An assessment of equivalence between paper and social media surveys: The role of social desirability and satisficing

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ABSTRACT

Investigation of the underlying mechanisms responsible for measurement variance has received little attention. The primary objective of this study is to examine whether paper and social media surveys produce convergent results and investigate the underlying psychological mechanisms for the potential measurement nonequivalence. Particularly, we explored the role of social desirability and satisficing on the measurement results. We collected data via five different survey modes, including paper survey, ad hoc Web survey, online forum (message boards)-based, SNS-based and microblog-based surveys. The findings show that socially desirable responding does not lead to inconsistent results. Rather we found that satisficing causes inconsistent results in paper versus online surveys. Sociability reduces the possibility of engaging in satisficing that results in inconsistent results between traditional Web surveys and social media-based Web surveys.

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1. Introduction

An explosion of dedicated online communities and social network sites (SNSs) such as Facebook, Twitter, and LinkedIn is a hallmark of the last decade. As an interpersonal communications platform, the social media provides a venue where individuals meet their offline friends or others with similar interests and values. Perceived risk on the social media is relatively low for the frequent and pleasing contacts with other members and the affective commitment in relations (Casaló, Flavián, & Guinalíu, 2011).

The large number of users on these social media websites is gradually attracting the attention of academic and industry researchers who are starting to use social media survey platform. Individuals on social media websites are socially connected. Survey researchers can leverage the benefits of social media to increase a respondent's level of engagement, reduce recruiting costs, and acquire more credible insights. The participation rate of a social media survey mode is also expected to be higher than that of traditional

Web surveys of which the non-response rate is believed to be too high.

Alternatively, the use of social media to collect data is restrained by coverage limitations for not including those who do not have access to the technology, and thus it is usually inappropriate to use the social media mode alone to conduct surveys. As a result researchers need to either limit the populations for which they use social media surveys or use multiple delivery methods. Practically, researchers usually adopt a mixed mode design in which data are collected by different survey modes to increase response rates, reduce survey costs, and alleviate the negative effects of a low coverage rate. However, the researchers need to know whether different survey modes can produce equivalent results when using a mixed mode design. If data collected from different survey modes produce different results for the same study, it is not appropriate to aggregate the results. Accordingly, when integrating data collected from social media-based surveys into traditional survey modes, researchers and practitioners must be aware and examine the measurement equivalence[3] of these survey modes and that the measured latent constructs have the same theoretical pattern under different survey modes (Miles & King, 1998). If the assumption of invariance is violated, it is not appropriate to combine the data gathered by disparate survey modes and conduct the analysis assuming a homogeneous data set.

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[3] In this paper, we will be using the terms 'measurement invariance' (MI) and 'measurement equivalence' (ME) interchangeably.

There are several existing studies regarding the comparison of online and paper survey modes (e.g., Deutskens, de Ruyter, & Wetzels, 2006) and these studies have contributed to our understanding of MI between paper and online surveys. However, the online surveys in the existing MI research mainly refer to ad hoc Web surveys or online panel surveys. The social distance between participants and survey researchers in these surveys are usually large. Little empirical research explored whether paper and social media-based surveys produced comparable results and this study is proposed to fill this gap. With the exponential rising of a variety of social media, the sociability feature of the Internet is increasingly prominent and salient. Sociability refers to interpersonal affective connections embedded in social media which is derived from the online social interaction. Surveys based on social media can motivate individuals to actively participate in and potentially increase the respondents' candor. It is expected that the sociability embedded in social media surveys discourages respondents from engaging in satisficing behavior which is commonplace in traditional Web surveys. At the same time, the sociability may also compel respondents to exhibit more socially desirable responding (SDR). However, it is possible that social media surveys and traditional surveys such as paper surveys, ad hoc Web surveys and online panel surveys cannot provide comparable survey results. Therefore, it is critical to investigate whether these survey modes can produce convergent results as relevance to the emerging social media survey mode. An exhaustive literature review found no research devoted to investigating the potentiality of social media as a survey platform and examining the influence of sociability on the MI between social media surveys and paper surveys. This study contributes to the wide range of survey modes MI research by examining whether paper and social media surveys produce comparable results.

A second major contribution of this study relates to the limited insights of the existing MI research on potential psychological mechanism responsible for measurement variance across survey modes. Although a number of studies have examined the MI issues, most these studies simply reported the test results. Little effort has been devoted to investigating the potential underlying mechanisms responsible for the measurement variance. Especially lacking is the research on exploring psychological mechanisms for measurement nonequivalence. This study takes a step further and investigates the impacts of psychological factors such as SDR and satisficing on incomparable survey responses between paper surveys and social media-based surveys.

The following paper is organized as such. We begin with a brief introduction to social media-based surveys and describe the potential theoretical impacts of SDR and satisficing on MI between social media-based and paper surveys. Subsequently, we present the procedures for conducting MI tests, followed by data collection and data analysis to examine the impacts of SDR and satisficing on MI results. We conclude with a discussion of the results, research implications, and limitations.

2. Theoretical backgrounds

2.1. Social media-based surveys

Traditionally, the Internet is considered as a lean online communication medium, low in social presence, and imposes a range of risks associated with online transactions (Gutiérrez, Izquierdo, & Cabezudo, 2010; Wasko & Faraj, 2005). The emergence of social media is changing the lean nature of the online medium. Social media refers to the means of interactions among people in which they create, share, and exchange information and ideas in virtual online communities and networks.

The expanding participation on social media websites has encouraged researchers and consultants to identify ways they can take advantage of the application. One possible implication is to conduct social media-based surveys. Unlike traditional offline paper surveys and stand-alone surveys, social media surveys refer to online self-administered surveys conducted on the platforms of SNSs or using SNSs as survey URL distribution tools. For example, the message length of a microblog (such as Twitter) is usually constrained to 140 characters, and within that limit it is impossible to use Twitter as a survey platform. However, Twitter can serve as a tool for publishing an address hyperlinking to a survey website.

Although it is difficult if not impossible to acquire a representative sample of the general population by employing a social media survey design, social media samples are valuable for selecting market segments as well as when probability sampling is impossible to get. Social media surveys can expand the geographical scope and facilitate the identification of individuals with barriers to access, thus the use of social media can increase the sample size and representativeness (Baltar & Brunet, 2012). As an example, organizations can set up their own online communities or SNSs of customers and workers, and carry out surveys on these platforms to identify the needs of specific groups or recognize niche market opportunities.

More importantly, sociability embedded in social media is able to increase an individual's willingness to participate in surveys because of the lower level of perceived risks and relatively high participation motivation. Identity disclosure and relationship maintenance are two important functional building blocks of social media (Kietzmann, Hermkens, & McCarthy, & Silvestre, 2011). Previous research has shown that a survey researcher's identity and familiarity can significantly decrease perceived risks and affect respondents' perception about the salience of survey topics and their intention to participate (Fang, Wen, & Pavur, 2012). Sociability forms relational capital which is an important asset that benefits both the community and its members. Members are willing to assist other members, even strangers because of a strong sense of commitment and reciprocity (Xu, Ryan, Prybutok, & Wen, 2012).

2.2. Impact of SDR on MI

One existing explanation for the divergent results and measurement nonequivalence between paper and online surveys is that the Web platform offers relative anonymity to users. The anonymity associated with the Internet reduces the perceived risk. Researchers speculate that the Internet creates an impersonal social situation in which individuals feel more anonymous, more private, less inhibited, and less concerned about how they appear to others (Booth-Kewley, Larson, & Miyoshi, 2007). The reduced social context information on the Internet increases the outspokenness of online respondents and reduces tendencies to engage in SDR. SDR is the inclination to give answers that make the respondent appear good, or the propensity to make a good impression. Generally, respondents experience the desire to achieve greater social desirability in an environment where they are identified rather than anonymous (Paulhus, 1984). In traditional Website surveys such as ad hoc Website surveys and online forum-based surveys, respondents can choose to submit answers under conditions of anonymity. Thus, respondents may offer responses in these Website surveys different from those provided in offline surveys in which respondents always regard themselves as identifiable even if the promise of no identification cues included in questionnaires is given.

The existing research on SDR in different survey modes displays apparently conflicting results. Some research (e.g., Booth-Kewley et al., 2007) shows that SDR is more likely to occur in Web surveys than in paper surveys, while other research finds few or no SDR