An examination of the WHOQOL-BREF using four popular data collection methods

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ABSTRACT

The rapid increase of researchers utilizing internet sites for conducting research has not yet been adequately investigated for the degree to which psychometric properties of instruments remain intact. Although using the internet for data collection is now commonplace, there are a limited number of studies that have investigated the quality of data provided from online subject pools and responses from those platforms compared to methods used to create these instruments. The present study collected data using the World Health Organization's WHOQOL-BREF instrument across four different types of data collection methods which included Amazon.com's Mechanical Turk, Craigslist.org, college students completing the survey online, and college students completing a survey in a traditional face-to-face format. Feldt tests comparing observed Cronbach's alphas to alphas from a published validation study and confirmatory factor analyses corroborated the use of online data collection for quality of life for the general public and college students. However, the face-to-face data collection method did not provide as consistent results across the scales. Further research should investigate the lack of internal consistency in face-to-face responses.

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It is generally accepted that undergraduate students are vital to the process of data collection that fuels much of research. The reliance on this status quo is not without controversy and objection, as there have been researchers who have identified issues with this practice (e.g., Henry 2008; Sears 1986). To reduce any potential biases that a mostly homogenous college population method may invoke, researchers have taken to data collection strategies with a greater reach to the general population. For example, researchers have used telephone surveys (Senior et al. 2007), mail-in surveys (Kerin & Peterson, 1977), and, most recently, the internet (Granello & Wheaton, 2004). With very swift technological advances, it is appealing for researchers to capitalize on the internet to reach out to participants in the comfort of their own home on a medium that more people are becoming familiar and comfortable with. And, internet data collection is now becoming extremely popular as hundreds of papers have been published that have used it as the primary data collection medium.

This influx of researchers capitalizing on the internet's utility as a data collection source appears to have drastically progressed faster than research on its efficacy has occurred. For example, it is still unclear whether online data collection can produce valid and reliable results compared to traditional face-to-face (FTF) collection. The present study examined the World Health Organization Quality of Life — Brief (WHOQOL-BREF) scale and collected data using two popular online data collection methods (i.e., Amazon.com's Mechanical Turk and Craigslist.org) compared to a sample of college students completing a survey online as well as a sample of college students providing data in a FTF format.

One way in which to compare data collection methods is on the basis of online versus FTF formats. Like all data collection methods, there are both advantages and disadvantages associated with each and these perspectives should be taken into consideration by researchers.

1. Advantages of online data collection

There are advantages for researchers who use online data collection in, at least, three different areas of the data collection

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process. First, conducting studies online has cost and efficiency benefits. It is considerably cheaper than traditional methods using paper-and-pencil surveys and mail delivery (Ahern, 2005; Douglas et al. 2005; Sue & Ritter, 2007). It has also been shown that putting studies online can decrease the time needed to conduct a study, compared to telephone and mail surveys (Ahern, 2005; Beling, Libertini, Sun, Masina, & Albert, 2011; Granello & Wheaton, 2004). Second, reaching and communicating with participants becomes more feasible through the internet. With more than 78% of people in North America connected to the internet in 2012 (Internet World Stats 2012), researchers can gain access to a much larger participant pool (Ahern, 2005). This includes participants who are from traditionally hard-to-reach populations, for example, people in rural areas, shift workers, and those unable to get out their homes (Whitehead, 2007). And because of the internet and email, communication is improved between researchers and participants, as well, which can increase response rates (Wharton, Hampl, Hall,.& Winham, 2003). Third, data management is drastically improved through online data collection. Most online studies employ the use of some data collection software (e.g., Survey-monkey), which exports data to researchers in ready-to-use format that can easily be disseminated to research teams (Jones, Murphy, Edwards, & James, 2008b; Sue & Ritter, 2007). This software also allows for advanced methodologies, which can customize questionnaires based on participants' responses (Jones, Murphy, Edwards, & James, 2008a; Loescher, Hibler, Hiscox, Hla, & Harris, 2011; Sue & Ritter, 2007). The most distinct data management benefit would be the removal of the need for manual data entry, which reduces the time required for data entry, the prevalence of human error during entry, and minimizes problems associated with reading respondents' handwriting (Granello & Wheaton, 2004; Gregory and Pike 2011; Stewart, 2003).

Conducting studies online may not only benefits researchers, but participants also have advantages compared to more traditional data collection methods: They are free to participate at their own pace with no perceived time pressure from a researcher and can complete the survey or experiment at a time convenient to them (Buhrmester, Kwang, & Gosling, 2011; Jones et al. 2008a, 2008b). The ease and novelty of participating in a study online also increases participants' interest and response rates (Ahern, 2005; Douglas et al. 2005; Sue & Ritter, 2007). Finally, participants feel that their anonymity is enhanced online because of the social distance created, and are more comfortable and apt to give honest answers on certain topics (Beling et al. 2011; Brindle, Douglas, van Teijlingen, & Hundley, 2005; Katz, Fernandez, Chang, Benoit, & Butler, 2008; Wharton et al. 2003). These advantages may make online data collection appealing, but there are several disadvantages found in the literature, as well.

2. Disadvantages of online data collection

Prior work has also highlighted several disadvantages of conducting studies online. First is the lack of control that researchers have over the environment that the study is being taken (Riva, Teruzzi, & Anolli, 2003). This lack of control is perhaps the greatest barrier that researchers need to consider. It is possible that participants could provide false data on demographic questions, or take the survey repeatedly (Whitehead, 2007). There is also the possibility that respondents may complete the survey while they are at work, on the bus or train, or in another environment where there are distractions. This lack of control can be extended to ethical issues that can arise with the anonymity of being online, specifically if a minor were to complete a study under the guise of a legally consenting adult (Holden, Dennie, & Hicks, 2013). Care also must be taken to ensure that respondents are actually human and

are not computer programs (e.g., BOTS; Prince, Litovsky, & Friedman-Wheeler, 2012). Second, technological issues are a concern for both researchers and participants. For instance, it can be very costly and inefficient for researchers to format or create questionnaires online (Jones et al. 2008a, 2008b). This is especially true for researchers using Mechanical Turk (MTURK) as it requires the use of basic html; learning the nuances of the program can be burdensome. This would be especially problematic if technology issues affect the quality of one's research (Holden et al. 2013). Third, there are issues concerning whether the population accessed in studies is representative of the general population, given that respondents must be computer-literate and well off financially to afford an internet connection (Brindle et al. 2005). Finally, there are questions concerning the reliability and validity of measures collected online. The validation literature on surveys conducted online is scant, and it is unclear whether certain scales and surveys are accurate when completed online (Whitehead, 2007). There are a variety of ways in which to access the general population in an online manner. Two platforms which researchers have used include MTURK and Craigslist (CL).

3. Mechanical Turk

MTURK was introduced by Amazon in 2005 as a "marketplace for work that requires human intelligence" (www.mturk.com). It was originally developed for human computation tasks in order for humans to do tasks that were difficult or impossible for computers. Such tasks included extracting data from images, audio transcription, and filtering adult content; all of which is sometimes referred to as microtasks. As such, it also serves as a platform for recruiting and compensating participants for online studies. MTRUK allows individuals to create accounts to post various tasks (*requestors*) for other people to work on for compensation (*workers*) who are also referred to as Turkers. Requestors may put any variety of items on MTURK for completion, such as surveys. Compensation is sometimes very low for participants, at least 1¢ must be paid, and many of the workers have been shown to be intrinsically motivated to complete the tasks known as Human Intelligence Tasks (HITS). The population on MTURK is very diverse, with more than 500,000 individuals from more than 190 countries (Paolacci & Chandler, 2014), although most workers are from the US and India. Demographically, most workers report being female, having an average age of roughly 32, and making about $30 thousand per year (for a full review see Mason & Suri, 2012).

4. Craigslist

CL has also become a desirable option for researchers to attempt to access a more representative sample from the population. CL is a free advertisement website located started in 1995 and is in more than 570 cities across more than 50 countries (www.craigslist.org). The site has over 20 billion page views per month which ranks it the 61st most popular website in the world and 11th most popular in the United States (Alexa, 2015). People who are interested in buying/selling goods and services can place or respond to ads in certain categories on CL that are devoted to specific purposes (e.g., automobiles, jobs, volunteers, etc..). Recent published studies using CL as a data collection platform has been used in subject recruitment efforts for smoking cessation (Ybarra, Prescott, & Holtrop, 2014), obese individuals for qualitative interviews (Worthen, 2014), and for a study of aggression among youth (Richmond, Cheney, & Soyfer. 2013). Studies have also been directly collected on topics such as the sexual behavior of gay men (Grove, Rendina, & Parsons, 2014), youth alcohol use (Siegel et al. 2011), and cigarette smoking among young adults (Ramo, Hall, & Prochaska, 2010).