



Psychometric properties of measurements obtained with the Marlowe–Crowne Social Desirability Scale in an Icelandic probability based Internet sample



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ABSTRACT

Internet surveys have become a very popular research tool. Relatively little attention has, however, been devoted to the possible changes in psychometric properties when measurements are obtained with Internet surveys. The Marlowe–Crowne Social Desirability Scale (MCSDS) is the most widely used instrument for measuring the tendency to respond in a socially desirable way and is often used to validate other measures. The purpose of the current research is to evaluate the dimensionality and reliability of measurements obtained with the MCSDS and short forms of the scale in an Internet sample of the general public in Iceland. An e-mail invitation was sent to a sample of 1200 panel members drawn from the Social Science Research Institute (SSRI) probability based panel, of those 536 participants completed all items on the MCSDS. Reliability estimates were in line with results from previous studies ($\alpha = .81$ for the MCSDS data and α ranging from .59 to .75 for short forms). Using confirmatory factor analysis, a good fit was obtained for a one-factor model of measurements obtained with the MCSDS and its short forms (apart from significant chi square values in all cases but one), which generally supports the assumption of unidimensionality.

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1. Introduction

Measures of social desirability (SD) have been used to validate psychological measures in paper and pencil format for over half a century. The Marlowe–Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960) is the most widely used instrument for measuring social desirability response style (SDRS), and the psychometric properties of the paper and pencil format of the scale have been evaluated in numerous studies (Barger, 2002; Beretvas, Meyers, & Leite, 2002; Fischer & Fick, 1993; Loo & Loewen, 2004; Loo & Thorpe, 2000; Sârbescu, Costea, & Rusu, 2012; Ventimiglia & MacDonald, 2012). It has, however, been shown that psychometric properties observed in a paper and pencil mode of administration are not necessarily retained when transferred to Internet administered measures (Buchanan, 2002). Because of such mode effects on measurements, the American Educational Research Association (AERA), American Psychological Association (APA)

and National Council on Measurement in Education (NCME) have advised test users to provide evidence that changes in mode of administration do not compromise the validity and reliability of the measurements obtained (U.S., 1999). Given the number of studies using the Internet to collect data, it is imperative that a validated and reliable measure of SDRS is available to researchers. Otherwise, researchers risk having their findings compromised by being unable to control for, or measure, socially desirable responding in their samples. However, to our knowledge, no published research has evaluated the validity and reliability of the Internet version of the MCSDS. If the practice of using the MCSDS to validate psychological measures is to be continued over the Internet, it is important to have a formal Internet version of the scale and to know that it produces psychometrically sound data. The purpose of the present study is to evaluate the validity and reliability of measurements obtained with the Internet version of the MCSDS in a representative sample of the Icelandic population. The focus is both on the psychometric properties of the original 33 item scale, and also on the various short forms that been proposed (Ballard, 1992; Ramanaiah, Schill, & Leung, 1977; Reynolds, 1982; Strahan & Gerbasi, 1972).

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1.1. Background

The use of Internet surveys has grown rapidly over the past decade, with researchers in various areas of the academia, government and the private sector making increasing use of Internet surveys to collect self-report data. The type of information (e.g. people's thoughts, behavior and experience) gathered in self reports is often very difficult to obtain or even inaccessible through other means of data collection. One of the main concerns with self-reports is the reduced accuracy of responses due to SDRS, a tendency to systematically respond in a manner likely to be approved of by others (Nunnally & Bernstein, 1994; Paulhus, 1991). This produces an association between the likelihood of a response and the desirability of that response which results in added systematic error variance in target measurements. It follows that if a question is neutral in regards to SD, responses to that question are not expected to be influenced by this tendency. Thus, in order to identify systematic error variance due to SDRS in psychological measurements, the correlation between an SDRS measure and the instrument of interest is calculated. Also, the responses to an SDRS measure and another scale can be concurrently factor analyzed to see whether the two scales load on distinct factors (Beretvas et al., 2002). For this to be viable it is essential to obtain valid and reliable measurements of SDRS.

A number of scales have been developed to measure SDRS (see Paulhus, 1991, for an overview) but the most commonly used scale is the Marlowe–Crowne Social Desirability Scale (MCSDS) (Beretvas et al., 2002).

1.2. The Marlowe–Crowne Social Desirability Scale

The MCSDS, designed by Crowne and Marlowe (1960), contains 33 items that were chosen based on their judged SD and item analysis. The items are thought to reflect, “behaviors which are culturally sanctioned and approved but which are improbable of occurrence” (Crowne & Marlowe, 1960, pp. 350). Answers in the keyed direction can, thus, be taken to indicate that the respondent is exaggerating desirable behavior i.e. showing SDRS. What all the items should have in common is purely their relation to the construct of SDRS. In other words, the MCSDS should be unidimensional (see Hattie, 1985 for a detailed discussion of unidimensionality).

The dimensionality of the paper and pencil format of the MCSDS has been addressed in a number of factor analytic studies. If all the items on MCSDS measure the same construct they would be expected to have a clear one factor structure. This has, however, not always been the case.

Confirmatory factor analyses have been conducted on the original English version of the MCSDS (in the USA: Barger, 2002; Leite & Beretvas, 2005, in Canada: Fischer & Fick, 1993; Loo & Loewen, 2004; Loo & Thorpe, 2000; Ventimiglia & MacDonald, 2012) and on a Romanian version of the scale (Sârbescu et al., 2012). None of these analyses have shown strong support for a one factor model of the full 33 item version. Very few studies have published results for factor loadings of individual items, but those that have suggest that some items need to be revised or removed from the scale due to low factor loadings (Reynolds, 1982; Ventimiglia & MacDonald, 2012). Reliability analyses have shown mixed results because internal consistency reliability estimates for measurements with the full 33 item scale have ranged from .72 (Loo & Thorpe, 2000) to .96 (Fischer & Fick, 1993).

Because of concerns about the scales dimensionality and item content, several short forms of the MCSDS have been developed, (Ballard, 1992; Hays, Hayashi, & Stewart, 1989; Reynolds, 1982; Rudmin, 1999; Sârbescu et al., 2012; Strahan & Gerbasi, 1972). The most frequently cited short forms in psychometric evaluation studies of MCSDS data are those developed by Strahan and Gerbasi

(1972), Ramanaiah et al. (1977), Reynolds (1982) and Ballard (1992) and therefore we will limit our discussion to those short forms.

Strahan and Gerbasi (1972), Reynolds (1982) and Ballard (1992) all used principal component analyses to develop short forms. Strahan and Gerbasi (1972) reduce the number of items based on factor loadings on the first component. Factor loadings were used to form two distinct ten item short forms of the MCSDS, each with an equal number of attribution and denial items, and a 20 item short form comprised of the combined ten item scales (the ten item short forms will be referred to as X1 and X2 and the 20 item version as XX). Reynolds (1982), however, only selected items with factor loadings above .40 on the first component to form an 11 item short form, which he called ‘short Form A’. In addition to Form A, he developed a 12 and a 13 item short form (Form B and C respectively) by adding items to the initial 11 item short form, based on item total correlations. Using the same method as Reynolds, Ballard (1992) developed three short forms of the MCSDS: Scale 1 (11 items), Scale 2 (12 items) and Scale 3 (13 items). Ballard also developed a 13 item short form (Composite scale) comprised of items that had been selected for one or more short forms in at least two of the three previous short form development studies (i.e. Ballard, 1992; Strahan & Gerbasi, 1972; Reynolds, 1982) (see Ballard, 1992, for an overview of which items belong to each short form).

Confirmatory factor analysis has previously been used to assess the unidimensionality assumption of the short forms. A better fit has been obtained for some short forms compared to the full 33 item scale but the studies have not agreed on the most valid short form, with Fischer and Fick (1993) recommending Strahan and Gerbasi's (1972) short forms X1 and X2, Loo and Thorpe (2000) obtaining the best fit for Reynolds' (1982) Form A and B, and Loo and Loewen (2004) recommending Ballard's Scale 1 or Composite scale. Lower reliability estimates have been obtained for measurements with the short forms than with the full scale, as can be expected. For the short forms, the highest internal consistency reliability estimates have been found for data obtained with the XX form but the lowest for data obtained with the X1 and X2 forms (Ballard, 1992; Barger, 2002; Fischer & Fick, 1993; Loo & Loewen, 2004; Loo & Thorpe, 2000; Reynolds, 1982; Strahan & Gerbasi, 1972).

Taken together, studies of the paper and pencil version of MCSDS suggest a need for improvement of the full 33 item scale. It is not clear, however, which of the short forms that have been proposed produces the most valid and reliable data. It is also important to note that previous studies have all based their findings on nonprobability samples – and almost exclusively on student samples (which causes important variables, such as participants age (Kaufmann & Reips, 2008), to be sampled over a very narrow range). It is therefore questionable to draw strong conclusions regarding the quality of the data obtained with the paper and pencil versions of the MCSDS merely on the basis of these studies.

1.3. Internet version of the MCSDS

With the growing number of studies using the Internet as the mode of administration, researchers have become increasingly concerned with the validation of measures for use online (Buchanan & Smith, 1999; for an example of an online validation study see Hearn, Ceschi, Brillon, Fürst, & Van der Linden, 2012). Thus, to further validation research on the Internet, especially in large-scale surveys, it is important to have an Internet version of the MCSDS, and to know that it produces valid and reliable data. Unfortunately, a psychometrically sound Internet version of the MCSDS cannot be presented based on the studies described above

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