THE EFFECT OF QUESTIONNAIRE LENGTH ON RESPONSE RATES -- A REVIEW OF THE LITERATURE

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I. INTRODUCTION

In a 1973 article Berdie summarized the state of knowledge concerning the relationship between questionnaire length and response rate: "Common sense suggests that the shorter the questionnaire, the more likely a high response rate, and persons studying questionnaire efficiency have tended to accept this belief in spite of little empirical evidence to support it.... Surprisingly few studies actually have examined correlations between length of questionnaires and rate of response, and those studies that have done so generally have yielded confusing results [p. 278]." Most of the research reviewed in the 1973 article concerns the effect of questionnaire length on response to mail surveys. Since then, there has been some additional work on in-person interviews and some (very little, actually) on telephone interviews. The purpose of this paper is to review the current literature on this topic. The review finds that not much has changed in the intervening quarter-century since Berdie's review. The results are still confusing and contradictory, the conclusions are still not clear, and questionnaire designers still aim for shorter questionnaires with little more justification than the logical assumption that longer interviews will result in higher nonresponse.

II. BACKGROUND

Survey organizations, both inside and outside the government, continually search for ways to improve response rates to surveys. There is some evidence that nonresponse is increasing (Davey, 1996; Lyberg and Dean, 1992) and, in particular, that the refusal component of nonresponse is growing (Groves, 1989). The concern is that non-respondents and those who do participate may be different from each other in ways that will yield survey results that are not representative of the population which the sample is meant to represent.

Researchers have manipulated many different features of surveys in their attempts to understand the factors that affect survey participation. For example, researchers have looked at advance letters, postage, introductions, sponsors, follow-up procedures, incentives, publicity, and many other features to see whether and how much they affect respondent participation (see, for example, Fox, Crask, and Kim, 1988; Yu and Cooper, 1983).

One prominent feature of survey interviews that has often been assumed to affect respondent participation is the length of the survey questionnaire. For example, de Heer and Israels (1992), in their review of response trends in Europe, list average interview time as one of the factors that influence response and nonresponse, but they do not speculate on the specific contributions of this or the other factors influencing response. Likewise, Love and Turner (1975) review U.S. Census Bureau work and speculate that the complexity and length of some interviews make a high response rate hard to achieve. Botman and Thornberry (1992) describe the survey design features they believe affect response to in-person surveys, and they use the National Health Interview Survey (NHIS) as an illustration. The authors list interview length as one of the many correlates of nonresponse, but they admit that it is difficult to isolate the effect of any one factor. In the market research application, Ohlsten (1976) speculates that the increasing length of interviews is contributing to increasing public resistance.

Groves, Cialdini, and Couper (1992) also list interview length as a factor influencing survey participation, but they are not specific about the magnitude or even the direction of that influence. They say that respondents "are likely to base their decisions [whether or not to participate] on one or two highly prominent and normally diagnostic considerations (e.g., length of the survey or the authoritativeness of the interviewer) [p.487]."

Though only a few of the discussions are explicit about how survey length affects response rate, the implication of most is that the increased burden causes respondents to be less likely to participate. However, this line of thinking assumes that respondents know in advance how long the interview will take. In mail surveys, respondents can use the physical length of the questionnaire as a reasonable indicator of about how long it will take to complete. And this is also the case with panel surveys, where respondents may assume that the length of the previous interview is a reasonable indicator of the length of the current interview. In other interview situations, respondents know the interview length in advance if they ask or if the interviewer volunteers that information. (Groves and Couper, 1994, found that about a quarter of all respondents inquired about the length of the interview as a part of the initial doorstep interaction on a large in-person survey.)

However, voices can be found in the literature which are raised against the common assumption, and which suggest either that interview length might not be negatively associated with response or that the mechanism for that association is not via respondent refusals. Bradburn (1978) hypothesizes that longer interviews may suggest importance to interviewers and to respondents, and may result in higher response rates. Marquis (1979) also concludes that interview length does not have uniformly negative effects, and that any observed effects are "probably because of the indirect effects on interviewer workload and constraints on the ability to schedule interviews [p.10]." Likewise, Botman and Thornberry (1992) argue that with long interviews, interviewers have to stop knocking on doors earlier in the evening, probably the most productive interviewing time, because, otherwise, the interview will go on too late. As a result, interviewers are forced to approach households more often and at less efficient times.

In general, though, the assumption has been that the longer the survey, the more respondents will fail to answer it. In order to reduce potential nonresponse bias, survey practitioners should try to keep their surveys as short as possible. The purpose of this review is to test this common sense assumption against the evidence in the existing literature on this topic.

III. NON-EXPERIMENTAL LITERATURE ON INTERVIEW LENGTH AND RESPONSE RATE

There is no shortage of literature that discusses, or at least mentions, the relationship between interview length and response rates. Much of that literature suggests that interview length is a correlate of response and most, but not all, suggests that the relationship is a negative one (increased length associated with decreased response).

There are two quantitative literature reviews of techniques to increase response rates. One, by Yu and Cooper (1983), covers mostly mail surveys; the other, by Heberlein and Baumgartner (1978), covers only mail surveys. Yu and Cooper find only a very weak negative association (r=-.06) between interview length (as indicated by the number of items to be answered) and response rate. Heberlein and Baumgartner find that long questionnaires average just as high a response as very short interviews, until controlling for salience and number of contacts, and then the instruments with more items get lower returns.

Morton-Williams and Young (1987) examined tape-recorded doorstep interactions in personal surveys in an effort to understand what makes respondents participate or refuse. The survey they used was about 25 minutes long and asked about current issues in Britain. Of 149 respondents, only 9% expressed reluctance based on length of the interview. And, of those, 92% still agreed to be interviewed. The authors conclude that interview length is a weak rationale for reluctance and respondents who offer it are highly convertible.

Burchell and Marsh (1992) also attempted to find out why respondents fail to participate in surveys. They conducted 300 in-person interviews and had interviewers keep track of the number of refusals and the reasons offered. The authors report that 61% of all refusers who gave a reason for refusing could have been influenced by the length of the interview. The authors are very inclusive in defining "could have been influenced by survey length," including in this category reports of "no time", "too busy", and "involved in an activity." The authors say, "While it is not possible to draw any strong conclusions about the effect of length on response rates directly from this evidence..., the implications should certainly be a cause for concern among researchers contemplating the use of long schedules [p. 237]."

In summary, the non-experimental literature paints a picture about the relationship between interview length and response rates that is not uniform. Some authors speculate that the predominant relationship is negative, others speculate that it is slightly positive, and still others speculate that there is no consistent relationship. However, this literature does not include experimental research. The next section of this paper covers experimental studies designed to test for this relationship.

IV. EXPERIMENTAL LITERATURE ON INTERVIEW LENGTH AND RESPONSE RATE

Surprisingly, despite its important implications for all surveys, relatively few experiments have been conducted specifically to test the effect of interview length on response rates. There are conflicting results, and flawed designs, among the studies that have been done. And the majority of such work has been done on mail surveys, leaving other modes almost untouched.

IV.A. Some Findings Show Shorter Interviews Yield Higher Response

Mail Surveys: It seems reasonable that mail surveys, where respondents can see the length of the questionnaire, might be the most likely mode in which to see the effects of questionnaire length on response. In 1990, the Census long form mail return rate was four and a half percentage points lower than for the short form, near the five point difference in the 1970 Census. In 1980, though, there was a much smaller difference between the return rates (one and a half points). As a response to the disappointing 1990 Census mail response rate (65% overall), Dillman, Sinclair, and

Clark (1993) designed a complex experiment to test several features of the Decennial Census short form and procedures to assess their effect on response rate. Among the features they tested were three different form lengths: the roster form, which was the shortest; the micro form, which was the middle length; and the booklet form, which was the longest. (Note that this experiment confounds interview length with design.) Their results were somewhat mixed in that the middle-length form (micro) elicited the highest response rate (71.4%), followed by the shortest (roster) form (70.9%), though the difference between them was not significant. Both yielded significantly higher response rates than the booklet form (66.8%), the longest of the three forms.

Blumberg, Fuller, and Hare's 1974 mail study involved 265 respondents in each of five different interview length conditions. They report the following response rates:

- 30% response to a one-page form;
- 28% response to the one-page form plus a second page with fixed alternative attitude items;
- 20% response to a one-page form plus a series of open-ended questions;
- 21% response to the one-page form plus five pages of fixed alternative questions;
- 22% response to the one page form plus the five pages of fixed alternative questions plus one page of attitude items.

They conclude that a mailed survey questionnaire that is not "overly long" (not defined) -- and that contains interesting items (again, not defined, and certainly variable) and "avoids objectionable ones" -- will yield a higher response than will a comparable longer form.

Two other studies also belong under this sub-heading. Sirken, Pifer, and Brown (1960) conducted an experiment using three questionnaire versions sent to separate samples of respondents: a short one about smoking, a short one about residence, and a longer version about smoking, residence, and occupation. After the initial mailing, the short smoking version (which was extremely short for lifetime nonsmokers) had the highest response (54%), followed by the short residence version (49%), then the long version (43%). (Only the difference between the short-smoking and the long-combined versions is significant.) Brown (1965) queried physicians about whether they had seen any patients with a particular, fairly rare disease. He mailed different questionnaires to different samples of physicians: one that asked for the number of such patients and the detailed information about those patients on the same two-page form, the other a postcard that asked only for the number of such patients, with a planned short follow-up questionnaire to obtain details. Brown's expectation was that the postcard inquiry would yield the higher response, especially since most physicians would have no cases to report. Those expectations were confirmed by a 15 percentage point difference between response to the initial postcard versus the original two-page form (68% v. 53%).

Although the initial results in both studies support the conventional wisdom, both also found that the initial response rate differences were easily erased by simple followup procedures. In Sirken et al., the three groups produced indistinguishable results after a second mailing. Likewise, in Brown, the treatments had nearly identical response rates after a second mailing and identical rates after a telephone followup.

Telephone Surveys: With a one-time telephone survey, it is a little harder to see the direct connection between interview length and nonresponse, since usually most respondents don't know the length in advance. Collins et al. (1988) provide the only evidence uncovered in this literature search concerning length and response rates for telephone surveys. Prospective respondents were told of the interview length in advance, and Collins et al. report a 14% refusal rate for the 40-minute interview, versus a 9% refusal rate for the 20-minute interview. They conclude, "Although this result supports the view that long interviews are less likely to be accepted, the difference is less than some might expect. And it is not clear that the problem arises entirely from the respondent: interviewers may well share the expectations of reluctance and be tentative in their approach [p.229]."

IV.B. Some Findings Show That Longer Interviews Yield Higher Response

Mail Surveys: The literature search yielded one study which appears to support the speculation that, under some circumstances, a longer questionnaire might actually improve response. An experiment by Champion and Sear (1969) used three-, six-, and nine-page versions of a questionnaire. The content of all versions was identical; the researchers varied the lengths by varying the spacing between questions. Their goal was to avoid introducing new content and confounding that with length. (In fact, though, they didn't remove confounding; they simply substituted one form of confounding -- length and format -- for another.) Champion and Sear report that the longer questionnaires in their sample (2,290 respondents from three Tennessee city directories) were returned more: 39.4% for the 9-page, 38.4% for the 6-page, and 27.5% for the 3-page. The differences are significant. The authors speculate that perhaps the range of questionnaire lengths tested was not sufficient to detect the negative effect of a truly long questionnaire, and acknowledge that the relationship between interview length and response rate is likely more complicated than their results indicate.

IV.C. Some Findings Are Too Mixed to Categorize

Mail Surveys: Sletto (1940), in one of the earliest studies on interview length, used three versions: 10 pages, 25 pages, and 35 pages (the 10- and 25-page questionnaires combined). Each member of a 300-person pretest sample of former university students received one of the three versions. All groups received up to three follow-up requests to return the form. The 10-page questionnaire produced the most returns (68%), followed by the 35-page questionnaire (63%); the middle length, 25-page version produced the lowest rate of return (60%). The authors hypothesize that the difference between the 10-page and 25-page response rates may have been a result of content differences, since the 10-page questionnaire was included as part of the 35-page version, and they both received more returns than the 25-page instrument. Based on these pretest results, the researchers decided to use the 35-page version in their main study, since "the factor of length is less important than it has generally been assumed to be, insofar as proportion of returns is concerned [p. 195]."

Adams and Gale (1982) also report mixed results from a mail experiment. They mailed one of three questionnaire versions (one, three, and five pages) to 1650 Brigham Young University students (550 per treatment). Content was assumed to be fairly consistent among the three versions (the longer versions had more of the same neutral type of questions). The three-page version produced the best return (46%), the one-page version performed significantly less well (41%), and the five-page version was significantly lower than both others (22%). The authors feel that their mixed results help clarify some of the mixed results found throughout this literature. Had they looked only at the one-page versus three-page difference, they would have concluded that longer was better; the three-page versus five-page difference would lead to the opposite conclusion.

IV.D. Some Findings Suggest that Length of Interview Doesn't Matter

Mail Surveys: Many of the studies designed to test the effect of questionnaire length on response rates have found no effect. However, some of these studies suffer critical methodological problems which raise questions about the meaning of their results.

Roscoe, Lang, and Sheth (1975) and Sheth and Roscoe (1975) describe a mail survey experiment with two questionnaire lengths. They compare responses to a short (four-page) questionnaire and a long (six-page) version which consisted of the four-page questionnaire plus two pages of attitudinal items. The researchers find no difference in response rate between the two versions. They admit, however, that their range of questionnaire length was small, and acknowledge the confounding of length and content in their experiment.

Rudd and Maxwell (1980) describe a mail survey experiment using four different questionnaire topics, each with a short (1-page) and a long (3-page) version. The short versions always consisted of a 15-item subset of the 45 attitude items in the long version. The authors report no response rate difference between the short (32%) and long (34%) versions. However, neither version took more than five minutes to complete; they might both be considered short questionnaires.

In-Person Interviews: Frankel and Sharp (1981) and Sharp and Frankel (1983) report on the results of an in-person interview experiment they conducted to assess respondents' perceptions of burden. They fielded two questionnaires, one 25 minutes long and the other 75 minutes long. They report that "the time required for an interview was frequently the reason given for the refusal, [but] the actual length of time when announced to the respondent at the door did not seem to contribute in any appreciable way to the tendency to refuse. The percentage of refusals occurring after the specific time was mentioned was virtually identical (about 38%) for both long and short interview groups. [Frankel and Sharp, p. 107]."

V. LONGITUDINAL SURVEY RESULTS

Two recent studies describe the effects of interview length on response rates in longitudinal surveys. Branden, Gritz, and Pergamit (1995) estimate hazard functions that measure the probability of leaving the National Longitudinal Survey of Youth sample, conditional on having been interviewed each previous year. They look at first-time nonresponse only and find that, in general, interview length has either no effect or a positive effect on sample retention. Some individual findings do not hold to this generalization (for example, there were some gender differences, as well as differences over the 14 years of longitudinal data), but, for the most part, their hazard models support this statement. Branden et al. conclude: "We conjecture that survey length, whether measured in minutes or number of questions asked, measures saliency or applicability of the survey to the respondent. Those respondents who possess the characteristics most important to the content of the survey have the longest interviews but are also the most interested [p. 129]."

Zabel's (1994) initial analysis also suggested a positive relationship between interview length and staying in sample (decreased length associated with decreased attrition). As he notes, "This may arise because interviewers spend more time with respondents who enjoy the survey more and hence

are less likely to attrit [p. 13]." To control for this possible confounding of interview length and respondent interest/enjoyment, Zabel searched for a change in interview length that was unrelated to interest or enjoyment. He found such a change in the 1973 Panel Study of Income Dynamics, which purposefully shortened the interview. Zabel reports that attrition diminished after this decrease in interview length, a finding more in line with his (and others') expectations.

The Sharp and Frankel study noted above (1983; also see Frankel and Sharp, 1981) obtained some additional evidence which supports the notion that interview length does not have an important effect on subsequent response in a panel survey. When asked their attitudes about being reinterviewed a year later, more of the long (75 minutes) interview respondents said they would not agree to be reinterviewed a year later (27% vs. 13% for short, 25-minute interview respondents). However, when actually contacted for a second phase of interviewing a year later, the response rate for the group which had received the long interview a year before (85%) was about the same as for the short interview group (88%).

VI. DISCUSSION

Possibly the most noteworthy finding of this literature search is the fact that there is remarkably little sound experimental work to guide the survey practitioner in decisions about survey length. This is particularly true for in-person and phone surveys as well as for effects in longitudinal surveys. There is somewhat more information for mail surveys, though even the results there have been so mixed that it is not clear where the length limits are.

From the experimental work that has been done, it looks like the relationship between interview length and nonresponse is more often positive than not, but it is surprisingly weak and inconsistent.

The common assumption is that interview length affects nonresponse by way of the respondents' attitudes and behavior -- the increased length adds to the burden on respondents and pushes more of them over a threshold beyond which they will no longer cooperate. But this common sense notion does not seem to be well-supported in the experimental literature. Basic followup procedures are often sufficient to erase initial interview-length-based response rate differences. In addition, respondents' professed concerns about interview length often don't correspond to actual nonresponse behavior. For in-person interviews, logistical and scheduling considerations may be the source of any observed effects of interview length on nonresponse. And interviewers' expectations about respondents' negative attitudes toward long interviews may play a more important role than the respondents' negative attitudes themselves.

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2. There are additional references not cited in this paper. They are available from the author on request.