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John Ballweg
Virginia Polytechnic Institute and State University

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Testing TDM Modifications with Mail Surveys During a Southern Farm Study: A Research Note

John Ballweg

*Virginia Polytechnic Institute and State
University, Blacksburg, Virginia 24061*

ABSTRACT Based on data collected during a mail survey of crime and vandalism on farms in a southern state, this study involves a modification of two procedures in the Total Design Method: 1) individually signed cover letters; and 2) replacement questionnaires for the second mailing. While the first procedure was found to have no significant effect on the return rate, the inclusion of replacement questionnaires with the second mailing improved the response rate by a wide margin (more than double the letter-only mailing). The implications of audience type (in this case a farm audience) and other survey design features on response rates are discussed.

Introduction

This report describes a test of a modified approach for two procedures included in the Total Design Method (TDM). The procedure for the TDM method, as described by Dillman (1978), includes more than 30 steps and is intended to produce high response rates for mail survey research. The TDM method is well recognized and accepted; more than a hundred social science articles reported in the DIALOG data base over the past five years cite TDM as the method used for data collection. The method also appears to have worldwide acceptance and applicability, having been used with studies in Australia, Europe, the Middle East and Africa. Even for some sensitive topics, it has been reported that the TDM method has advantages over face-to-face interviews (Nerderhof, 1985).

While TDM is intended to be used in its entirety, researchers often "modify" the procedure either to meet specific project needs or to reduce costs associated with use of the complete design. The standard design, once the questionnaire has been designed and the study population identified, involves the following: a first-wave mailing, followed by a postcard reminder and two follow-up mailings. The initial and follow-up mailings include a cover letter, a questionnaire and a prepaid return envelope for use by the respondent.

One step in the TDM method that has been questioned involves the importance of a personally signed cover letter. For an experiment in the Netherlands by De Leeuw and Hox (1988), some respondents received a personally signed letter while others received a letter with the name and address of the study director omitted. It was found that the absence of a personally signed letter had a detrimental effect on response rates. Only when a personally signed letter accompanied the survey was the response rate comparable to those reported in United States studies (De Leeuw and Hox, 1988:246). In another study, Grembowski (1985) tested the importance of the cover letter by designing two cover letters—each with a different theme. A 16-point response rate difference was reported for the two approaches (90% confidence level), which appeared to support Dillman's claim that cover letter appeal influences the response rate (Grembowski, 1985:1350).

A study by Harvey (1988) in England used eight different forms for the cover letter; each varied according to sponsorship, style, and length. Response rates were found to vary according to the format used (Harvey, 1988). These findings were similar to those by Biner (1988) who prepared two cover letters: one emphasized that response was a matter of personal choice while the other focused upon the importance of the research (Biner 1988:103). A Belgian study by Van Dongen, et al. (1987) modified a number of steps in the TDM Method, including the cover letter; the study was plagued by failure to achieve the response rates suggested by Dillman with the original design.

Costs associated with sending an additional questionnaire to persons in the sample who fail to respond to the initial mailing is another design concern of TDM. Dillman et al. (1974) indicated that in one survey they conducted, the replacement survey was not included in the third mailing (1974:748). The response rates did not appear to be negatively influenced by the omission.

In another study Heberlein and Baumgartner (1981) divided the second mailing into two randomly assigned groups. For one group, an additional survey was included; for the second, only a letter was sent. For those who received a survey form with the second mailing, 30.4% responded; for those who received only a letter, 27.5% responded. Thus, the inclusion of a survey increased response rates by only 2.9%. While this was statistically significant, when the first and second

mailings were combined, the increase was 1.38%. The conclusion by Heberlein and Baumgartner was that adding a questionnaire to the second mailing had little influence on the response rate (1981:107).

An experiment was conducted by Smith and Bers (1987) in which prospective respondents were divided into four groups. Adherence to TDM procedures was varied for each group. It was found that efforts to instill feelings of importance in respondents and the warmth of the approach to motivate response were not as important a factor in response rates as were persistent follow-ups (Smith and Bers, 1987:225). While not commenting directly on TDM, Goyer (1982) demonstrated that response rates are influenced by community size, sex of respondents, as well as their education and occupation. The contention was that characteristics of respondents and cultural acceptability of the mail survey methodology influence response rates, regardless of the salience of the survey topic and the adequacy of field procedures (Goyer, 1982:550). Goyer did not indicate that there may be some interaction effects between individual characteristics (e.g. occupation) and survey instrument characteristics or procedures. Therefore, tests of procedures on specific types of respondents (e.g. a farm population) deserve attention.

Carndike (1986) did not attempt to modify or test the Total Design Method but suggested that TDM required testing that involved comparative approaches in an experimental design. In that way, a determination could be made on whether or not response rates were influenced by design.

It is a comparative approach that is followed in the present study. This report describes a test of two steps included in the TDM. The first part of the test concerns the requirement that the cover letters which accompany a mail survey be individually signed (Dillman et al. 1974; Dillman, 1978:173); the second part tests response rate differences when the second mailing does not include the replacement survey questionnaire (Dillman 1978:187).

Procedure and findings

The present study involved a mail survey of crime and vandalism on farms. All respondents were either farmers, resided on a farm, or owned a farm which they rented to someone else. Of all the respondents, 14.6% worked off-farm part time, 32.8% worked off farm full time, and 52.6% did not work off farm. The survey was conducted in

a southern state as part of a regional research project through the Agricultural Experiment Station. The sample consisted of 1,221 names, randomly selected from a farm organization membership roster (31 names were dropped after the first mailing for incorrect addresses).

For the first survey mailing, one cover letter was prepared on a laser printer. The name and addresses as well as the salutation were intended to make the letter appear personal. The cover letter was written according to TDM recommendations. Stationary letterhead was that of the Cooperative Extension Service, an agency of government with offices in each of the counties where the survey was conducted. A total of 612 cover letters were individually signed by the study director, using blue ink. The signature was an obvious contrast to the black typing of the letter. For the remaining 609 cover letters, a rubber stamp with black ink was used to sign the letters. The signature was clearly not personal. There was enough contrast between the clear laser printing and the hand-stamped signature to indicate that the "signature" was inserted later. In other ways the mailing with 612 signed cover letters and 609 stamped cover letters were the same. All letters were sent by first class mail and all contained a prepaid return envelope along with a survey questionnaire.

The response rate slightly favored the mailing with a hand-written signature, although the difference was not statistically significant. A total of 140 (23.0%) of those with the hand written signature were returned, while 134 (22.3%) of the questionnaires which accompanied the rubber-stamped cover letter were returned. As shown in Table 1, a total of 58.6% of the surveys that were accompanied by a signed letter were returned within one week. For those with a stamped cover letter, 67.9% were returned during the same period. A personally signed letter did not appear to hasten response. In effect, the personally signed cover letter resulted in only a slightly higher total return rate and no reduction in the length of time needed for respondents to complete and return the survey.

The second test concerned the necessity for the second mailing to contain a replacement questionnaire. Dillman contends that respondents who fail to respond promptly are likely to have lost or destroyed the original questionnaire. He insisted that the second mailing to respondents contain a replacement questionnaire and another prepaid return envelope. Only the cover letter should be changed to add emphasis to

Table 1. Response time for survey return after first mailing

PROCEDURE	RESPONSE DAYS FOR FIRST MAILING								TOTAL
	1-4		5-4		9-12		13 UP		
	N	%	N	%	N	%	N	%	
SIGNED	34	(24.3)	48	(34.3)	24	(17.1)	34	(24.3)	140
STAMPED	37	(27.6)	54	(40.3)	16	(12.0)	27	(20.1)	134
TOTAL	71	(25.9)	102	(37.2)	40	(14.6)	61	(22.3)	274

the necessity for completing the survey (Dillman 1978:183-186).

The test reported here attempted to determine what loss in the percentage of completed surveys would result if the second mailing did not include a questionnaire. The procedure followed was this: those sample subjects, who did not respond to the first mailing, were divided randomly into two groups. For Group 1, called the "SURVEY" group, the TDM procedure was followed. The mailing contained a replacement survey and a prepaid return envelope along with an individually signed cover sheet. For Group 2, called the "LETTER" group, only a letter was sent. The letter was an appeal to the respondent indicating the importance of having all respondents complete the survey. The letter also stated that, in case the original survey was misplaced or did not arrive, the respondents should telephone collect to the survey office or send a letter or postcard request for a replacement questionnaire. Each letter was individually signed by the project director.

As expected, response for the SURVEY group was considerably higher than for the LETTER group. A total of 40.2% (n=185) of the SURVEY group who received a questionnaire with the second mailing responded. The percentage who responded to the LETTER appeal was less than half for the survey group. Only 19.1% (N=88) of those who received the letter responded. Thus the second questionnaire yielded more than twice as many responses. The difference was statistically significant (P .001).

Only 8.0% (N=37) of the letter group wrote or telephoned for a replacement questionnaire. Of the 37, about one-third (n=13) sent a card or letter, while slightly less than two-thirds (n=24) telephoned for a replacement. It should be noted that half of those who telephoned the project office for a replacement questionnaire called collect, and the

Table 2. Response time for survey return after second mailing

	RESULTS OF SECOND MAILING				TOTAL
	SURVEY		LETTER		
	N	%	N	%	
RETURNED	182	(40.1)	84	(18.2)	266
NOT RETURNED	272	(59.9)	378	(81.8)	650
TOTAL	454	100.0	462	100.0	916
	$\chi^2 = 53.33$		$P < 0.001$		

remainder paid the long distance charges themselves. Of the 37 persons who telephoned or sent letters, six (6) did not respond after a replacement survey was sent.

Conclusion and discussion

While this test of the TDM procedure failed to demonstrate the importance of a personally signed cover letter with the first mailing, it was clear from the response rate that a replacement questionnaire must be included with the subsequent mailings in order to improve the response rate. Findings on cover letter signature for this experiment are not consistent with that reported by De Leeuw and Hox (1988). Possibly the question of whether or not the cover letter should be personally signed has lost some of its relevance. With new technologies available through computer printing, personalized signatures can be obtained by a machine process. Thus, signing great quantities of cover letters is no longer as time consuming for the researcher as it was in the past.

The finding that response rates decrease radically when a questionnaire is not included with the second mailing is also different from earlier reports (Heberlein and Baumgartner 1981). In fact, the difference between the earlier report and the present experiment raises additional questions about the importance of audience type. The one audience where Heberlein and Baumgartner reported that the inclusion of a second questionnaire was important for improved return rates consisted of farmers, the same as the audience for the survey described in this report. According to Heberlein and Baumgartner, when farmers were contacted by telephone prior to a second mailing, only one-quarter reported that they still had the original questionnaire at the

time of the call (1981:107). Thus, inclusion of a second questionnaire may be more important with farmers than with some other occupational groups. This supports the Goyer (1982) comment regarding the influence of audience type on response rates. Since both the Goyer (1982) and the Heberlein and Baumgartner (1981) study indicate that occupation is an important variable affecting response rates, future studies should involve conditional controls on one or more occupational groups as in the present study. Findings based on one occupational group may not be generalizable to others. Other audience characteristics may also be influential as indicated by Goyer and deserve further study and specification.

The present test did not explore other components of the TDM method. While challenges have been made to the relative importance of each item and of the composite TDM procedure, it is clear from the present test that the failure to include a questionnaire with the second mailing results in a significantly lower response rate. This finding reinforces the Dillman contention that response to a survey questionnaire is a form of social exchange. A point exists when "cost" involving time and effort to complete a survey exceeds the "rewards" of being called upon to provide information. For those who received the letter only, there was an additional cost in time to search for the questionnaire that had been sent earlier or to telephone or write for a replacement questionnaire.

It appears TDM method is firmly grounded in behavioral theory. While the size and composition of the sample population, the sensitivity of the subject matter, and sponsorship all play a part in the way a mail survey is structured and administered, the primary concern for the researcher should be the extent to which respondents receive satisfaction or benefit from the effort in relation to the time and effort involved. The timely interest of the topic for some surveys may produce high response rates with minimum effort while other surveys on topics less cogent to the respondents are likely to require extensive follow-up.

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