Journal of Official Statistics, Vol. 11, No. 2, 1995, pp. 129–139

Increasing Response to Personally-Delivered Mail-Back Questionnaires[1]

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A "new" procedure for obtaining response to personally delivered mail-back questionnaires was compared to a "traditional" procedure of simply handing people a questionnaire with a request to complete it. Average response rates for the new procedure was 75.4% in 21 surveys of visitors to U.S. national parks compared to 37.9 % in 11 surveys which used the traditional method. The new procedure offers promise for overcoming the major limitation of mail surveys of not being able to survey individuals whose names or addresses, or both are unknown and who therefore can only be reached through a personal contact procedure.

Key words: Mail survey; response rate; social exchange; foot-in-the-door.

1. Introduction

The use of personally delivered mail-back questionnaires offers substantial benefit to survey researchers for several reasons. First, interview costs can be lowered by interviewers not having to wait while a subject completes the self-administered questionnaire or return later to pick it up. Second, such a procedure may be more convenient for some respondents and therefore enhance their cooperation. Third, it may help avoid social desirability bias on sensitive questions caused by the presence of an interviewer. Fourth, this procedure offers potential for overcoming one of the most serious current drawbacks to the use of mail surveys, i.e., not being able to survey individuals whose names and addresses are unknown and who therefore can only be reached through a personal contact procedure.

Substantial literature exists on effective procedures for conducting face to face interviews (e.g., Weinburg, 1983; and Guenzel et al., 1983) and mail surveys (e.g., Dillman, 1978, 1991). However, virtually no research has been done on how to obtain high response to personally delivered mail-back surveys. Development of step by step procedures for accomplishing high response in this situation would be

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useful both to researchers who do personal interviews and those who rely on mail methods. Populations of particular interest for surveying with personally delivered questionnaires include those traditionally sampled and surveyed as they enter or leave a facility of interest, e.g., users of museums, parks, airports, and malls. Also of interest is the general public that is typically sampled for contact studies by area probability sampling methods because of names not being available on any list.

This paper reports a test of a newly developed mail-back procedure for improving response to personally delivered questionnaires. This procedure is tested in surveys of visitors to national parks using similar questionnaires by comparing it to results obtained by a traditional procedure used in previous investigations: that procedure consisted of simply handing people a questionnaire as they entered the park and asking them to mail it back after leaving. Our goal is to develop a practical procedure that improves response rates significantly over those obtainable by the traditional method and which might be used on a variety of survey populations.

2. Frame of Reference

The new procedure designed for this test used several sources of past research as a frame of reference for development of specific procedures to approach sampled individuals and obtain their cooperation.

Undoubtedly, the most consistent finding of past research on mail survey response is that increasing the number of contacts will improve mail response rates (Heberlein and Baumgartner 1978; Goyder 1985, 1987; Dillman et al. 1974). Therefore, a way was sought to make possible additional contact with the questionnaire recipient. Because of questionnaires being handed out to people whose names and addresses were unknown, this concern represented a major challenge.

Second, we were guided by the concept of improving to the extent possible, the expected benefits of responding, while reducing the expected costs to the respondent, here employing a social exchange perspective on human behavior (c.f. Dillman 1978; Goyder 1987). Personal as opposed to mail delivery of a questionnaire seems likely to provide a greater opportunity to generate a social exchange interaction sequence that can be directed towards obtaining a completed questionnaire (Turk and Simpson 1971). As part of the effort to improve perceived benefits of responding, an attempt was made to increase the salience of the request, a factor found particularly important by Heberlein and Baumgartner (1978) and Goyder (1987).

Third, we were influenced by the concept of foot-in-the-door, the notion that people who agree with a small initial request are more likely to agree with a subsequent larger request (Freedman and Fraser 1966; DeJong 1979).[1] In addition, the making of successive requests was interspersed with information aimed at increasing perceived benefits and decreasing costs, as a means of encouraging compliance with the later requests.

Fourth, we recognized that the nature of the request being made of questionnaire

[1] The foot-in-the-door concept has been tested in studies for which completion of a survey questionnaire has been the second of the requested tasks, without clearly definitive results (e.g., DeJong, 1979, Crano and Sivacek, 1978, and Reingen and Kernan, 1977). For a more detailed discussion of these studies, and their application to the design of this study see Dillman et al. (1990).

recipients was to complete a questionnaire only after they had completed an activity (visiting a national park) that could sometimes take several hours or days. Therefore, making the request more memorable than the few seconds required to simply hand people a questionnaire seemed important.

Finally, our goal was to blend these elements together in a targeted, comprehensive system in which the elements were mutually supporting (Dillman 1991.) Thus, our goal was not to test one or another element or theoretical perspective, but rather a well-reasoned set of procedures that offered the possibility of significantly improving response to the previously used method of simply handing people a questionnaire and asking them to complete and return it.

3. The Study

Visitors to 32 different national parks throughout the United States were given questionnaires at the time they entered each park. A total of 30,390 questionnaires were delivered over a five-year period (Littlejohn and Machlis 1990). A six-page booklet questionnaire was used in each park and contained similar questions about the visitors' activities and opinions of their visit to the park. However, the questions were tailored to the facilities and programs of each park and the interests of the park's administrative staff. In all cases an attractive cover sketch, usually of some feature in the park, and an introductory letter on agency letterhead from the park superintendent were used. The questionnaires were printed on pastel paper and each back cover page contained a first-class postage stamp and a return address. The printing of questionnaires without separate return envelopes was done to avoid potential separation and loss of a return envelope from the questionnaire and to ease the task of responding.

The study was not strictly experimental. The traditional procedure was applied in 11 national parks from 1985–1987. The new procedure was applied to 21 areas from 1988–1990. Not applying the new and traditional procedures to random subsamples of the study populations defined for each park limits our ability to draw definitive conclusions and is a clear limitation of this study. However, we believe this limitation is to a substantial degree compensated for by the large numbers of replications (11 for the traditional method and 21 for the newly-developed method) across visitor populations. Each of these replications can be viewed as an independent "test" of each method. Therefore, we will place considerable emphasis on examining the consistency of effects for each method across visitor populations.

4. Traditional Procedure

Every *n*th (the interval varied by park) visitor was greeted at the entrance station to each park by a uniformed National Park Service employee or similarly uniformed volunteer. After any fees were paid and orientation information given, each visitor group was told that a brief study of people's reactions to the park was being done. The driver was asked if the group would cooperate by completing and mailing back a questionnaire. Agreeable participants were given the questionnaire and allowed to continue immediately into the park. In cases where lines of cars were

waiting to gain entrance to a park, this interaction was particularly brief and to the point. No names or addresses of respondents were requested for later follow-up in the event the questionnaire was not returned.

5. New Procedure

Every *n*th visitor group was asked by the uniformed park attendant to pull their vehicle over to the side of the road where another person in park uniform (or official volunteer uniform) was standing for purposes of an important visitor study the park was conducting. This initial request served multiple purposes. It was aimed at increasing the salience and memorability of receiving the questionnaire as well as providing more time for asking and responding to subsequent requests.

The request to pull to the side of the road, seen as a type of foot-in-the-door, was made by a uniformed representative of the National Park Service and, therefore, very likely to be seen as legitimate. Once at the side of the road the sampled vehicle was met by another uniformed attendant who thanked them for pulling over and proceeded with the following introduction.

> "Hello! Welcome to (Park name). My name is _____. (Park name) is conducting an important visitor survey to learn what you think of our programs and services. We are only interviewing a few select visitors so your voluntary cooperation would be greatly appreciated. I have several initial questions to ask right now that will take two minutes of your time. If you agree to help us, it will take you another five to ten minutes during or after your visit to complete the questionnaire, which you can mail back to us. Would you like to participate?"

The new two requests – to answer a few questions now and then fill out the mail-back questionnaire – were contained in this introduction. Those who refused to participate were thanked for their time in a friendly manner and encouraged to enjoy their visit. Visitors who agreed to participate were also thanked, consistent with exchange principles, and asked:

> "We need to designate one of the adults in your group as the individual responsible for filling out the questionnaire. Who is willing to actually write in your group's answers?"

The consenting person was thanked, given the questionnaire, and asked to identify which kind of group they were travelling as – family, friends, family and friends, a tour group, alone, or some other group. The respondent was also asked the number of people in the group and his or her age. Again, the respondent was thanked, consistent with exchange principles.

The final request was then made. Respondents were told that the National Park Service would like to send a postcard thanking them for assisting with the study. They were handed a clipboard with address labels and asked to put their name and address on it. This information would allow additional contacts (traditionally the most important procedural contributor to high response rates) to be made. They were also told that the postcard would remind them to return the questionnaire since

their input was crucial to the study's success. Finally, the visitor group was thanked for their opinions, told once more that their feedback was important to the park's managers, and encouraged to enjoy their visit.

We reasoned that the request to provide name and address was potentially the most "costly" aspect of the interaction sequence, even more so than being asked to complete the questionnaire. Therefore, this request was positioned last and made in conjunction with a promise to send them the picture postcard thank you. By extending the interaction over a period of a few minutes, rather than being confined to a few seconds as in the traditional procedure, time was allowed for an interchange of sufficient length that it would be memorable. Further, ending the interaction with the expectation of a thank you was designed to encourage respondent's feelings of the need to return the questionnaire.

Approximately two weeks later, each respondent was sent a glossy color postcard depicting a park scene that might have been seen by the questionnaire recipient. It contained a brief message from the park superintendent thanking them for participating in the visitor survey. It was reasoned that this postcard would have particular reward value to the respondents, reminding them of where they had just visited, and being similar to a card they might have sent friends or relatives while visiting the park. It also requested that if the questionnaire had not yet been returned that it be done at their earliest convenience. Two weeks later, nonrespondents in selected parks were sent a special letter emphasizing the importance of this study and expressing hope they would still be able to return a questionnaire; a replacement questionnaire was enclosed in case the original one had been misplaced.

6. Results

Tables 1 and 2 show response rates for the traditional and new procedures, respectively.

Table 1. Response to traditional procedure (1985–1987)

(0) Park	(1) Number of groups contacted	(2) Number of groups who accepted questionnaires	(3) Initial refusal rate (%)	(4) Number of questionnaires returned (*N*)	(5) Completion rate (%) (col.4/col.2)	(6) Response rate (%) (col.4/col.1)
North Cascades	791	769	2.8	333	43.3	42.1
Crater Lake	1,036	1,021	1.4	522	51.1	50.4
Gettysburg	1,115	1,093	2.0	454	41.5	40.7
Valley Forge	789	782	0.9	353	45.1	44.7
Colonial	2,216	2,209	0.3	812	36.8	36.6
Grand Teton	1,516	1,500	1.1	499	33.3	32.9
Harpers Ferry	925	920	0.5	331	36.0	35.8
Mesa Verde	863	850	1.5	358	42.1	41.5
Shenandoah	2,974	2,960	0.5	1,008	34.1	33.9
Yellowstone	3,029	2,716	10.3	845	31.1	27.9
Independence	4,415	4,246	3.8	1,365	32.1	30.9
MEAN	1,788	1,733	2.3	625	38.8	37.9

Table 2. Response to new procedure studies (1988–1990)

(0) Park	(1) Number of groups contacted	(2) Number of groups who accepted questionnaires	(3) Refusal rate	(4) Number of questionnaires returned	(5) Five working days after mailing first follow-up[a]	(6) Five working days after mailing second follow-up	(7) Five working days after mailing third follow-up	(8) Completion rate (col.4/ col.2)	(9) Response rate (col.4/ col.1)
Bryce Canyon	567	484	14.6	406	57.0	66.7[b]	NA	83.9	71.6
Craters of the Moon	409	358	12.5	303	62.1	NA	NA	84.6	74.1
Glen Canyon	304	292	3.9	255	50.3	68.8	NA	87.3	83.9
Denali	505	483	4.4	428	66.9	NA	NA	88.6	84.8
Everglades	624	584	6.4	470	63.9	NA	NA	80.5	75.3
Statue of Liberty	629	596	5.2	456	46.3	54.8	69.6[c]	76.5	72.5
White House	594	558	6.1	457	59.9	69.4	NA	81.9	76.9
Lincoln Home	488	445	8.8	359	57.2	65.8[d]	NA	80.7	73.6
Yellowstone	1,126	1,052	6.6	856	60.7	70.2	NA	81.4	76.0
Delaware Water Gap	668	648	3.0	457	49.3	56.3	NA	70.5	68.4
Muir Woods	488	443	9.2	341	53.5	64.3	NA	77.0	69.9
Canyonlands	482	455	5.6	399	61.8	71.0	NA	87.7	82.8
White Sands	534	519	2.8	430	55.2	69.5	NA	82.9	80.5
National Mall	840	799	4.9	638	46.4	53.8	NA	79.8	76.0
Petersburg	514	498	3.1	379	53.3	60.5	NA	76.1	73.7

[a] First follow-up consisted of a color picture postcard.
[b] Second follow-up consisted of a special letter with a replacement questionnaire, unless otherwise noted.
[c] Third follow-up consisted of a letter only; no replacement questionnaire was sent.
[d] Subjects randomly selected for second follow-up mailings were first contacted by telephone to screen for their participation.

Table 2. (continued)

(0) Park	(1) Number of groups contacted	(2) Number of groups who accepted questionnaires	(3) Refusal rate	(4) Number of questionnaires returned	(5) Five working days after mailing first follow-up[a]	(6) Five working days after mailing second follow-up	(7) Five working days after mailing third follow-up	(8) Completion rate (col.4/ col.2)	(9) Response rate (col.4/ col.1)
Kenai fjords	517	475	8.1	383	50.7	59.6[b]	NA	80.6	74.1
Gateway	806	767	4.8	505	38.1	45.2	58.1[c]	66.4	62.7
Death Valley	524	448	14.5	353	46.6	55.9[e]	NA	78.8	67.4
Scotts Bluff	417	410	1.7	340	55.9	68.8	NA	82.9	81.5
Glacier	616	566	8.1	481	51.1	66.6	NA	85.0	78.1
John Day Fossil Beds	468	444	5.1	376	55.8	67.9	NA	84.7	80.4
MEAN	577	539	6.6	432	54.4	63.1	63.9	80.8	75.4

[b] Second follow-up consisted of a special letter with a replacement questionnaire, unless otherwise noted.

[e] Separate second follow-up mailings were made for nonrespondents from the USA (4 weeks after fieldwork) and foreign countries (5 weeks after fieldwork). The mailing of follow-ups to nonrespondents from foreign countries was delayed one week due to a logistical problem in obtaining international reply coupons. Since 72% of the total sample was composed of visitors from foreign countries, the international completion rate (as shown here) was used to compute the response for the second follow-up, even though the time factor varied from the balance of the experimental studies.

Under the traditional procedure the mean response rate for the 11 parks was 37.9% with individual response rates ranging from 27.9% to 50.4%. In contrast, the average response rate for the studies using the new procedure was 75.4%, with the range being 62.7% to 84.8%. Thus, the new procedure elicited a response rate nearly double the response for the traditional procedure. It is noteworthy that the lowest individual study response rate for the new procedure is 12.3 percentage points above the highest single response rate for the traditional procedure. These results leave little doubt that the new procedure is substantially more effective in generating high response than the traditional procedure.

These response rates take into account the initial refusal rates at the time the questionnaires were distributed. Not surprisingly, the initial refusal rate for the new procedure is somewhat higher (6.6%) than for the traditional procedure (2.3%), indicating that a few more people explicitly refused to cooperate when the more intense methods of the new procedure were used. Interviewers were instructed to stress the voluntary nature of study participation.

It is also apparent that different elements of the new procedure contributed to the final response rates. By the time the postcard thank you/reminder had been mailed, responses were slowing to only a few each day, as is typical for mail surveys. By comparing the response rate five days following that mailing to the completion rate five days following the mailing of a second follow-up, we have an approximate measure of the postcard effect. It can be seen in Table 2 that the average response prior to the postcard effect was 54.4%, nearly 17 percentage points higher than the average final response obtained from the traditional procedure. The response measure for the postcard effect shows that the average response rate increased nearly nine percentage points to 63%. Thus, part of the increase over the traditional procedure is clearly attributable to the contact procedures themselves, and part is attributable to the mailing of the postcard thank you.

In those few cases when a third follow-up with a replacement questionnaire was implemented, it can be seen that a significant increase also occurred, confirming that each element had a measurable effect on the overall response rate.

7. Discussion

The new procedure developed for this study consistently produced mail-back response rates double those obtained by simply handing questionnaires to people and asking that they be returned. Although a strictly experimental design could not be employed, the magnitude of the differences and the consistency of findings across similar populations of park visitors leaves little doubt that the new procedure works, even resulting in response rates somewhat above those normally obtained in well-designed mail surveys.

The basis for choosing which parks received the traditional vs. the new procedure was entirely separate from the study objectives and beyond the control of the researchers. However, in both cases the parks were from widely scattered regions of the United States, including some from eastern as well as western states. One park, Yellowstone, was in both groups, thus making those results of particular

interest. In this park, the traditional procedure obtained a response rate of 27.9% vs. 76.0% for the new one. We can find no reason that the time differences (1985–87 for the traditional procedure vs. 1988–90 for the new procedure) for the application of the two procedures could account for the very large and consistent differences noted across the two treatment groups.

We cannot conclude whether a particular aspect(s) of the new procedure or the overall combination of elements was responsible for the substantial improvements in response. This study was not designed for that purpose.

However, the results do show that each of the three aspects of the new procedure produce an increment of response. These aspects include effects from the initial interaction sequence (as measured by response prior to sending the thank you), and the postcard follow-up (as measured by the additional increment of response obtained prior to any additional contact). In only a few parks an additional mail contact consisting of a letter and a replacement questionnaire was used, the effect of which is measured by the final measure of response. Clearly the personal contact for the new procedure resulted in people being far more likely to return questionnaires independent of any follow-up efforts than for the traditional procedure (54.4% five days after the postcard follow-up to the new procedure vs. the 38.8% final completion rate for the traditional procedure). Whether the responsible elements were the applications of foot-in-the-door or social exchange, the combining of the two sets of principles or something else, is unclear. It is also possible that the longer time required for the new procedure to be implemented, compared to the traditional procedure, simply resulted in the request being more memorable – being stored in people's long-term rather than short-term memory. These are issues for future research.

It is also unclear exactly what the role of the picture postcard, which we assumed to have reward value to the respondents, really was. Perhaps a regular postcard would work just as well. These unanswered questions suggest the need for strict experimental studies that will provide answers to these questions.

Nonetheless, the findings reported here have practical importance. We have demonstrated an ability to obtain high response rates to mail-back questionnaires in an instance where a prior list of a population did not exist. Thus, this method provides potential for overcoming one of the major limitations of mail surveys, the problem of obtaining high response rates from populations which can be sampled by direct contact but for which personally addressed letters cannot initially be sent. Just as a holistic set of procedures, such as the Total Design Method (TDM), has been applied in thousands of survey situations without knowing precisely which individual components contribute to producing high response rates (Dillman 1991), these aspects within the new procedure might similarly be applied.

One such population is household samples of the general public in which surveys are hand-delivered to occupants (whose names are not known) at sampled addresses.[2] Instead of simply handing a questionnaire to the selected occupant and asking if he or she would complete and return the questionnaire, as done in the traditional procedure

[2] Delivery of self-administered questionnaires to households may be considerably more cost-effective than conducting face-to-face interviews because of the ability of interviewers (deliverers) to contact so many more households within a given amount of time (Melevin et al., 1991).

reported here, one might develop a lengthier, more complex interaction opportunity as described for the new procedure. The caller might first explain the reason for the survey and ask if he or she would answer three short questions now and then complete a brief attractively designed questionnaire. After that is accomplished the caller could then ask for an address confirmation and name on a clipboard so that a thank you can be sent to them by the director of the study, or to contact them in case the first questionnaire is misplaced. A picture postcard thank you (appropriate to the theme of the study) could be sent, as in the case of the park studies.

An adaptation for museum studies might be to ask people to step to the side of the entrance and talk to one of the museum's "docents," appropriately dressed with official name tag or other marks of recognition, about a study they are doing following a similar procedure. In this case the postcard that is sent might reasonably be a picture of a popular or new piece of art in the museum.

These suggested applications are by no means a substitute for experimental research of a theoretical nature to assess the precise role of different motivational components, or tests of the exact procedure used here in other populations. However, until such research is done, the new procedure described here offers promise of improving response rates over the simple and relatively ineffective procedure of simply handing a questionnaire to people and asking them to fill it out.

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Received August 1992
Revised February 1995