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FEATURE

**The Ethical Issue of Response Bias in Survey Data Collection
and Its Solution**

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***Abstract:** This paper discusses response bias caused by unethical behavior of respondents in survey data collection, a fact that is usually not well emphasized in the existing literature. The unethical behavior of respondents can be handled by computing the Respondent Consistency Score wherein responses with low consistency scores will be removed, provided that the questionnaire is well constructed*

Keywords: respondent consistency score, response bias, and unethical behavior

Introduction

All research is subject to bias. Inappropriate handling of bias in research may jeopardize the output of the research studies. There are several sources of bias in research (Hartman Forsen, Wallace & Neely, 2002). These include but may not be limited to selection biases, measurement biases, and intervention biases. Two major types of selection bias are frequent: volunteer bias and non-respondent bias. Those who volunteer to participate as respondents are different from those who are not volunteers (selection bias). Those who do not participate in the study are different from those who participate in the study (non respondent bias). Measurement bias relates to the instrument and the respondents. Measurement bias occurs when the instrument does not measure/record what it is supposed to measure/record. In another context, measurement bias can occur when respondents are aware that they are being studied and behave differently from what they would have otherwise. Intervention bias relates to the bias in the treatment of the group being studied.

Bias in research can come from three main sources: poor research design, ignorance, or unethical behavior. Research that is poorly designed may produce bias that in the end will jeopardize the result of the research study. Research that

is done by untrained or inexperienced persons may produce some bias due to ignorance. The unethical conduct of researchers and the respondents in cases of human research may produce bias, too. Some bias from research participants is not necessarily due to unethical behavior, but mainly to the nature of respondents. For example List and Gallet (2001) and Little and Barrens (2004) found that the responses of respondents given questions on hypothetical willingness to pay were three times as large as that of actual willingness to pay. Respondents, when asked through questionnaire might say they would behave differently than they actually would in real life, such as when respondents were asked if they were willing to pay, and they said yes, but when it was time to actually pay, they did not.

While these types of bias mentioned above are well emphasized in the existing literature, bias due to respondent's unethical behavior is not. The purpose of this paper is to examine bias due to respondents' unethical behavior in survey data collection with the use of questionnaires, and to present a solution as to how to handle this unethical conduct.

The Conventional Techniques of Handling Response Bias

In a research study, especially research dealing with human responses, there should be an assurance that the questions are properly answered and there is no bias in the responses. Some of the conventional techniques for preventing response bias (SuperSurvey, 2005) are as follows: Write questions that are clear, precise, and relatively short; do not use "loaded" or "leading" questions; avoid double-barreled questions; avoid double negatives; use both mutually exclusive and exhaustive response categories for closed-ended questions; and reverse the wording in some of the questions to help prevent response sets (adapted from para. 4-11). Myers and Hansen (2006) recommend the use of unbiased language; language that is free from gender and ethnic bias, and using terms that are preferred by respondents.

These preventive techniques for handling response bias need to be handled differently between computerized questions and paper-and-pencil questions in some aspects, as one study showed that responses of a highly personal and disturbing nature will be answered more honestly in computerized testing than paper-and-pencil testing (Evan & Miller, 2006). Other studies showed that anxiety and attitude need to be considered in giving computerized versus paper-and-pencil testing (Kountur, 2000).

The Ethical Issue of Response Bias

Most of the techniques suggested by existing literature in preventing response bias are related to the responses of the respondents due to inappropriate

design of the questionnaire or instrument. Less emphasis is given on handling the unethical behavior of the respondents in answering a questionnaire.

The term *ethical* is defined by Cassell's English Dictionary (2000) as "conforming to recognized standards." Unethical behavior is behavior that does not conform to an acceptable standard of conduct. When a person accepts to answer or respond to questions on a questionnaire, they should be answered honestly, according to the recognized standard of conduct that is set up within the research study. However, it is possible to have respondents answer the questions dishonestly. This is a form of unethical behavior on the part of the respondent. Usually, researchers deal with this kind of behavior by stating in the research assumptions that the respondents honestly answered the questions. However, this way of dealing with the unethical behavior of respondents will not guarantee that the research findings are valid. If the respondents do not answer honestly, then the results cannot be trusted.

Most questionnaires in human research are used to measure attitude-related variables and the use of Likert scale is very common. Other kinds of scales include the semantic and Guttman scales. There is a tendency, especially if the questionnaire is too long, for the respondents not to read the questions carefully while giving their responses. As a result, the responses cannot be trusted. One way to handle this behavior is by providing positive and negative questions (Hartman et al, 2002). In a 1-5 Likert scale, having both positive and negative questions will neutralize the random answer. Supposing that a person did not honestly answer the questions, in the sense that he/she just randomly gave the responses, then when the average score of that person responses is computed, it would most likely fall in the middle, that is, around a score of 3. A score of 3 in a Likert scale is considered "undecided," and it will not affect the statistical computation of the score very much. One way to prevent this behavior is by not making the questionnaire too long. Having a short questionnaire is preferable to a long one, provided that the questionnaire is valid and reliable. It must have passed the validity and reliability tests. A Likert scale questionnaire longer than two pages will increase the probability of having random or dishonest responses.

A Solution to the Unethical Behavior of Respondents

This paper proposes a solution for handling the unethical behavior of respondents in answering the attitude related scales by identifying the dishonest responses and removing them from the data. The question is: How can dishonest responses be identified?

Dishonest responses are the responses that are not consistent. When somebody answers questions that have several choices, such as questions in Likert scale, the answers will normally have a certain pattern of responses that are consistent, otherwise that person probably answered them randomly by

guessing. Answers or responses that are random are dishonest responses. For example, a multiple choice test in a math test may have three questions. The first question is about addition, the second question is about multiplication, and the third question is about solving an equation. These three questions indicate different levels of difficulty. The first question is the easiest among the three, the second question is more difficult and the third is the most difficult. If a person is given the three questions to answer and he gets a score of one which means he correctly answered one question, it should be the first question that is correct. If he gets the first and the second question wrong and the third question right, it may well have been the result of guessing. The normal pattern is, when a person gets a score of one, she is supposed to correctly answer question number one, and if she gets a score of two, she must be correctly answering question number one and question number two. If she gets a score of two and she correctly answers questions number two and three, then she is guessing. How can she miss question number one, which is the easiest? She will correctly answer question number three only if she correctly answers all three of the questions. The same principle applies to attitude-related questionnaires that have choices in the responses such as the Likert scale. If a person gets a score which is relatively the same as another person, they belong to the same group and they will have a consistent pattern of responses with the rest of the group.

To get the consistency score for each respondent, each respondent's score should be correlated with the total of the rest of the respondents that are in the same group. For simplicity, the same respondents are grouped into quartiles. The first quartile (Q1) is the first group, the second quartile (Q2) is the second group, the third quartile (Q3) is the third group, and the fourth quartile (Q4) is the fourth group. A respondent consistency score that is very small, in this case less than 30%, is considered as an inconsistent or dishonest response. All respondents that have consistency scores of less than 30% must be removed. After removing inconsistent responses, the total score in each group will change and also the consistency scores of the remaining respondents in the group. It is now possible to have a new consistency score that is less than 30% and needs to be removed. Calculations need to be repeated until no respondents have a consistency score less than 30%.

The equation to compute the Respondent Consistency Score (RCS) of each respondent in each group or quartile is:

$$RCS = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

Where: x_i = response to question i
 $y_i = T_i - x_i$
 T_i = total score of question i in each group or quartile

This technique of handling response bias that is due to the unethical behavior of respondents assumes that the questionnaire is valid and reliable. When the questionnaire is not well constructed, the result will not be accurate.

Conclusion

Response bias that is due to the unethical behavior of respondents in answering a questionnaire can be handled by computing the Respondent Consistency Score wherein small consistency scores will be removed. This works, provided that the questionnaire is well constructed, which is a prerequisite for any serious research attempt.

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