiler stressed the importance of determining if an Internet-based survey is suitable for a specific population and if the questionnaire is appropriate in an online format. Granello and Wheaton suggested studying "discrete and knowable" (p. 391) populations in order to accurately determine response rates and control for issues with representativeness. Using discrete populations also can help to limit the amount of incongruent survey data and ensure that potential respondents have an equal opportunity to participate in survey research (Granello & Wheaton). To increase response rates, researchers could entice potential participants with an inducement to respond, such as a sweepstakes or report of results (Alreck & Settle; Pealer &

Weiler). Once it is determined that an online survey is appropriate for a population, researchers must make certain that the survey can be clearly read and interpreted; this reiterates the importance of survey design (Dillman et al., 1998). Another essential component in online survey development is piloting the survey in order to check for reliability, validity, and brevity (Andrews et al.; Granello & Wheaton).

In order to apply online survey research within the mental health field, researchers must consider several factors, including (a) what populations are currently best represented through online surveys, (b) how to maintain anonymity and confidentiality in working with survey participants, (c) how populations unfamiliar with online survey research can best be served, and (d) how to identify suitable survey methods when online surveys are not appropriate. When working with a specific population in the area of survey research, it is essential to identify the current issues facing the population regarding Internet access in order to work toward alleviating the "digital divide" (Sax et al., 2003, p. 413) between different populations.

Conclusion

Internet-based survey methods are advantageous and useful for the completion of social science research (Sax et al., 2003). However, researchers must ensure that Internet-based survey methods are aligned to meet the needs of potential populations and respondents. As the Internet becomes more accessible and familiar to diverse populations, response rates and representativeness may improve (Sax et al.). Even with this advancement, all of the potential challenges that come with this form of data collection must be addressed to provide valuable, ethical, and meaningful results.

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