



Review

Social desirability is the same in offline, online, and paper surveys: A meta-analysis



D. Dodou*, J.C.F. de Winter

Department of BioMechanical Engineering, Delft University of Technology, Delft, The Netherlands

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ABSTRACT

The aim of this meta-analysis was to compare social desirability scores between paper and computer surveys. Subgroup analyses were conducted with Internet connectivity, level of anonymity, individual or group test setting, possibility of skipping items, possibility of backtracking previous items, inclusion of questions of sensitive nature, and social desirability scale type as moderators. Subgroup analyses were also conducted for study characteristics, namely the randomisation of participants, sample type (students vs. other), and study design (between- vs. within-subjects). Social desirability scores between the two administration modes were compared for 51 studies that included 62 independent samples and 16,700 unique participants. The overall effect of administration mode was close to zero (Cohen's $d = 0.00$ for fixed-effect and $d = -0.01$ for random-effects meta-analysis). The majority of the effect sizes in the subgroup analyses were not significantly different from zero either. The effect sizes were close to zero for both Internet and offline surveys. In conclusion, the totality of evidence indicates that there is no difference in social desirability between paper-and-pencil surveys and computer surveys. Publication year and sample size were positively correlated ($\rho = .64$), which suggests that certain of the large effects that have been found in the past may have been due to sampling error.

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Contents

1. Introduction	487
2. Method	488
3. Results.	490
3.1. Main effect and moderator analyses	491
3.2. Longitudinal trends	492
3.3. Validity of the social desirability scales	492
4. Discussion	492
4.1. Limitations	493
5. Conclusions	494
Appendix A. Supplementary material	494
References	494

1. Introduction

Computer-based surveys are widely used in social and behavioural research (Buchanan & Smith, 1999; Gosling, Vazire,

Srivastava, & John, 2004). Computers enable large-scale cost-effective data collection, automatic response time monitoring, and error-free transcription (Birnbaum, 2000; Cook, Heath, Thompson, & Thompson, 2001; Fox & Schwartz, 2002; Griffis, Goldsby, & Cooper, 2003). Despite the popularity of computers in survey studies, researchers often question whether computer surveys are as valid as their paper counterparts. A particularly common question is whether computer and paper-and-pencil surveys evoke the same amount of social desirability.

* Corresponding author. Address: Department of BioMechanical Engineering, Delft University of Technology, Mekelweg 2, 2628 CD Delft, The Netherlands. Tel: +31 15 2784221.

E-mail address: d.dodou@tudelft.nl (D. Dodou).

Social desirability is inversely related to the degree of privacy and anonymity that a person experiences (Ben-Ze'ev, 2003; Buchanan, 2000; Davis, 1999; Fisher, 1993; Joinson, 1999; Pasveer & Ellard, 1998; Smith & Leigh, 1997). It has been argued that early personal computers offered limited social context, making the respondent feel anonymous and self-absorbed (Sproull & Kiesler, 1986). As early as 1963, Smith argued that individuals are more honest when “confessing to a machine”. Evan and Miller (1969) found that people who completed a computer version of a survey scored lower on a lie scale than did people who completed the paper version of the same survey. This finding led the authors to conclude that “a computer ... guaranteed ... a greater sense of privacy and anonymity than the conventional situation wherein questionnaires or psychological tests are filled out by hand and then scrutinized, scored, and interpreted directly by other human beings” (p. 216).

A large number of studies have been published since the seminal works conducted in the 1960s. Some studies have found that, compared to paper surveys, computer surveys yield lower social desirability (Joinson, 1999; Kiesler & Sproull, 1986; Martin & Nagao, 1989), but other studies have reported higher social desirability (Davis & Cowles, 1989; Lautenschlager & Flaherty, 1990; Rosenfeld, Booth-Kewley, Edwards, & Thomas, 1996; Whitener & Klein, 1995), and some have found no statistically significant effects of administration mode (e.g., Booth-Kewley, Edwards, & Rosenfeld, 1992; Finegan & Allen, 1995; Fox & Schwartz, 2002; Hancock & Flowers, 2001; Wilkerson, Nagao, & Martin, 2002).

In some computer surveys, primarily early ones, items were presented one-by-one, and there was no possibility to backtrack, which is an intrinsic characteristic of paper-and-pencil surveys (King & Miles, 1995). It is not clear how backtracking affects social desirability scores. Some authors have suggested that the possibility of backtracking *increases* socially desirable responses because the respondents are able to ‘manipulate’ their previous answers (Fox & Schwartz, 2002), whereas others have argued that backtracking creates a sense of trust and therefore *decreases* social desirability (Whitener & Klein, 1995).

Four meta-analyses have previously summarised comparisons of social desirability scores between computer and paper-and-pencil surveys. Weisband and Kiesler (1996) meta-analysed 30 studies that were published between 1967 and 1994 and found that computers evoked greater self-disclosure than did paper surveys (Cohen's $d = 0.20$), with the difference between administration modes reducing over time. Richman, Kiesler, Weisband, and Dragow (1999) extended Weisband and Kiesler's work by meta-analysing 42 studies published between 1967 and 1997, and found a near-zero effect ($d = 0.05$) between the scores obtained with paper-and-pencil and computer surveys. Note that only one-third of the studies in Richman et al. (1999) used social desirability scales. In the remaining two-thirds of the studies, social desirability was inferred from the mean scores of the surveys. For example, a lower score in a symptom checklist was interpreted to indicate higher social desirability. When meta-analysing only the studies that used social desirability scales, a near-zero effect size ($d = 0.01$) between the scores obtained with paper-and-pencil surveys and those obtained from computer surveys was found. Subgroup analyses further revealed that computer surveys yielded lower social desirability than did paper surveys, when both conducted in an individual setting. When skipping/backtracking was allowed, computer surveys were associated with lower social desirability than were paper surveys, whereas when skipping/backtracking was not allowed in the computerised version, the difference between the computer and paper surveys was considerably smaller. Linear regression analysis using publication year as one of the independent variables revealed that there was a tendency to respond with greater honesty in computerised surveys in the older studies.

In a meta-analysis of 24 studies that were published between 1969 and 1997, Dwight and Feigelson (2000) distinguished between impression management (attempting to convince others about inflated engagement in socially desirable behaviours and concealing from others the engagement in socially undesirable behaviours) and self-deception (convincing oneself about inflated engagement in socially desirable behaviours and concealing from oneself the engagement in socially undesirable behaviours). Dwight and Feigelson found that impression management was slightly but significantly lower ($d = -0.08$) for computer surveys than for paper surveys, and that, in line with the results of Richman et al. (1999), the strength of this effect was diminishing over time (correlation between publication year and effect size = .44), with older studies reporting lower impression management for computer surveys than for paper surveys. Self-deception did not differ between the two administration modes ($d = 0.04$ based on 25 effect sizes).

Tourangeau and Yan (2007) estimated the mean effect size across 10 studies that compared computer- and paper-based administration of sensitive questionnaires. The computer mode included not only self-administered surveys but also interactive voice responses and audio computer-assisted self-interviews. Only 4 of the 10 studies included social desirability scales, and all 4 of these studies were included both in Richman et al. (1999) and Dwight and Feigelson (2000). No significant difference between the administration modes was found across these 4 studies ($d = -0.02$, where a negative effect indicates lower social desirability for the computer surveys compared to the paper surveys).

Since these previous meta-analyses, a large number of studies comparing the effect of administration mode on social desirability response have been published. None of the studies that were included in the previous meta-analyses included computer surveys that were completed via the Internet, which is logical because Internet surveys were uncommon before the late 1990s, when the previous meta-analyses were published. Social desirability in Internet surveys may be associated with negative experiences, such as online criminality (De Zwart, Lindsay, Henderson, & Phillips, 2011), the “Big Brother syndrome” (defined as the “growing and pervasive fear of computers monitoring and controlling people's lives”, Rosenfeld et al., 1996, p. 265–266), and the increasing awareness that online data are monitored, stored, shared, and leaked.

The aim of this study was to provide an updated meta-analysis that compares the social desirability scores of paper and computer surveys. Subgroup analyses were conducted using Internet connectivity, level of anonymity, test setting, possibility of skipping items in the computer surveys, possibility of backtracking previous answers in the computer surveys, inclusion of questions of sensitive nature, and social desirability scale type as moderators. Subgroup analyses were also conducted for study characteristics, namely the randomisation of participants between administration modes, the sample type (students or other), and the study design (between- or within-subjects). Of these moderators, Internet connectivity, social desirability scale type, and the three moderators that are related to the study characteristics were not examined in the four previous meta-analyses.

2. Method

A literature search (last update: 28 January 2014) was conducted in Google Scholar and Web of Knowledge. Google Scholar was used because it enables full-text search and provides access to a large number of articles, reports, theses, and conference papers, and because it is a recommended tool for systematic reviews (Gehanno, Rollin, & Darmoni, 2013; Shariff et al., 2013).

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