

The Impact of Satisficing on Survey Data Quality

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ABSTRACT

When optimally answering a survey question would require substantial cognitive effort, some respondents simply provide a satisfactory answer instead. This behavior, called satisficing, can take the form of either (1) incomplete or biased information retrieval and/or information integration, or (2) no information retrieval or integration at all. Satisficing may lead respondents to employ a variety of response strategies, including choosing the first response alternative that seems to constitute a reasonable answer, agreeing with an assertion made by a question, endorsing the status quo instead of endorsing social change, failing to differentiate among a set of diverse objects in ratings, saying "don't know" instead of reporting an opinion, and randomly choosing among the response alternatives offered. A wide range of factors that are likely to encourage satisficing are reviewed.

KEYWORDS

data quality, respondent burden

INTRODUCTION

Survey respondents are often asked to expend a great deal of cognitive effort for little or no apparent reward. They are asked, for example, to report when they visited doctors during the last year (Means & Loftus, 1990), when they were a victim of a crime (Loftus & Marburger, 1983), or how often they watched network television news programs (Price & Zaller, 1990). They are asked to consider numerous controversial political issues, one after another, and to offer thoughtful opinions on each (Schuman & Presser, 1981). And they are asked to summarize the natural emotional ups and downs of life by choosing just one point on a scale measuring life satisfaction in general or satisfaction with particular aspects of their lives (Bradburn, 1969).

In responding to these many sorts of questions, survey researchers hope that respondents will produce high-quality data. And as Tourangeau (1984) has described, doing so requires that respondents proceed through four stages of cognitive processing. They must carefully interpret the meaning of each question, search their memories extensively for all relevant information, integrate that information carefully into summary judgments, and report those summary judgments in ways that convey their meaning as clearly and precisely as possible (see also Cannell, Miller, & Oksenberg, 1981; Tourangeau, 1986, 1987; Tourangeau & Rasinski, 1988; Willis, Royston, & Bercini, 1990). Performing these four steps carefully and comprehensively constitutes what might be called optimizing.

Some respondents are undoubtedly motivated to expend the substantial amount of mental effort required to optimize, because a wide variety of different sorts of motives encourage such behavior (see Warwick & Lininger, 1975, pp. 185-187). Nonetheless, respondents are likely to satisfy whatever desires motivate them just a short way into an interview, and they are likely to become increasingly fatigued, disinterested, impatient, and distracted as the interview progresses. Many survey respondents probably deal with this situation by shifting their response strategy. Rather than continuing to expend the mental effort necessary to generate optimal answers to question after question, respondents are likely to compromise their standards and expend less energy instead.

At first, respondents probably do so simply by being less thorough in comprehension, retrieval, judgment, and response selection. Instead of attempting to generate an optimal answer, respondents settle for generating merely satisfactory answers. The first answer a respondent considers that seems acceptable is the one he or she offers.¹ This response behavior might be termed a relatively weak form of satisficing.

After a respondent answers questions using this strategy for a while, fatigue continues to increase, and executing all four steps of the response process becomes more and more taxing. At this point, respondents may simplify their endeavor even further by omitting the retrieval and judgment steps from the response process altogether. That is, respondents interpret each question only superficially and select what they believe will appear to be a reasonable answer to each question without referring to any internal psychological cues specifically relevant to the attitude, belief, or event of interest. This process might be termed strong satisficing.

It is useful to think of optimizing and strong satisficing as anchoring the two ends of a continuum indicating the degrees of thoroughness and bias in retrieval and integration. The optimizing end of the continuum involves complete and unbiased retrieval and integration, whereas the strong satisficing end involves no retrieval or integration at all. And in between are degrees of weak satisficing, which increase in bias and incompleteness toward the strong satisficing end of the continuum.

FORMS OF SATISFICING

There are many different response strategies that might constitute weak and strong satisficing. In this section, I describe two possible forms of weak satisficing (selecting the first response alternative that seems to constitute a reasonable answer, and agreeing with any assertion the interviewer makes) and four possible forms of strong satisficing (endorsing the status quo instead of endorsing social change, failing to differentiate among a set of diverse objects in ratings, saying "don't know" instead of reporting an opinion, and randomly choosing among the response alternatives offered).

Selecting the First Response Alternative that Seems Reasonable

Survey questions sometimes ask respondents to choose an object from a list that possesses some quality to the greatest degree. A large number of studies have found that answers to such questions can be influenced by the order in which the response choices are presented to respondents (Becker, 1954; Belson, 1966; Brook & Upton, 1974; Carp, 1974; Mueller, 1970; Quinn & Belson, 1969; Payne, 1951; Payne, 1971; Rugg & Cantril, 1944; Schuman & Presser, 1981). Some of these studies identified primacy effects, where response choices presented early were most likely to be selected. Other studies found recency effects, where response choices presented later were more likely to be selected.

These response effects may be the result of weak satisficing. When confronted with these sorts of questions, optimizing would clearly entail thinking carefully about the merits and appropriateness of each of the response alternatives before selecting one. In contrast, a weak satisficer could simply choose the first response alternative that he or she considers to constitute a reasonable answer. Exactly which alternative is most likely to be chosen depends upon whether the response choices are presented visually or orally to respondents.

When response alternatives are presented visually, either on a show-card or in a self-administered questionnaire, weak satisficing is likely to bias respondents toward selecting response alternatives presented early in a list. Respondents are likely to begin at the top of the list and consider each

1/ I borrow the terms "optimizing" and "satisficing" from Herbert Simon (1957; Simon & Stedry, 1968), who coined them in his discussions of economic decision-making and choice behavior (see also Janis & Mann, 1977). In discussing the process by which respondents choose response alternatives in close-ended survey questions, Tourangeau (1984, p. 90) mentioned the potential applicability of the satisficing concept.

response alternative individually. In doing so, respondents' thoughts are likely to be biased in a confirmatory direction (Koriat, Lichtenstein, & Fischhoff, 1980; Hoch, 1984; Klayman & Ha, 1984; Tschirgi, 1980; Wason & Johnson-Laird, 1972). After considering one or two response alternatives, the potential for fatigue becomes significant. Therefore, weak satisficers could cope by thinking only superficially or perhaps not at all about later response alternatives; the confirmatory bias would thereby give the earlier items an advantage. Thus, weak satisficing would produce a primacy effect.

When response alternatives are presented orally, as in a face-to-face or telephone interview, response order effects are likely to reflect not only the criteria for evaluating each option, but also the limits of memory. First, consider processing allocation and bias. When response alternatives are read aloud, respondents are not given the opportunity to process the first alternative extensively. Presentation of the second alternative terminates processing of the first one, usually relatively quickly. Therefore, respondents are able to devote the most processing time to the final items read; these items remain in short-term memory after interviewers pause to let respondents answer. Thus, the last options are likely to receive deeper processing dominated by generation of reasons supporting selection, producing a recency effect.

However, it is conceivable that some respondents listen to a list of response alternatives without evaluating any of them. Once the list is read, these individuals may begin their thinking by recalling the first alternative and progressing through the list from beginning to end. Given that fatigue should instigate weak satisficing relatively quickly, a primacy effect would be expected. Therefore, considering only the allocation of processing, it is reasonable to anticipate both primacy and recency effects.

These effects of processing allocation are likely to be reinforced by the effects of memory. Items presented early in a list are most likely to enter long-term memory (e.g., Atkinson & Shiffrin, 1968; Bruce & Papay, 1970; Crowder, 1969; Dreben, Fiske, & Hastie, 1979; Rundus, 1971), and items presented at the end of a list are most likely to be in short-term memory immediately after the list is heard (e.g., Anderson & Hubert, 1963; Atkinson & Shiffrin, 1968; Glanzer, 1972; Waugh & Norman, 1965). So items presented at the beginning and end of a list are more likely to be recalled after the question is read, particularly if the list is long. Therefore, given that a response alternative must be remembered in order for a respondent to select it, both early and late items should be more likely to be available for selection by weak satisficers. Thus, memory would also enhance the likelihood of both primacy and recency effects among these individuals.

Agreeing with Assertions

Attitude questions in surveys often offer a statement to respondents and ask them whether they agree or disagree with it or whether the statement is true or false. Researchers have long recognized that such agree/disagree, true/false, and yes/no questions are potentially subject to acquiescence response bias: the tendency to agree with or accept any assertion, regardless of its content. Although acquiescence response bias is difficult to conclusively document (see Rorer, 1965; Schuman & Presser, 1981, pp. 206-207), numerous studies have found evidence of what at least appears to be acquiescence response bias (e.g., Bentler, Jackson, & Messick, 1971; Jackson, 1979; Lenski & Leggett, 1960; Martin, 1964; Moum, 1988; Peabody, 1966; Ray, 1983; Ray & Pratt, 1979; Schuman & Presser, 1981).

One possible explanation for acquiescence is strong satisficing. Lenski and Leggett (1960) argued that the status difference between survey personnel and some respondents might lead these respondents to agree with assertions that the survey personnel apparently believe. Because agree/disagree questions typically require an interviewer to read a statement in a way that sounds as if

he or she believes it to be true, this presumably facilitates deferential agreement bias. Such a response strategy involves no retrieval or judgment and therefore constitutes strong satisficing.

A second possible explanation for acquiescence response bias is weak satisficing. When asked whether they agree with a particular statement, weak satisficers are probably inclined to think only of reasons why the statement might be true. Because of a confirmatory bias in evaluation, many respondents using this decision rule will succeed in generating enough reasons to justify saying "agree". Regardless of whether acquiescence reflects strong or weak satisficing, it would be expected to be most common under the conditions that foster satisficing.

Endorsing the Status Quo

Survey questions often ask respondents questions about increasing or decreasing government effort or funding in certain areas or the strictness of certain laws. In response to these sorts of questions, the easiest answer to give on the basis of little thought is "keep things as they are." Some individuals probably arrive at this response after executing an effortful cognitive process that constitutes optimizing. However, many of them may give this answer without any retrieval or judgment, simply because it appears to be a reasonable answer. Consequently, selection of the status quo response alternative may be more common under the conditions that foster satisficing.

Non-Differentiation in Using Rating Scales

Respondents are sometimes asked a series of questions that involve rating a variety of objects on a single response scale. Although researchers generally hope that respondents will differentiate among the objects in their ratings, they sometimes fail to do so, instead giving all or almost all of the objects the same rating (e.g., Krosnick & Alwin, 1989). Doing so may sometimes be the result of a careful consideration of the merits of the objects, but this response strategy could also be the result of strong satisficing. Satisficing respondents could, for example, simply select a point on the response scale that appears to be reasonable for the first object, and then rate all of the remaining objects at that point. This response pattern is therefore most likely to appear under the conditions that foster satisficing.

Saying "Don't Know"

Regardless of the format of a question, respondents can always provide an answer that appears reasonable by telling the interviewer that they "don't know" what their opinion is. Doing so requires no retrieval or judgment, so it would constitute a form of strong satisficing. Thus, "don't know" responses should be more common under the conditions that foster satisficing.

Mental Coin-Flipping

Although saying "don't know" is one possible strategy for strong satisficing, the norms of the interview situation discourage respondents from saying "don't know" consistently throughout an interview. Furthermore, interviewers sometimes explicitly discourage "don't know" responses by pressing respondents to choose a substantive answer to the question. These factors ought to encourage strong satisficers to adopt a method of last resort: mental coin-flipping. That is, these respondents may simply choose randomly from among the response alternatives offered by a closed-ended question (see Converse, 1964). This would clearly constitute strong satisficing, because no retrieval or judgment is necessary, and it should occur more often when satisficing is most likely.

CONDITIONS THAT FOSTER SATISFICING

Although the response strategies discussed above have all been documented in numerous studies, the existing literature in survey methods currently offers only scattered insights into precisely when each of them is most likely to be implemented by respondents. This is why the notion of satisficing is potentially useful. Because satisficing can be attributed to incomplete or biased retrieval and judgment, or to the elimination of these stages altogether, it is possible to systematically specify a list of testable hypotheses regarding the conditions likely to provoke use of these strategies (for related reviews in the decision-making literature, see Beach & Mitchell, 1978; Payne, 1982).

Stated in general terms, the likelihood that a given respondent will satisfice when answering a particular question is a function of three factors. The first is the inherent difficulty of the task that the respondent confronts. The second is the respondent's ability to perform the required task. And the third is the respondent's motivation to perform the task (for a similar formulation in an analysis of naive psychology, see Heider, 1958, pp. 82-83). The greater the task difficulty, and the lower the respondent's ability and motivation to optimize, the more likely satisficing is to occur. These three general determinants of satisficing suggest a series of specific predictions about when satisficing is most likely.

Task Difficulty

Some survey question stems pose a challenge because they are difficult to interpret. For example, question stems containing more words require respondents to hold more information in memory in order to generate a precise answer during a face-to-face or telephone interview. The difficulty of the retrieval process required by a question can affect the extent of satisficing as well. For example, reports of current states are presumably easier than retrospective recall questions because of the relative remoteness of the relevant information in memory. A third locus of task difficulty is the judgment stage. Some questions require relatively simple judgments, such as ratings of how much respondents like each of a series of objects. A more demanding judgment task would be one that asks respondents to rank-order fifteen different objects in terms of how much they like each. A question can also be difficult to answer at the point of response selection. For example, response alternatives that are all verbally expressed (e.g., increase defense spending a lot, increase it a little, keep it the same, decrease it a little, and decrease it a lot) are less challenging than a multiple-point scale with only some verbal labels (as when a 7-point scale has only the end points labeled "increase defense spending a lot" or "decrease defense spending a lot"). Task difficulty is also greater if the interviewer establishes a quick pace to the interview or if respondents are distracted. These and other aspects of task difficulty all enhance the likelihood of satisficing.

Respondent Ability

At least three aspects of respondent ability may be related to satisficing. First, retrieving information and making judgments should be easier for respondents adept at performing complex mental operations, those high in cognitive sophistication (e.g., Krosnick & Alwin, 1987; Schuman & Presser, 1981). A second aspect of respondent ability is the amount of practice an individual has had at thinking about the topic of a particular survey question. The more experienced a respondent is at thinking about a given topic, the better able he or she is to think anew about that topic and to answer relevant questions (see, e.g., Fiske & Kinder, 1981). A third aspect of respondent ability is the degree to which an individual has a preconsolidated attitude on the issue in question. Some people have unambiguous evaluations of objects stored in memory that are easily accessible and may therefore be called to mind with little effort (e.g., Fazio, 1986). For these individuals, the retrieval

step in the response process should occur quickly and easily upon the mere mention of the attitude object. People high in any of these aspects of respondents ability are therefore especially unlikely to satisfice.

Respondent Motivation

There are many sources of respondent motivation potentially relevant to satisficing. For example, respondents differ from one another in terms of their need for cognition, a personality trait identified by Cacioppo and Petty (1982, 1984). Respondents high in need for cognition enjoy thinking, get intrinsic rewards from effortful mental exercises, and prefer to confront demanding cognitive tasks instead of easy ones. Respondent motivation is probably influenced by the degree to which the topic of a question is personally important to the respondent. Individuals who care deeply about the issue of legalized abortion, for example, are probably very concerned about communicating their views on abortion clearly and completely to a survey interviewer. Motivation to optimize is likely to be greater among respondents who think that the survey in which they are participating is important and/or useful to some segment of society. Motivation may also be influenced by interviewer behavior, such as communicating the need for precise information (see Cannell, Fowler, & Marquis, 1968; Cannell, Miller, & Oksenberg, 1981; Oksenberg, Vinokur, & Cannell, 1979a, 1979b). Respondents are likely to be highly motivated to optimize when they feel accountable, when they believe that they may have to justify their responses (Tetlock, 1983; Tetlock & Kim, 1987). And finally, a respondent's motivation to optimize in answering a particular question is likely to decrease the longer the interview has been going on. These various aspects of respondent motivation can all increase or decrease the likelihood of satisficing.

FUTURE RESEARCH

Clearly, a great deal of future research is necessary before any firm conclusions about the validity of these hypotheses can be drawn. Fortunately, the most useful designs for experimental studies are quite straight-forward. The dependent variables in these studies should be either the magnitudes of response effects or the extent of use of various response strategies. Response effect strength can be gauged by varying the order in which response alternatives are presented, whether a question involves agree/disagree response alternatives or a forced choice between opposing viewpoints, and whether a status quo or "don't know" response option is offered. Other studies should assess whether the extent of non-differentiation in ratings, the frequency of "don't know," status quo, and "agree" responses, and the extent of random measurement error vary across respondents.

The independent variables in these studies should be the various components of task difficulty, respondent ability, and respondent motivation described above. Task difficulty is probably best studied through experimental manipulations. For example, the linguistic difficulty of question stems can be varied, as can the nature of the decision task and the amount of situational distraction. Respondent ability is probably best studied by measuring respondent attributes. Cognitive sophistication, practice at thinking about a question's topic, and attitude accessibility can all be gauged and correlated with the dependent variables listed above. Respondent motivation can best be explored through a combination of manipulations and correlational analyses. Beliefs about survey importance, interviewer behavior, accountability, and question placement in the questionnaire can easily be experimentally varied across respondents. In contrast, need for cognition, topic importance, and beliefs about survey importance are probably best measured and correlated with response effect size or response strategy frequency.

Studies of these sorts will require complex, multi-factorial designs and cumbersome statistical analyses. But their payoffs are likely to be enormous

in terms of our understanding of respondents' strategies for coping with the cognitive demands of surveys.

PRACTICAL RECOMMENDATIONS

The hypotheses proposed above lend support to a number of practical suggestions regarding the analysis and collection of survey data. First, the hypotheses suggest that researchers should conduct analyses within subgroups of respondents who differ in terms of the likelihood of satisficing. Because almost every survey includes a measure of respondents' educational attainment, it should be easy to repeat analyses within levels of education. Occasionally, surveys include measures of the personal importance that respondents attach to question topics or of their prior experience thinking about the topic. In these cases, analyses should be repeated within levels of importance and prior experience. It will be reassuring if comparable substantive conclusions are reached across all levels of education, importance, and experience. If there is variation in findings across these groups, investigators should consider the possibility that differences in the prevalence of satisficing are responsible.

A second practical recommendation based on the above reasoning is that questionnaire designers should work hard to minimize task difficulty. Question stems and response alternatives should include as few words as possible. Word use frequency data should be consulted to assure that those words are highly familiar to respondents. Dictionaries should be consulted to assure that question stem and response alternative words do not have multiple definitions. It is preferable to focus on current or very recent states or events, rather than states or events in the distant past. Each question should ask only about a single object and should require an absolute (instead of relative) judgment on only a single evaluative dimension. Complex judgment tasks should be decomposed into simpler, component judgments. Verbal labels should be included on numerically labeled response alternatives whenever possible. And interviewers should attempt to keep the pace of the conversation slow and to keep distraction to a minimum.

A third goal suggested above is that researchers should do what they can to maximize respondent motivation to optimize. This can be accomplished in a number of ways. First, the interview should begin with a lengthy and detailed description of why the survey is useful and important. Second, random probes should be included throughout the questionnaire in order to induce accountability. Third, interviewers should ask respondents to sign contracts indicating that they will work hard to provide high-quality data. Fourth, cognitively demanding questions should be preceded by instructions requesting that the respondent take his or her time and be very careful when answering the next question. And difficult questions should be placed as close to the beginning of a questionnaire as possible.

Finally, the impact of satisficing can be minimized by avoiding the response effects described above. Different forms of questionnaires should be administered that counter-balance the order of response alternatives for closed ended questions. Agree/disagree, true/false, and yes/no questions should be avoided whenever possible. Blocks of ratings using identical scales should be broken up, and the items should be interspersed throughout a questionnaire. And finally, "don't know" response options should not be offered to respondents, though interviewers should be instructed to accept such responses if offered by respondents.

CONCLUSION

Although it is widely recognized that the quality of survey data depends in part upon respondents' willingness to expend the effort needed to provide accurate answers to questions (e.g., Cannell, Miller, & Oksenberg, 1981), there is currently little consensus about precisely how respondents manage the cognitive demands of the response tasks commonly found in contemporary surveys.

This paper has offered some proposals about how respondents may do so. I hope that it provides some initial guidelines for survey researchers who wish to take into account these processes when designing questionnaires and analyzing survey data.

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