WILLINGNESS OF EDUCATORS TO PARTICIPATE IN
A DESCRIPTIVE RESEARCH STUDY AS
A FUNCTION OF A MONETARY
INCENTIVE

DISSERTATION

Presented to the Graduate Council of the
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By

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The problem considered involved assessing willingness of educators to participate in a study offering monetary incentives. Determination of willingness was implemented by sending educators a packet requesting return of a postcard to indicate willingness to participate. The purpose was twofold: to determine the effect of a monetary incentive upon willingness of educators to participate in a research study, and to analyze implications for mail questionnaire studies.

A sample of 600 educators was chosen from directories of eleven public schools in north Texas. It included equal numbers of male and female teachers and male and female administrators. Subjects were assigned to one of twelve groups. No two from a school were assigned to different levels of the inducement variable.

The study involved a factorial design with four factors. Independent variables used included position held by the subject, sex of the subject, and level of inducement. The first two variables had two levels each. The inducement variable involved three levels: no inducement, a chance on a 50-dollar savings bond with probability of one in fifty of winning, and a chance on a 50-dollar savings bond with
probability of one in 200 of winning. The dependent variable represented the willingness of subjects to participate in a survey study.

The overall response rate of those willing to participate was 41.13 per cent. Response rates from the twelve groups ranged from 25.58 per cent to 62.50 per cent.

Inferential tools for testing the eight hypotheses were the chi-square procedure for testing significance of differences between proportions for independent samples, and multidimensional contingency analysis using log-linear models. Evidence supports the theory that a chance on a monetary incentive increases the response rate. Level of incentive affected response rates minimally. Although an interaction effect existed, the respondent's position had a greater effect on response rate than did the sex of the respondent.
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CHAPTER I

INTRODUCTION

As one looks through many professional journals, it becomes evident that the mail questionnaire is frequently used as a data-gathering device. This is especially true in the social sciences, including education, and in business, especially in marketing and advertising. This frequency is present although many researchers discourage the use of mail questionnaires. Some writers advocate their use only as a last resort. According to Goode and Hatt (7, p. 182), social researchers in the past have found the mailed questionnaire to be very useful in social research and will likely find its usefulness to continue into the future. In fact, Webb and others (17, p. 1) claimed that interviews and questionnaires were used in 1966 in 90 per cent of social science research although they deplored this overdependence upon a single, fallible method.

Furthermore, Hubbard (9, p. 507) reported an increased tendency to use the questionnaire for a wide variety of purposes. Initially, questionnaires were restricted to use in the collection of factual data which were treated statistically. Gradually, the realm of their use was augmented, and questionnaires were introduced in opinion or judgment
surveys with many investigators compiling the replies in statistical form. Now, according to Young (18, p. 186), personal preference, social attitudes, belief, opinions, behavior patterns, group practices and habits, and much other data have been collected by researchers using questionnaires. Increased emphasis by social scientists on quantitative measurement of uniformly accumulated data has contributed to the increased use of the questionnaire.

According to Sax (15, p. 217), a questionnaire is not an end in itself but is a vehicle for gathering information for specific purposes. The investigator's hypotheses should be justified by the criteria for the selection of a research problem and should determine the instrument or method used to gather data.

Educators are sent many questionnaires each year. Some are sent by persons trying to fulfill the requirements for a graduate degree. Others are sent by individuals and organizations engaged in educational research. According to Borg (3, p. 204), the questionnaire is the most widely used method in descriptive research in education. It is a very valuable tool in understanding the current situation in a particular area of education and is widely used by the United States Office of Education, the National Education Association, and other state and national organizations. Regardless of the source, it is important that every study which utilizes questionnaires result in a high percentage of returns in
order to insure a representative sampling so that the replies will be representative of the population.

Von Riesen (16, p. 1) reported that a major problem in the use of mail questionnaires in descriptive research is nonresponse from the sample to which the questionnaire was sent. Basically, problems associated with low response rates occur when the researcher attempts to generalize information gathered from questionnaires to a group larger than that from which the questionnaire data were obtained, according to Berdie and Anderson (1, p. 71). Exactly what rate of return is necessary to insure that a representative set of responses has been obtained is debatable. According to Boyd, Westfall, and Stasch (4, pp. 121-122), for many years low response rates, often below 25 per cent, caused users to suspect that those who returned the questionnaire were different from the rest of the universe. They claim that evidence exists that the results from a mail survey with a 40 per cent return are, in most cases, the same as the results after 60 or 80 per cent return. Thus, due to the high cost to increase the return by sending additional mailings to those who have not responded, some researchers question the desirability of insisting on a rate of return beyond 50 per cent. Likewise, Koos (12, p. 132) stated that the usual assumption that the findings of an investigation which does not yield a full count or nearly a full count of returns are invalidated was not always supported by his canvass of articles and
monographs involving the use of the questionnaire. His studies revealed that a full count or well-nigh a full count of responses from all persons approached, whether these persons included the whole or only a random sample of the groups concerned, were essential for only approximately 10 per cent of these questionnaire studies. However, Kerlinger (11, p. 397) stated that it is necessary to have a rate of return between 80 and 90 per cent to be sure of its representativeness. Unfortunately, by examining almost any professional publication, one can find many examples of studies reported which yielded a less than desirable return rate.

In the opinion of Leslie (13, p. 332), the percentage of questionnaire returns in research which surveys issues directly related to homogeneous groups should not be of grave concern to the researcher since representativeness should be excellent. This was based on the assumption that enough responses are achieved to meet minimum statistical requirements. On the other hand, the general public is among the most difficult groups from whom to get a high response rate on surveys using mail questionnaires, according to Dillman and Frey (6, p. 301). Many studies reporting techniques designed to increase responses utilize group specific appeals or the feelings of reciprocity which are difficult to find in the general public. Hence, specialized homogeneous groups should be more receptive to methods of stimulating response than the general public.
What can be done to improve the rate of return? One approach available to a researcher is to encourage response by improving the questionnaire, thereby making it appear more worthy of the time and effort necessary in responding to it. An alternative is to use follow-ups and other techniques offering incentives of various types to improve the response rate. According to Peterson (14, p. 208), the incremental increase in the number of responses, the incremental cost per response, and the minimum sample size necessary for analysis must be considered in determining whether any response-inducement technique will be utilized. Houston and Ford (8, p. 397) warned researchers about rejecting a technique as useless after considering only one dependent variable. While response rate is typically the only criterion used in methodological studies on mail surveys to assess the effectiveness of a technique, response speed and quality are other factors in the use of mail surveys which need methodological research. In addition, Boyd, Westfall, and Stasch (4, p. 122) stated that since the cost of increasing the response rate on the first mailing is usually less per return, any inducement technique should be utilized with the first mailing whenever possible to reduce cost. Although the results are conflicting, the literature on methods of increasing the response rate on the first mailing is large and steadily growing.
Jones (10, p. 102) stated that ambiguities regarding the effect of several mail survey response inducement techniques have been reported by Kanuk and Berenson (1975), Linsky (1975), and Scott (1967) in reviews of mail survey experiments. Research related to a number of the inducement methods investigated to date reports significant improvements in response rates in one study and insignificant or reversed findings in another. Berdie and Anderson (2, p. 12) suggested that the fact that contradictory results are often reported in research on methodology concerning the use of questionnaires is not surprising since the reports usually have not been based on an experimental design chosen exclusively to test questionnaire methodology. Thus, they agreed with Cox (5, p. 104) who claimed that one important reason for the lack of a more comprehensive and definitive research literature concerning methods to reduce nonresponse and other types of errors is that most of the studies were mere by-products of other research efforts. In other words, the reports were based on results from different questionnaires used for different reasons with different people at different times. Furthermore, the existence of an extensive body of literature on the subject was reported by Von Riesen (16, p. 1) since a great number of variables can influence response rates. However, he reported that few examples of replications occur in the literature. Moreover, controlled
conditions were not used in many of the studies reported in the literature.

Several studies have been located in the literature reporting research on methods to improve the questionnaire, but no empirically based body of knowledge exists to improve the rate of return which can be expected from mail questionnaires. Several studies are reported in the literature involving small monetary inducements, but none utilize the technique of offering a chance on a large monetary prize as an incentive to improve the rate of response from mail questionnaires. It was with this thought in mind that this exploratory study was designed to assess the effects of a monetary incentive upon the willingness of educators to participate in survey research. Furthermore, a statistical technique, which is applicable to the problem but new to the field of education, was utilized in the present study.

Purposes of the Study

The purposes of this study were (1) to determine the effect of a monetary incentive upon the willingness of educators to participate in a descriptive research study and (2) to analyze the implications of the effect in relation to studies in education which utilize the mail questionnaire.

Hypotheses

What were the effects of giving a monetary prize to a randomly selected participant in survey research upon the
number of educators who express a willingness to participate?

In order to carry out the purpose of this study, the following hypotheses were formulated to examine the above question.

1. The proportion of all postcards returned by the subjects who were offered a chance on the monetary incentive for participation in this study would be significantly greater than the proportion of all postcards returned by the subjects who were not offered any special inducement.

2. The main effect due to the chance on the monetary incentive as an inducement would be significant upon the total number of postcards returned, indicating a willingness to participate in the study.

3. The main effect due to the position of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study.

4. The main effect due to the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study.

5. The interaction effect between the chance on the monetary incentive as an inducement and the position held by the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study.
6. The interaction effect between the chance on the monetary incentive as an inducement and the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study.

7. The interaction effect between the position of the respondent and the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study.

8. The interaction effect among the chance on the monetary incentive as an inducement, the position of the respondent, and the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study.

Significance of the Study
This study was exploratory in nature, and its results are applicable to the area of behavioral science. The results of the present study would help the researcher in education using a mail questionnaire to determine if offering a chance on a prize is a viable method to increase the percentage of subjects who are willing to participate.

Definition of Terms
For the purposes of this study, the following definitions were formulated.
Total number of postcards returned would mean the number of postcards which were completely filled out by the person to whom the data-collection packet was addressed and returned by the end of the third week after the original mailing to the experimental samples with a willingness to participate indicated.

Differ significantly would mean that the observed number of postcards returned would differ from the expected number of postcards returned by a larger margin than could be attributed to chance alone. A method of partitioning a total chi-square and degrees of freedom into independent additive components was utilized. The .05 level of significance was used to determine whether the chi-square value differs significantly from that expected by chance alone.

Position held by the subject would refer to the job descriptions of the educators in the experimental groups. Each subject was classified as a teacher or an administrator. In order to be classified as an administrator, a person was required to spend more than 50 per cent of his workday attending to administrative duties.

Delimitations

This study was delimited to those educators working in selected public schools in north Texas. The reasons for imposing this delimitation were the cost and the time necessary to conduct a more comprehensive study. There was no
reason to think that public school educators in other regions of the country would differ in significant ways from those included in this study.
CHAPTER BIBLIOGRAPHY


CHAPTER II

REVIEW OF RELATED RESEARCH

Introduction

In the preceding chapter, the definition of the problem being investigated was outlined. This chapter contains a review of the related research.

Although a large body of literature concerning utilization of mail questionnaires exists, there are many limitations in it. One of these is the nearly singular concern with response rate as the sole criterion in assessing the effectiveness of the various techniques designed to improve the questionnaire as a data gathering device (67, p. 280; 61, p. 397). Thus, a technique which may yield an unrepresentative sample increment, influence subjects' answers to questions, and affect the number of questionnaire items that the respondents complete could be an apparently effective inducement technique due to this narrow focus. Tests for such confounding multiple effects with response inducement techniques have not been done very often (67, p. 280).

A second limitation in the literature is the inconsistent results which are reported in many cases (23, p. 7; 84, p. 100; 70, p. 440). Another limitation is that many of the studies were poorly designed since they do not report the
use of a control group, and the results are not generalizable because of the methods used to select subjects (101, p. 3). Furthermore, there exists only limited evidence upon which most widely accepted techniques are based (70, p. 440). Since most studies focus on the manipulation of one or two variables without attempting to develop an underlying theory to explain the results obtained, no systematic body of knowledge, nor conceptual framework, exists which relates specific techniques to questionnaire response behavior except in an intuitive sense. In fact, few findings are related to scientific theory (70, p. 451). According to Dillman (23, p. 5), little more than a fragmented commentary on how this or that technique might contribute to a survey's success exists in the literature. On the other hand, a methodological "recipe" that includes all the ingredients and directions for combining them to insure that the survey will be successful is needed for the researcher who would like to know how to effectively utilize a mail questionnaire.

Several reviews of the literature were located. One by Scott (114) was published in 1961 and mostly concerned studies with British populations. A study by Linsky (84, p. 82) attempted to collate all available research on mail-questionnaire techniques in the research literature of sociology, psychology, business, and education during the period from 1935 to 1975. Kanuk and Berenson (70) published their literature review in 1975 with references to
eighty-five studies. Pressley (101) listed 110 studies in his bibliography which contained a critique in addition to an annotation for studies completed during the period from 1930 to 1975. Houston and Ford (61, p. 397) reviewed the findings of studies which included response speed and quality as dependent variables. Heberlein and Baumgartner (53, p. 448) examined ninety-eight methodological studies which reported the effect on response rates of seventy-one factors. Yu and Cooper (135, p. 36) did a comprehensive literature review of techniques used to increase response rates to questionnaires. Their conclusions were based on arithmetic combinations of 497 response rates found in ninety-three journal articles which were published during the period of 1965 through 1981. In all cases, these reviews point out the weaknesses in the literature on mail questionnaires. Although many studies have been done, little is known about how to do an effective survey by the mail questionnaire. The search for a systematic body of knowledge will be aided by the placement of more emphasis on the dependent variable which will provide a more complete framework (61, p. 402).

Comparison between Questionnaire and Interview

The interview and the questionnaire are similar techniques used to obtain data directly from subjects of a research study. The elicitation of feelings, beliefs, experiences, or activities of respondents is attempted by use of both techniques. Depending upon the situation, either of
them can be relatively structured or unstructured (112, p. 214). Since replication of research which included either the questionnaire or interview is simple, they are particularly good methods to use in research. Another survey using the same procedure can be initiated when a confounding circumstance happens or materials vital to the outcome are corrupted (125, p. 33).

The researcher who uses either the interview or the questionnaire must be alert to possible methodological bias. The presence of either of them may influence the results since they are intruders as a foreign element into the social setting that they were designed to describe. They may also create as well as measure attitudes. Their use may elicit atypical roles and responses from the respondents. Both are restricted to those subjects who are accessible and will cooperate. Furthermore, dimensions of individual differences which are irrelevant to the topic being studied affect the responses obtained from either the questionnaire or the interview (125, p. 1). According to Veiga (121, p. 217), the effect on the rate of return and respondent bias of methods used for returning mail questionnaires has not been systematically evaluated.

Response bias resulting from the use of a specific data collection method was the topic of research reported by Wiseman (131, p. 105). A controlled experimental design was
used to determine what effect the data collection method used had on the responses in a public opinion poll. The three methods investigated included the mail questionnaire, telephone interview, and personal interview. The three experimental groups chosen from residents of a suburban Boston community were asked identical questions on nine current issues of both local and national concerns. The subjects in the first group were sent mail questionnaires, the second group was interviewed by telephone, and the third group was interviewed in person. If no technique bias were present, one would expect identical results, within the limits of random variation from each of the three experimental groups. A two-stage sampling procedure was implemented in order to ensure that the experimental groups were equivalent samples from a common population. Among the experimental groups, no statistically significant differences were found on the following characteristics: sex, marital status, age, occupation, income, and religion. Thus, based on these socioeconomic and demographic data, the sampling process generated equivalent groupings of respondents. Furthermore, there were no differences in response patterns found between those receiving prior notification in the mail questionnaire group. A surprising result of the study was that the number of completed questionnaires was considerably larger than that for either the personal or the telephone interview. This was attributed to the relatively large number of questionnaires
returned from those households which had received prior telephone notification. However, the major finding of this research was that the results of a public opinion poll are not always independent of the data collection method used. Response bias will likely exist in telephone and personal interviews whenever the question being asked has a socially undesirable response (131, pp. 105-108).

In a similar situation, Hochstim (58, pp. 976-989) reported the results of a comparison of three strategies of data collection. Different combinations of personal interviews, telephone interviews, and mail questionnaires were the foundations of each strategy. Two separate studies with identical questionnaires being used in all strategies within each study were done using area probability samples of households in Alameda County, California. The three data-collection strategies were practically interchangeable with respect to rate of return, completeness of return, comparability of findings, and validity of responses. Since the cost was the only parameter which varied substantially from one strategy to another, the strategy which produces the information at the lowest cost would be the most desirable one. In this situation, the strategy which started with the mail questionnaire or the one which started with the telephone interview would receive preference over the one which started with the personal interview. In fact, using mail questionnaires and telephone interviews with those
respondents who can be reached by persistent application of these techniques may result in substantial cost savings without sacrificing quality. However, if a high completion rate is absolutely essential, follow-up of nonrespondents must be done using personal interviews when necessary.

Borg (10, p. 219) claimed that twenty cases are adequate as a check for nonresponse bias in most educational studies conducted by graduate students. The data obtained from these cases would be compared item by item with the responses obtained from the initial respondents. Thus, the researcher could determine if the nonresponding sample was biased. It would probably be safe to assume that the responding group was an unbiased sample of those to whom the questionnaire was sent if the sample of nonrespondents answered the questions in about the same manner as the respondents. However, any gross differences should be reported, and the significance of these differences should be discussed in reporting the results of the responding sample. In this way, the researcher will acknowledge the bias existing in the results caused by the subjects who did not respond to the questionnaire.

Rushmore (108, pp. 17-21) reported that the mail questionnaire is generally preferable when gathering quantitative factual data for a clearcut problem, and when a series of questions requiring careful thought before answering must be asked. The weather can also be a deciding factor when
choosing between the mail questionnaire and the personal interview, especially when the respondents are housewives. In bad weather, the number of interviews per day is dramatically reduced, and the number of housewives who are at home in good weather is also reduced. When considering the weather, the advantage is in favor of the mail questionnaire. Also, the mail questionnaire will usually yield better results in sparsely settled territory, as well as in large metropolitan areas, and from apartment-house dwellers. In the above circumstances, doorstep interviews cost disproportionately more, are difficult to secure, and are frequently not representative of the target population.

A study reported by Kaimann and Addis (68, pp. 75-76) lends credence to the use of the large-scale mailed questionnaire methodology. The study compared the mean number of innovations in secondary schools as reported by mail questionnaires with a sample size of 154 and by the telephone interviews with a segment of the larger sample size of 367. The schools interviewed in the second sample were randomly selected from the original population of one state. The obtained difference of 0.60 in the means was not statistically significant at the .05 level. Hence, the hypothesis of equality of sample means was accepted indicating that the data obtained from the mail questionnaires were as valid as those obtained from the telephone interviews.
In a recent study designed to compare three survey techniques, a stratified random sample of 500 people who were 65 years of age and over and residents of a western Pennsylvania county was selected. Parts of the county which is contiguous to Allegheny County, where Pittsburgh is located, are "bedroom" communities while there are also small cities and rural areas devoted to farming and coal mining.

The criteria for stratification were sex and three age groups (65 to 69, 70 to 74, and 75 or older), yielding six strata. From the original sample of 500, three randomly assigned subsamples were chosen on a stratified basis. The group which received the mail survey was composed of 400 while the telephone and the personal interview groups each had 50 subjects.

The telephone and personal interview subsamples were maintained at 50 by replacements from the sampling frame on a random basis from the appropriate strata. During the early stages of the mailing process, replacements were made to the mail subsample but were later discontinued.

Since the three techniques were to be compared, the survey was designed so that, insofar as it was possible, the variables other than the data-gathering techniques were held constant. Further, it was deemed desirable to allow each technique's strengths and weaknesses to be exhibited.

To control the non-technique-related variables, several constraints were placed on the experiment. All respondents
in the three treatment groups were asked the same questions. All sample members were initially contacted via a first class letter with individually typed names. The data were collected concurrently for all techniques. The samples were selected utilizing the same sampling frame (80, p. 79).

The mail subsample was sent an individually typed business envelope containing a cover letter with an individually typed inside address, a copy of the questionnaire and a self-addressed, stamped return envelope one week after the "initial contact" letter was sent. The cover letter referenced the advance letter and restated some items from that letter. It also provided instructions concerning the completion of the questionnaire and thanked the respondent for cooperating by returning the completed questionnaire. One week later, an individually addressed typewritten postcard was sent to all mail subsample members as a reminder/thank you. Furthermore, a replacement questionnaire was sent to those who had not returned a completed questionnaire two weeks after the postcards were mailed. In addition, this mailing included a cover letter and a self-addressed, stamped envelope. This cover letter stated that the original questionnaire had not been received, stressed the need for a response from the addressed individual, and implored the respondent to act promptly. Three weeks later, the remaining nonrespondents were sent a final questionnaire by certified mail which indicated the importance of the survey.
This final mail packet included a cover letter, a copy of the questionnaire, and a self-addressed, stamped envelope.

There were sixty-nine nonrespondents remaining two weeks after the certified letters were mailed. An independent, random sample of twenty-five persons was selected from this group. Of this sample, only one person refused to participate in a face-to-face interview. Thus, a comparison between the respondents and nonrespondents was possible as well as the combining of the results from the original respondents with the results from the nonrespondents. This "combined mail" group was utilized in data analysis since one variation of the self-administered, mailed technique could involve interviewing the nonrespondents or a random sample of them after using the mail technique to collect data (80, p. 80). Thus, the nonresponse bias present in mail surveys would be reduced.

The three techniques utilized in this study showed no statistically significant differences in response rates among them. The response rate produced by the face-to-face technique was 84 per cent, the telephone technique yielded an 86 per cent response rate, and the response rate for the mail technique was 83.3 per cent.

To determine whether the three techniques were interchangeable, an analysis of ten characteristic variables was done to determine whether different respondent demographics were produced by the different techniques. Some of the
variables analyzed were age, sex, income, home ownership, and whether or not the individual lived alone. Only one variable related to how active the respondent was in civil or church meetings was significant. The telephone subsample indicated a more active role in this regard than did the other two subsamples. The differences in civil or church meeting participation between the face-to-face and mail subsamples were too small to be statistically significant (80, p. 81).

Thus, the conclusion reached by examining the results of this study was that either the telephone or the mailed questionnaire technique should be considered as a substitute for the heretofore assumed-to-be-superior face-to-face social survey. This conclusion was based on the fact that they produced results similar to face-to-face interviews in this study and on the nature of public policy decision making which depends on factors other than hard data (80, pp. 81-82). However, Yu and Cooper (135, p. 36) reported finding in their review of the literature that personal and telephone surveys resulted in increased response rates over mail surveys.

Advantages and Disadvantages of the Mail Questionnaire

In spite of the fact that the questionnaire method in general has a number of pervasive advantages and disadvantages (11, p. 98), the mail questionnaire has been and
continues to be a popular vehicle for field research (79, p. 147). During the past twenty years, several companies and governmental agencies have been experimenting with the use of the questionnaire survey to identify organizational problems. Many organizations use it frequently as a major evaluative tool which has resulted in an accumulation of large data banks (42, p. 94). For example, the Department of Navy in the early 1970's had a data bank of 60,000 questionnaires, Radio Corporation of America (RCA) had over 130,000, and the United States Civil Service Commission had accumulated over 20,000 questionnaires (42, p. 89). Research surveys are using questionnaires increasingly in spite of their shortcomings which gradually are being eliminated (134, p. 213).

The advantages of the questionnaire method include (1) versatility, (2) speed, and (3) cost (11, pp. 98-101). In situations where an interviewer can bias the results, the information gathered from a specific respondent by the mail questionnaire will probably be as good as or better than that given in personal or telephone interviews. Furthermore, the mail questionnaire has been demonstrated to be generally superior in collection of data when the topic might be embarrassing to the respondent (11, p. 119). The desired anonymity to ensure reliable replies is provided by the mail questionnaire when highly intimate information is being gathered (134, p. 213). Similarly, the mail questionnaire
enables the respondent to check his information and consult with others when necessary, thereby providing him the opportunity to supply more valid information (91, p. 77). In addition, a quasistandardized situation is in operation since the same set of questions, phrased in exactly the same way, are sent to each respondent in a questionnaire survey (112, p. 215; 91, p. 77). Also, a large number of diverse people can be reached by questionnaire relatively quickly and more economically in terms of both money and effort than is possible when using the personal interview (134, p. 213; 91, p. 77). Greater validity through larger and more representative samples may result from greater coverage which is provided in mail questionnaire surveys (91, p. 77).

The main disadvantages of using the mail questionnaire to obtain data are caused by low and biased responses (78, p. 82). The generalizations made from data collected by the questionnaire are said to be based on unknown samples since it is difficult to determine its representativeness (134, p. 212). It is difficult to judge the validity of the responses since the motivational level of the respondent is unknown (112, p. 215). Since validity depends on the ability and willingness of the respondent to provide information (91, p. 76), it is affected by the unwillingness and inability of some respondents to provide information (11, p. 100). An assumption made in sending a mail questionnaire is that the respondent can both read and write (112, p. 215). Getting
those persons selected in the sample to return their questionnaires is difficult (112, p. 215). Furthermore, the sample may be biased since those who do answer the questionnaires may be different from the nonrespondents (91, p. 76). On the other hand, the questioning process may influence the respondents (11, p. 101) since the question could be misinterpreted by the respondent. No follow-through on obviously misunderstood questions or evasive answers, nor observation of apparent reluctance or evasiveness in answering the questionnaire, is provided for, when a mail questionnaire is the data-collection device used (91, p. 76). Since respondents can change their answers after reading later questions on the questionnaire, another threat to mail surveys is sequence bias (11, p. 119). Thus, the influence of the questioning process in mail questionnaires is a possible source of error (11, p. 101). Despite these disadvantages, the mail questionnaire remains a valuable tool for the researcher primarily because it has been used successfully to collect large amounts of information from widely dispersed respondents at relatively low costs (78, p. 82).

Characteristics of the Population

Some research has been done to determine the effect of the population characteristics upon the rate of response. Highly select respondents with a strong interest in the subject matter, greater education, and higher socioeconomic status are more likely to return a questionnaire. However,
the questionnaire has been used successfully with respondents who were widely dispersed geographically and who were in one locale only briefly (47, p. 182).

Response rate is presently the most often used measurement to determine the credibility of survey research findings. It is presumed that low return rates indicate biases in the data. However, a study by Leslie (81, p. 323) demonstrated that significant response-rate bias is probably unlikely when surveying homogeneous populations (persons having some strong group identity) about their attitudes, opinions, or perspectives toward issues concerning the group. This is the result of the tendency of persons having strong identification with the group to respond more as group members than as members of some social classification, such as the middle class, those over fifty years of age, or members of the Democratic party, on matters related to the group. Most surveys in the social sciences are probably concerned with matters obviously concerning the homogeneous population.

Mail questionnaires are generally avoided in the study of the general public because of low response rates, poor data quality, and the perceived necessity to limit oneself to only a few questions. However, in a study reported by Dillman and others (24, p. 744), a method which systematically manipulated all aspects of the data-collection process produced response rates of from 69.7 per cent to 75.2 per cent with state-wide samples of the general public in
Arizona, Indiana, North Carolina, and Washington. There were no differences in the effectiveness of the methods in rural and urban regions. Furthermore, the quality of the data was uniformly high as measured by nonresponse to each item on the questionnaire. These results demonstrate that it is possible to get a high response rate from the general public. One has to conclude that poor mail questionnaire return rates do not have to be accepted any more than inadequate theory or inappropriate statistics.

As reported by Dillman (22, p. 254), the results from two independent surveys of 4,500 respondents, each selected from telephone directories involving the entire state of Washington, indicated that it is possible to secure a high response rate to mail questionnaires. Each of these studies yielded a 75 per cent response rate to a rather lengthy mail questionnaire. The implications are clear. Since large samples of the general public can be stimulated to respond well to rather lengthy mail questionnaires, the researcher should not categorically eliminate the technique as a data-collection device, especially when one considers the low cost involved in using the technique. It probably will be more productive to focus one's attention on the many manipulable aspects of the mail questionnaire process, instead of on a single technique to induce more responses (22, p. 257).

Among other things, Sheth and Roscoe (117, p. 252) stated that the effects of eight heterogeneous geographical
areas on the response rate to a mail survey were experimen-
tally assessed. A large random sample of 264 telephone
customers for each of the geographical locations, except for
southeast Massachusetts where n = 296, was drawn. The sub-
jects were equally divided among the eight experimental
conditions. The highest response rate was reported in the
Fort Worth area (p < .05), while the poorest rate came from
Alabama (p < .05). A market segmentation strategy was sug-
gested by the significant interaction effects, F (21, 63) = 2.20, p < .05, between follow-up methods and geographical
areas. Hence, the geographical location from which the
sample was drawn could affect the response rate.

Different techniques to increase the response in mail
surveys of industrial respondents may be required when com-
pared to those used successfully with the general public.
Pressley (100, p. 231) suggested several ways to consistently
obtain a 50 per cent to 70 per cent response within two to
five weeks in mail surveys of industrial respondents. He
used industrial populations including marketing, finance,
production, and other management personnel at the executive
vice-president level of large and small organizations in-
cluding those in the Fortune magazine's list of 500 largest
firms in the nation. In addition, purchasing agents, chief
hospital administrators, school superintendents and admin-
istrators, and other executives or administrators in industry
and government were included (100, p. 232). He concluded
that the literature does not include enough of what is known about increasing returns. The following conclusions were reached concerning the published summaries of the literature. (1) The evidence is contradictory, (2) very little about how to increase industrial returns can be based on the publicly available literature, and (3) too few interactive factor investigations have been done. These conclusions were reached in spite of the significant advances made recently (100, p. 231).

Petry and Quackenbush (99, p. 43) reported that the negative attitudes toward questionnaires exist in large corporations partly because of the large quantity of mail surveys received. They sent questionnaires in December, 1973, to the following 450 corporations: 200 randomly selected from the Fortune magazine's list of 500 largest firms in the nation, Fortune magazine's list of 50 largest retail firms in the nation, Fortune magazine's list of 50 largest transportation companies in the nation, Fortune magazine's list of 50 largest utility companies, Fortune magazine's list of 50 largest banks in the nation, and Fortune magazine's list of 50 largest insurance companies in the nation. The 171 questionnaires returned represented a response rate of 38 per cent, with a range from 34 to 54 per cent by category. The time required to answer them, the large number received, and the high cost to answer them in relationship to the low value received for having done so
were the four most often used reasons for more restrictive corporate policy toward answering questionnaires (101, p. 45).

A study involving questionnaires administered to a nationwide sample of humanities faculty and nonhumanities department chairmen in two-year colleges resulted in an 84 per cent return rate and used on-campus facilitators for distribution and retrieval of an eleven-page questionnaire. According to Cohen (19, p. 313), the 2,000 subjects for the study were selected from 156 junior or community colleges based on geographic locale, type of control, college size, organization, and curriculum emphasis. Class rolls were used to generate accurate rosters of full-time and part-time faculty. This study described the use of facilitators to augment response rate to a questionnaire and demonstrated that the technique worked on an academic sample.

Pressley (100, p. 234) claimed that the reactions of different populations to the various techniques or factors employed in attempts to increase returns to mail surveys may be different. Thus, the researcher should consider the characteristics of the population in selecting the response-inducement technique used in a mail-questionnaire survey. One can not emphasize too much that there is no known set of rules which apply equally well in every situation. A pilot study to assess the best technique or techniques to
use with the population may have to be conducted before sending out the mail questionnaire on very large surveys.

Characteristics of the Respondents and the Nonrespondents

Studies of characteristics of respondents versus those of nonrespondents have typically compared only demographic data. However, the particular circumstance which resulted in a response rate problem may not really be one to which such a comparison is relevant. For example, sharing certain demographic features in studies concerned with attitudinal data is not necessarily a prerequisite in the sharing of similar attitudes by nonrespondents and respondents (7, p. 50).

A study reported by Ognibene (95, pp. 18-19), found that respondents to a mail questionnaire exhibited stronger leadership traits, were more gregarious, and read more than nonrespondents. From the New York metropolitan area telephone directories, 176 men were randomly selected to receive the questionnaire. Fifty-nine, or 34 per cent, responded. The answers of the other 117, nonrespondents, were obtained by telephone follow-up. An interview was conducted with 48 per cent, or fifty-six of the nonrespondents who were randomly selected. Although the use of two interviewing methods could possibly have produced a bias, it was believed to be small, if in existence at all, because the nature of the questions asked did not provide a motive to distort the answers.
Previous findings that demographic differences tend to exist between respondents and nonrespondents were supported by this study. The lower socioeconomic groups responded least well. The respondents' education, occupation, and income levels were significantly higher than those of the nonrespondents. Since education is the basis for many of the other traits, it was probably the key demographic trait.

Tests were run to determine whether differences existed on five personal items. A significant difference between the respondents and the nonrespondents existed on the following three personal traits: sense-of-leadership, gregariousness, and reading habits. In each case, the respondents scored higher on each trait. On the other hand, no significant differences were found between the two groups on the two personal traits of sense-of-urgency and sense-of-duty. However, the respondents of this study did not indicate having any more free time than did the respondents. Thus, this study supported the hypothesis that respondents to mail questionnaires have different personal traits than nonrespondents do.

The above results were based on the z-test for differences between sample means for those items which passed the chi-square test for normality and the rank sum test on the other items. The chi-square test for normality on each item was done first on the total sample, of all respondents and nonrespondents (95, pp. 19-20).
A comparison of the intelligence quotient (IQ) scores available from school records from three groups of 675 potential respondents to a mail survey was reported in a study by Macek and Miles (86, p. 258), of data yielded by a study of rural youth in the southeastern United States. Since the only state which uniformly had IQ scores on its school records was South Carolina, the results were only for that state.

The first group (n = 118) was composed of those former students whose current address was unknown. The other two groups included those whose current addresses were known. Specifically, the second group (n = 303) contained those who did not respond to a mail questionnaire concerning their education and employment history. Furthermore, the third group (n = 254) was formed by those who responded to the same questionnaire.

The mean IQ was computed for each of the three groups. The mean IQ of the first group was 91.78 with a standard deviation of 17.5 while the second had a mean IQ of 91.52 and a standard deviation of 15.9 and the third had a mean IQ of 101.73 and a standard deviation of 15.1. An F-test, F (2, 671) = 31.61, showed that the differences among the three means were significant at the .01 level. Pairwise t-tests confirmed that the mean IQ of the third group, which was composed of those who responded, was significantly higher (p < .01) than the mean IQ of the other two groups. On the
other hand, the IQ's of the other two groups composed of those who did not respond were not found to be significantly different. Thus, this study indicated that the mean IQ score of the respondents in this study was significantly higher than that of those who did not respond.

A study utilizing the Edwards Personal Preference Schedule (EPPS) was reported by Lubin, Levitt, and Zuckerman (85, p. 192). An entire class of seventy-two sophomore student nurses was given the EPPS. Approximately one month later, a packet containing a questionnaire requesting opinions on group counseling services with instructions to complete the questionnaire and return it in the enclosed envelope was mailed to the group. Fifty-four of the student nurses completed and returned the questionnaires. Analysis of the data indicated that the respondents were significantly higher on n Order and the Dependency Ratio while nonresponders were significantly higher on n Aggression. Although the differences between the two groups were not significant on some of the other variables, the results are worthy of mentioning in some cases. The tendency existed for the responders to score higher on n Deference, n Succorance, n Achievement, n Nurture, and n Endurance. On the other hand, the EPPS tended to rate the nonresponders higher on n Dominance, n Autonomy, and n Intraception.

The three studies cited above indicate a possible difference in characteristics and traits of those who respond
and those who do not respond to mail questionnaires. Hence, this is another variable to consider in designing a study which will utilize the mail questionnaire.

Characteristics of the Questionnaire

A very important aspect in the mail questionnaire methodology is the questionnaire itself. Many characteristics of the questionnaire are important in determining the probability of its being returned. Although the discussion of some specific characteristics, such as length, will be delayed until later in this chapter, other characteristics are appropriately discussed now.

The unfavorable characteristics of so many questionnaires are one reason why the response rates to mailed questionnaires are so small (8, p. 161). According to Helmstadter (54, p. 71), the percentage of return is between 20 and 40 per cent on the average. That is to say, returns of fewer than 50 per cent are common, and higher percentages are rare. Since the information in the unreturned questionnaires might have changed the outcome of the investigation considerably, the data obtained from a study with a rate of response as low as 40 to 50 per cent are often of limited validity.

The appearance of the questionnaire is believed to be very important. The questionnaire should be as interesting as possible. Although beginning with an interesting title followed by some interesting questions is thought to be
important, there is no clear indication of the effects of these. Printing on good quality paper with plenty of white space left is generally believed to make a questionnaire more attractive. Some researchers prefer to use paper of various colors which they feel will increase the response rate. However, none of these have been shown experimentally to make much difference within reasonable alternatives (11, p. 122).

Naturally, an offensive questionnaire would result in response bias and should be avoided unless the study requires the introduction of response bias.

The questionnaire can be abused when used to collect data for which it was not designed. The questionnaire is not a useful device for gathering preliminary observations concerning social behavior since it is efficient only when its basic hypothesis is relatively precise. Attempting to use it in the opposite situation will only lead to failure. The prospective user of a questionnaire must remember that the questionnaire does not allow complex probing questions which require the respondent to thread his way through many levels of subquestions. Furthermore, the interviewer will not be there to give emotional support and other stimuli to increase the respondent's ability and willingness to answer (47, p. 183).

Some ways to improve the chances of the return of questionnaires sent to large corporations were suggested by Petry and Quackenbush (99, p. 47) in their study cited above. The
first way suggested was to shorten the questionnaires and direct them to a specific identifiable problem of the corporation. A length of more than two pages was indicated as the most common length of questionnaires received by 81 percent of the respondents to the study. Offering a summary of the results was a second way suggested to improve questionnaires sent to corporations. Fifty-one per cent revealed a slight to very definite willingness to return a questionnaire when offered a summary of the results in return. The third suggested way was to promise confidentiality regarding individual responses to questionnaires. A willingness to answer when offered confidentiality was expressed by 86 per cent of the respondents of this study. It was suggested that the trend toward not responding to questionnaires, especially those sent by university personnel and students, will continue and may accelerate if the three suggestions mentioned above are not implemented.

Ways to Improve Response Rates

Although the characteristics of the respondents, the questionnaire, and the population are important, the researcher who wants to use a mail questionnaire successfully must consider carefully these and other techniques designed to improve response rates. The dependence upon only one feature to improve response rates will cause the effort to fail. The only way to achieve a high response rate is to
combine as many desirable characteristics as possible into the methodology used (9, p. 114).

In any study which utilizes a mail questionnaire, the rate of response can be a problem. Since the percentage of questionnaires returned is typically small, researchers need to consider the reasons for the poor rate of response and the effects on the results of the study. There is no way of knowing how many research projects have been abandoned because of this problem.

Even though survey research techniques are often neglected in educational research, the instrument most commonly used by doctoral students in their dissertations and by other educational researchers as supplemental data sources was the questionnaire (82, pp. 347-350).

It has been suggested that little impact on educational research efforts has resulted from the methodological advances in survey research. Also, it has been claimed that educational research methods textbooks barely mention survey research and seldom mention the work of researchers in other disciplines associated with this research method. A recent review of twelve popular textbooks in educational research methodology conducted by Fuqua, Hartman, and Brown (38, p. 4) revealed that coverage of the survey methods in them ranged from none to only general descriptions of the method. This supports the above claims. Can one conclude from this
that the survey is not frequently used as a method for gathering data in education?

On the contrary, a review and analysis of three scholarly journals in the field revealed that from 56 per cent to 84 per cent of all empirical (data-based) articles published were of the survey type. The journals examined were *Research in Higher Education*, *Journal of Higher Education*, and *The School Counselor*. Reliability in the classification of survey and nonsurvey data collection methods used in the articles was assessed by the ratings of two independent judges of the articles in the *Journal of Higher Education*. The ratings of the judges were identical 95.3 per cent of the time.

Similarly, upon analyzing the doctoral theses completed in the School of Education at Indiana University during the years 1976, 1977, and 1978, it was reported that from 50 per cent to 69 per cent of the located theses utilized the survey method. The index of reliability in classification was established by having two judges independently classify the theses for 1976. An interrater agreement in classification of 98.17 per cent was reported.

Hence, a strong rationale for improving the preparation of educational researchers in effectively applying survey methods can be based on the general void of the area of survey methodology in the curricula and its extensive use in educational research. More generally the literature in the
field of educational research should address the issues which make the survey method unique, thereby reflecting the predominance of survey methodology (38, pp. 4-5).

After examining 199 studies included in a recent volume of dissertation abstracts which involves seventeen areas of education, Wick and Dirkes (128, pp. 20-21) reported that 24 per cent used questionnaires and another 25 per cent used interest, attitude, or opinion surveys. Considering that other academic disciplines also rely upon the same techniques for data gathering, it can be predicted that many poorly constructed questionnaires are sent through the mail.

Unfortunately, educational researchers do not know how to increase return rates. While many researchers apparently do not attempt to increase response rates, others, who are aware of the necessity to achieve a high rate of return, spend a great deal of effort on techniques which they assume will increase return rates. In spite of these efforts, there exists very little conclusive evidence that the techniques employed are effective. The continued low rates of returns in educational research surveys seem to indicate that current methods used to increase return rates may be very ineffective.

Without a doubt the mail survey will continue to be widely utilized in educational research. Educational researchers must start examining ways to decrease the threat to validity from nonresponse bias. Further studies are
urgently needed to evaluate the effects of incentive com-
binations and conditions which maximize response rates when
used with specific populations and for specific purposes (38,
p. 14).

According to Best (8, pp. 161-162), the response rate
is frequently too small to provide a solid basis for general-
ization unless the study involves a group of respondents who
are genuinely interested in the problem being investigated,
who are acquainted with the sender, or who share a common
bond of loyalty to a sponsoring institution or organization.
This assertion was, however, somewhat contradicted by the re-
results obtained from a questionnaire sent to a random sample
of 1,097 American Educational Research Association (AERA)
members in 1974 by the AERA Publications Committee to deter-
mine the educational researchers' reactions to the
Educational Researcher. Nelson, Greener, and Hack (92,
p. 14) reported that 394 usable questionnaires were returned
for a 36 per cent return rate. Perhaps an explanation for
this is that the topic was not of sufficient interest to
elicit better response. Regardless, these findings help
illustrate graphically the magnitude of the problem and in-
dicate that even educational researchers must be motivated
to respond.

Very few pure research studies on the mail questionnaire
method have been reported. In those, the usual mode of oper-
ation has been to investigate a single technique instead of
utilizing combinations of techniques. A systematic investigation of which combinations of techniques are most effective in increasing response rates while still being economical in terms of time and money is needed. The knowledge gained from these studies is vital in solving the researcher's dilemma in choosing among alternative combinations of techniques and strategies (14, pp. 6-7).

In order to have some organization in the discussion of the various techniques used to improve the response rates of mail questionnaires, the categorization used by Linsky (84, p. 83) has been adopted. Although other ways were suggested in the literature, this one seemed appropriate.

The categories are mechanical and perceptual factors, broad motivational factors, and monetary rewards and other direct motivational factors. Each will provide a section for the remainder of the chapter.

**Mechanical and Perceptual Factors**

Techniques which increase response by making it mechanically easier to reply and increasing the recipients' awareness of having received the questionnaire are classified as mechanical and perceptual factors. Specifically, the following methods are included: (1) precontact, (2) postcard enclosure, (3) follow-up letters or postcards, (4) types of mailing for outgoing and return envelopes, (5) length of questionnaire, (6) printed versus mimeographed questionnaires,
(7) pre-coded versus open-ended questionnaires, and (8) color of questionnaire (84, pp. 84-91).

Precontact.—The literature which describes how precontact recipients of mail questionnaires by personal contact, telephone, postcard, or letter affects the response rates is not consistent. While some are claiming success which is attributed to the prenotification of subjects of the forthcoming mailing, others are reporting neither statistical nor practical differences. Along these same lines, advanced notification by letter or telephone has both stimulated and depressed response rates, according to Dillman (23, p. 7).

Hornik (59, p. 144) claimed that precontact of recipients is one of the most valuable techniques for enhancing compliance. He reported that studies have achieved increases in response rates ranging from 8 to 47.5 per cent. Furthermore, Linsky (84, p. 84) reported in his review of the literature that a letter, postcard, telephone, and earlier personal contact all appear to increase response rates. He, as well as Kanuk and Berenson (70, p. 450) in their literature review, claimed that the maximum improvements in response rates are associated with precontacting by telephone. Likewise, Yu and Cooper (135, p. 40) reported in their literature review that preliminary notification \( (\chi^2 = 36.9, p < .001) \) had significant positive effects on the response rate.
An attempt to resolve the inconsistencies found among articles regarding the use of incentives to increase mailed survey response rates was made by Fuqua and Hartman (37, p. 3). They set up two different experiments in hopes of removing some of the discrepancies found in the literature. For all articles, Experiment 1 utilized a uniform method of analysis, which they hypothesized might resolve the reported inconsistencies. Experiment 2 was designed to test their hypothesis that the reported inconsistencies might be resolved by pooling data across studies by summing the number of returned and total number of survey questionnaires at each treatment level. They felt that the inconsistencies reported by the Linsky review of the literature might be due to the use of differing methods of analysis in the original studies rather than to any real differences inherent in the data across studies (37, p. 4).

The data for the study were collected by searching the literature of nine professional journals beginning with the 1950 issues. The selected journals were chosen because of their demonstrated commitment to publishing articles about design and analysis issues in survey research. The criteria used in selecting the studies to be included were (1) the independent variable was incentives; (2) the dependent variable was response rates; and (3) the total number of subjects and percentage of returned surveys were reported. The thirty-nine studies containing information appropriate
for reanalysis of the eighty studies which met the criteria for inclusion originally were organized into six homogeneous clusters. The clusters were utilized because of their frequency of occurrence in the literature and the availability of sufficient data to investigate. Experiments 1 and 2 examined each of these incentive clusters independently using the linear trend and departure from linearity tests for proportional data as the uniform method of analysis (37, p. 6).

Results from Experiment 1 suggested that preliminary contact is an efficient method of increasing survey response rates. Of the six studies analyzed for precontact effect, five yielded significant results while only one showed non-significance (37, p. 11). Likewise, six studies which included four treatment levels involving a no-treatment control, preliminary contact by postcard, preliminary contact by letter, and preliminary contact by telephone were examined in Experiment 2. Both the observed linear trend \( z = 7.50, p < .01 \) and the departure from linearity \( \chi^2_{\text{diff}} (2) = 11.92, p < .01 \) yielded significant results. This also indicated that preliminary contact is an effective method of increasing survey response rates. Furthermore, it was suggested that the postcard and letter are nearly equivalent in increasing response rates. There existed some justification for concluding that preliminary contact by letter increases the return rate over no preliminary contact at all. With less certainty one can conclude that
preliminary contact by telephone is the most effective way to increase response rates by preliminary contact (37, pp. 16-17).

In order to compare four forms of request in the pre-call or mail survey context in generating response rates (59, p. 144), 318 male and 322 female subjects were selected systematically from the Chicago telephone directory. Each subject was then assigned randomly to one of the four grammatical techniques used in the telephone solicitation or to the control group. A questionnaire concerning people's attitudes about television and advertising was mailed using first class postage to each of the 640 respondents on the same day as a part of the package which included a cover letter and postpaid return envelope. One day later, the 540 subjects in the four grammatical treatment groups were pre-notified by telephone by interviewers who were randomly assigned to respondents and told the grammatical form to use (59, p. 146). When the final cutoff date arrived, 57 percent of the 540 respondents included in the precall groups had responded. The advance call was given credit for the net gain in returned questionnaires of approximately 21 percent (59, p. 148).

Hinrichs (57, p. 249) reported significantly greater response occurred in a study which contrasted rates of response of 2,547 employees. One-half of the subjects
received a postcard requesting an immediate participation commitment while the other half received no postcard.

A moderately expensive marketing research project used a preliminary contact with each prospective respondent and achieved a return rate of 68.2 per cent. The sample of 300 household consumers was chosen using conventional selection methods. Each subject was telephoned and asked, in a diplomatic way, for his permission for the researcher to send his questionnaire. From the 264 who agreed to the mailing, 180 usable questionnaires were received (65, p. 78). Furthermore, the same researcher reported conducting nine unpublished proprietary studies which employed the technique of prior notification by telephone. Household consumers were the respondents in seven of these studies, with the other two directed toward business managers. The response rates which were calculated as the percentage of mailed questionnaires were reported to range from 51.8 per cent to 87.9 per cent (65, pp. 78-79).

Although the traditional method is approximately one-third as costly as the prenotification method, Jolson (65, pp. 80-81) suggested that the substantially greater rate of return may justify the additional expense. Doubling or tripling of return rates which would be a real breakthrough have been suggested as possible with the use of a well-administered initial telephone contact in advance. More
research is critically needed to confirm the power of this method empirically.

In a field experiment conducted in Sweden, the effectiveness of two types of telephone precalls in influencing response rates in a mail survey was evaluated. Three samples were used. The treatments included a questioning foot-in-the-door manipulation, a simple telephone solicitation call, and a blind mailing which was the control. The results demonstrated that precalling in general enhances response rates (1, p. 498).

A response rate of 91 per cent was reported in a study which attempted to develop procedural techniques which personalized contacts with respondents and neutralized depersonalizing aspects. Procedures used in an effort to convince the respondent that he would benefit personally by completing the questionnaire included an advance letter. Since a control group was not utilized, the effect of the advance letter was not evaluated. However, the study did indicate that response rates can be significantly improved over the 50 per cent norm. Furthermore, it demonstrated that the mailed questionnaire can be an efficient method of data collection since the cost per response was considerably lower than a personal interview (15, pp. 503-508).

A $2 \times 2 \times 2$ factorial research design was used to test the effect of eight personalization strategies upon the response rate to survey research. Consumer preferences for
three household products were assessed from information gathered by the study. A master list containing the names, addresses, and telephone numbers of credit applicants of a large midwestern department store was used to randomly select the subjects who were then randomly assigned to the treatment groups. Although initially 800 were assigned to the treatment groups, the final sample size was 659 due to problems in contacting potential respondents by telephone and recent household relocation which made it difficult to contact them (73, p. 177). The results of this study suggested that personalization of either the advance notice or the cover letter improves total response to personal questions (73, p. 181). Thus, personalization of the advance notice of the mail questionnaire reduces the need for personalization of the cover letter.

On the other hand, six studies were located which did not report any significant differences in response rates when precontact with the prospective respondents was made. These results were reported (chronologically) by Kephart and Bressler (72); Wiseman (131); Parsons and Medford (96); Blumberg, Fuller, and Hare (9); Dillman and Frey (25); and Furse, Stewart, and Rados (40).

To study the relative increases or decreases in percentage of returns among ten inducement groups, 1,000 randomly selected young women who had passed their Pennsylvania State Nursing Board examinations in 1950 were randomly
divided into ten groups of 100 women. Each group was then treated as a subuniverse and was arbitrarily assigned to one of the ten inducements. An increase of 1 per cent was observed in the response rate of the group assigned the preview as its inducement factor over the regular inducement factor. Thus, the preview was not effective when used alone. However, the inducement factor combining the preview and a follow-up resulted in an increase of 14 percentage points, which was significant at the .05 level (72, pp. 124-127). Thus, the combination of the preview and a follow-up as inducements successfully increased the rate of return in this study.

In a research study previously described, Wiseman (131, p. 106) reported that the response patterns of those receiving prior notification in the mail questionnaire group were not different from those of the respondents who did not receive prior notification. However, a relatively large number of mail questionnaires was returned from those households which had received prior telephone notification. This unexpected result caused the number of completed interviews using the mail questionnaire to be considerably larger than that for either the personal or the telephone interview.

Two separate studies were conducted to test the hypothesis that advance notice does not improve the response rate when the sample is drawn from a fairly homogeneous population. The population sampled for the first study was the
alumni from a Master of Business Administration program at a large private university. The alumni were all male, all members of the same religious faith, and all graduates of a highly structured curriculum. The leaders of two religious sects throughout the United States were the population from which samples were sent the second mailed questionnaire. The religious leaders sampled belonged to a homogeneous population even though they were from two separate groups as evidenced by the personal characteristics within each group (96, p. 258).

The object of the first survey, which was conducted in December, 1970, was the determination of the most important factors considered in the selection of the first job following graduation and in subsequent job changes. An advance notice was sent four days before the questionnaire and the accompanying cover letter to 105 alumni, or 45 per cent of the sample of 236. The response rate from the portion of the sample which received no advance notice was 75.5 per cent; and 76.1 per cent of those who received the advance notice returned the questionnaire. The small difference between these proportions was neither statistically nor practically significant.

The purpose of the second survey conducted in May, 1971, was the correlation between political opinions and religious belief. The sample was made up of 450 individuals from religious Group 1 and 150 from religious Group 2. The advance
notice was sent to one-third of each of the two groups. Thus, 150 of the first group and 50 of the second group received the advance notice which was sent four days prior to the mailing of the questionnaire and accompanying cover letter. The difference between the Group 1 members was significant, but in the opposite direction from the way the advance notice is supposed to accomplish. The response rate among those who had not received the advance notice was 65 per cent versus 54 per cent among those who had received the advance notice in Group 1. While the difference was not statistically significant, it was in the other direction among Group 2 respondents. Those in Group 2 who had received the advance notice responded at the rate of 66 per cent, while 60 per cent of those who had not received the advance notice responded. Hence, the advance note had virtually no impact on the response rate in either group (96, p. 259).

In a postal survey concerned with nonviolent action and conducted in March and May, 1971, 2,000 people, many of whom were students, were asked to evaluate training received within the preceding two or three years from various organizations. There were several equivalent subgroups in the rather complex design. One aspect of this study involved sending advance notice of the questionnaire, with or without an appeal to help formulate questions for the survey (9, pp. 113-114). No positive effect due to the advance notice was observed in this study. It was also reported that these
results are consistent with those from thirty-three other studies which found no effect for preview or advance notice (9, p. 122).

The effects of varying degrees of personalization on response rates to mail questionnaires were studied in two experiments with university alumni. Experiment 2 was nearly a methodological replication of Experiment 1. Half of a sample of the general public was contacted by telephone before receiving the questionnaire which was not the same one used in Experiment 1. The same questionnaire was mailed to the other half of the sample without prior contact. Although the call did not increase response rates, it did stimulate earlier return of the questionnaire (25, p. 297).

In another study which reported no effect on initial responses to a mail survey, the initial contact by telephone affected the response rate to the follow-up request. However, the difference in the latter case was not statistically significant (40, p. 476).

A complete listing of all residential telephone subscribers in the Nashville, Tennessee, area was used to generate a random sample of 907 individuals. A questionnaire dealing with attitudes and usage of long-distance telephone services, demographic characteristics of the recipients, and several promotional and advertising concepts was mailed to all members of the sample. The sponsoring organization was identified as a university. A follow-up letter and another
copy of the questionnaire were sent to all individuals who had not returned the questionnaire within three weeks of the original mailing. The cutoff date for returns to the follow-up request was set for three weeks later.

The procedure used to induce responses formed the basis for dividing the sample of 907 households into three treatment groups. Group 1, the control group, consisted of 294 households and received no contact prior to receiving the questionnaire, nor was any incentive given for participation in the study. Group 2, consisting of 294 households also, was not contacted before receiving the questionnaire but did receive a 50-cent incentive enclosed with the questionnaire to induce participation in the study. A foot-in-the-door procedure consisting of contacting each household in the group by telephone before the receipt of the questionnaire was used with Group 3. During the telephone interview, each respondent was asked to answer a brief series of agree-or-disagree questions about telephone usage patterns. The interview lasted less than five minutes. Furthermore, the questions were different from the ones asked subsequently in the mail questionnaire. Twenty-eight (13 per cent) of the 214 households contacted refused to cooperate in the telephone interview. The questionnaires were mailed to all households contacted regardless of whether they agreed to participate in the telephone interview.
The initial response rate for the control group was 21 per cent, while 22 per cent of the group which was contacted before receipt of the questionnaire responded; and the group which received no prenotification but was given a 50-cent incentive had a response rate of 36 per cent (40, pp. 473-474).

The differences among the response rates of the initial three treatment groups were tested for statistical significance using chi-square analysis. The chi-square value of 20.89 was statistically significant at the .01 level. Each of the pairwise contrasts among the three groups was examined by the chi-square extension of Scheffe's method of multiple contrasts to determine where the significant differences occurred. The group receiving the 50-cent incentive had a significantly higher rate of response than either of the other two groups (40, p. 475). Thus, the foot-in-the-door procedure did not yield as high a response rate as the monetary incentive did. In fact, it did not perform any better than the control in the initial mailing (40, p. 476).

As is evident, the question about the effect of pre-contact of the recipient of a mail questionnaire upon the rate of response has not been settled. Some research studies have used the technique successfully. Jolson (65, p. 80) reported that he was able to achieve a 95.4 per cent authorization rate to send the questionnaire and an 88 per cent return rate on 312 questionnaires sent in one private study.
utilizing long-distance prenotification. However, others have reported nonsignificant differences when using the technique.

In their review of the literature, Kanuk and Berenson (70, p. 450) found that the technique of precontact serves to accelerate the rate of return of questionnaires. Hornik, in a study mentioned previously (59, pp. 146-147), operationalized response speed as the time lag between the mailing of the questionnaire and its return. He found that the average response speed of the precall groups was 8.31 days. The main effects of grammatical forms used in the precall interview and the sex of the interviewer were the significant sources of variation in response speed. Female interviewers had a significantly greater mean response speed than males (F = 3.67, p < .05). The four prenotified groups were significantly faster in responding to the mail survey than the control group. Also, there were no significant interaction effects found (59, pp. 148-149).

Postcard enclosure.—The enclosure of a postcard with the questionnaire packet is another technique sometimes used to increase the response rate. The recipient is asked to sign the postcard and return it after returning the questionnaire anonymously. This technique would appear to ensure anonymity to the respondent while allowing the researcher to know who the respondents are. Thus, an implied threat of more contacts is operable on the nonrespondent. While it
would be possible for someone to return the postcard without returning the questionnaire, there is no evidence that this has been the case. Linsky (84, p. 85) reported finding only two studies which utilized this technique. Both were involved with military samples and claimed that the postcard enclosure was responsible for the high response rates (82 per cent and 89 per cent) achieved. It has been suggested that the postcard enclosure could be anticipated to work best when strong lines of institutional control or traditions of responsibility were present among the prospective recipients of the mail questionnaire (84, p. 85).

It would appear that the enclosure of a postcard with the questionnaire packet should be beneficial in a survey study where anonymity of the respondents is required. This would enable the researcher to know who the nonrespondents are. A follow-up contact would be possible with the nonrespondents. Also, although the respondents would be known, the identification of which questionnaire was sent by each respondent would be difficult.

Follow-up letters or postcards.--Although most researchers believe that follow-ups are effective in increasing mail questionnaire return rates, one study did report a negligible increase in response (23, p. 7). However, other writers have stated that follow-ups are consistently effective in improving response rates (84, p. 85; 70, p. 450; 11, pp. 123-124; 40, p. 473). Yu and Cooper (135, p. 40)
reported in their literature review that follow-up letters \( (\chi^2 = 714.7, p < .001) \) had significant positive effects on the response rate. In fact, an increase of 50 per cent of the total percentage of returns can be achieved by using follow-ups according to Miller (91, pp. 77-78). Although the use of follow-ups increases the cost of the research project, it is a better investment than preliminary notification (70, p. 450).

The literature on mail surveys contained many studies which used one or more follow-ups to achieve a high rate of response (92, pp. 138-141; 34, pp. 1-2; 4, pp. 274-275; 22, p. 254; 14, pp. 102-105; 15, pp. 507-508; 105, p. 40; 9, pp. 122-123; 73, p. 181; 46, p. 43; 117, p. 252; 3, pp. 255-256; 107, p. 24; 94, p. 116; 127, p. 47; 49, p. 114; 60, pp. 97-98; 78, p. 82; 110, p. 139; 123, p. 1; 126, p. 54; 12, p. 22). All of these studies except four are described in other sections of this chapter. These four studies are to be discussed now.

A study by Anderson and Berdie (3, pp. 255-257) examined different techniques designed to increase survey response rates. Three types of follow-ups and two types of addressing schemes were utilized. The academic sample was composed of 210 administrators, 344 faculty members, 2,288 graduate assistants, and 785 undergraduate students (3, p. 255).
The questionnaire packet sent to all groups in this study included a one-page, typed cover letter. A letter explaining the nature of the study was sent to all groups prior to the mailing of the questionnaire packet. The follow-up mailing to nonrespondents consisted of one of the following: (a) a whimsical appeal for response and a hand-drawn violin on a postcard, (b) a humorous follow-up consisting of a photo of a rhinoceros eating the university letterhead and a prodding message, (c) a humorous postcard made from a photo of two eyes peering out of an envelope with an appropriate message reminding them to return their questionnaire, (d) a formal letter which again emphasized the importance of each subject participating in the study, (e) a humorous photo of a mailbox containing an open mouth instead of the letter slot, and (f) a notice of a raffle with a 25-dollar prize awarded to one lucky respondent. No data were given for the lottery group.

The overall response rate achieved was 88 per cent. The range of the response rates was from 82 per cent for faculty to 94 per cent for university administrators. A formal follow-up resulted in more responses from administrators than from undergraduates ($\chi^2 = 26.89, p < .001$). The whimsical follow-up was more successful with graduate assistants than with undergraduates ($\chi^2 = 23.11, p < .001$). Graduate assistants responded more to a humorous follow-up than did faculty ($\chi^2 = 8.86, p < .01$). Undergraduates responded
better \( (\chi^2 = 9.74, p < .01) \) to a humorous follow-up than did graduate assistants. Furthermore, the hand-addressed follow-up postcards elicited more responses from the undergraduates than did those with typed labels \( (\chi^2 = 9.14, p < .01) \). Thus, in this study, different groups reacted differently to the different follow-up techniques. The effectiveness of a technique was dependent upon the group with which it was utilized (3, pp. 255-256).

The results of a study by Goulet (49, p. 112) indicated that the type of appeal used in the third request letter had no effect on the response rate. An increased number of totally completed questionnaires resulted regardless of which type of appeal was used in the third wave.

The study of the attitudes of executives concerning the available channels for the sale of their company's common stock (i.e., American, Midwest, and New York Stock Exchanges, and over-the-counter market) was the purpose of this research. The presidents of 993 industrial and retail companies in 43 states and the District of Columbia were sent the original questionnaire packet. The questionnaire was reduced photographically to two-thirds of its original size and printed in an 8 1/2- by 11-inch booklet, using three of its four pages. There were a total of fifty-six questions which required 179 answers. A copy of the questionnaire was mailed with each of the three waves along with a cover letter.
The third wave was used to increase usable responses and concurrently to investigate the effect of four types of letters on the response rate. A different request for response was used in each of the four cover letters (49, p. 112).

The number of responses was increased substantially by the third wave. A breakdown of the third-wave responses according to the type of cover letter revealed a significant difference between rates of response to apparent appeals, but the difference in usable responses by letter types was not significant. Thus, the reminder encouraged responses, regardless of the type of reminder used. Therefore, the selection of which type of appeal to use would be at the discretion of the researcher (49, p. 114).

The results of a study which utilized a single-factor experimental design was reported by von Riesen (123, p. 1). Two different forms of follow-ups were used to test their efficacy in improving response rates. The results indicated that inclusion of replacement questionnaires is preferred over postcard reminders in using a single follow-up when surveying a professional population.

Nevin and Ford (94, p. 116) used a systematic sample of 1,040 students to study the effects of a veiled threat in a follow-up letter on response rates, response patterns, and quality of response. The results indicated a greatly increased response rate when using a veiled threat follow-up
letter compared with the response rate when a more casual follow-up letter was used.

In a study involving eight personalization strategies which was described earlier, Kerin (73, p. 181) found that the response rate, item response, and incidence of response distortion across the various forms of introductory strategy were not significantly affected by the nature of the follow-up. Furthermore, a significant difference between early and late respondents and apparently between respondents and non-respondents was reported by Buse (15, p. 508) in a study previously described. He stated that a more representative sample was brought about by the efforts made to collect responses from the reluctant respondents. However, the questionnaire quality and completeness did not deteriorate with the application of more stimuli to the nonrespondent to force him to respond (15, p. 508).

Seven studies involving follow-ups as a treatment variable and one study involving reanalysis of data from other research on the effects of follow-ups on the response rate to mail questionnaires were found in the literature. Unlike the above-mentioned studies, these survey studies examined the effects of follow-ups on response rates. A discussion of each follows.

Fuqua and Hartman (37, pp. 15-16), in their study described earlier, attempted to eliminate the inconsistencies reported in the literature by examining the effect of several
follow-ups on response rates. They reported a significant linear trend \( z = 12.03, p < .01 \) across four treatment levels analyzed in the order of their incentive value (no treatment control, first follow-up, second follow-up, and third follow-up) when a linear trend test was performed on the data pooled across studies. Thus, as the number of follow-ups increased, each successive one yielded a smaller increase in the rate of return. Specifically, the first follow-up achieved an additional 19 per cent in returns; the second follow-up added 15 per cent more returns; and the third follow-up yielded 7 per cent in additional returns.

It would appear from an examination of this data that the follow-up procedure is effective in increasing response rates. How many follow-ups to utilize in a particular survey should be determined by the desired outcome and available resources. This study indicated that more than three follow-ups would rarely, if ever, be of a significant benefit (37, p. 16).

In another previously described mail survey, Furse, Stewart, and Rados (40, p. 473) examined the effect of compliance with a smaller request (i.e., a foot-in-the-door) upon the probability of subsequent compliance with a larger request. They discovered that the foot-in-the-door technique affected responses to a follow-up request even though it had no effect on initial responses to a mail survey.
Six distinct treatment combinations for households which received a follow-up mailing were achieved by using two follow-up schemes. A follow-up mailing including a copy of the questionnaire and a 50-cent incentive was sent to one-half of all nonrespondents in each of the three original treatment groups. The other half of each group was sent a follow-up mailing which contained a copy of the questionnaire without the additional monetary incentive (40, pp. 473-474).

The follow-up response rate was calculated by dividing the number of follow-up questionnaires returned by the number of follow-up requests mailed. The control/control group yielded a response rate of 22 per cent; the control/50-cent group produced a 43 per cent response rate; the foot/control group achieved a response rate of 31 per cent; the foot/50-cent group had a 38 per cent response rate; the 50-cent/control group yielded a response rate of 25 per cent; the 50-cent/50-cent group also yielded a 25 per cent return rate. Hence, an incremental response rate was achieved in all six of the follow-up treatment conditions.

The overall response rate that may result from several treatment alternatives was the purpose of this study. Obviously, the overall response rates depend on the number of returns from both the initial and the follow-up mailings. The projected response rates were computed to study the efficacy of the various treatment procedures.
A scheme was used which enabled the researchers to compute the projected overall response rates for each of the final six treatment conditions. It involved dividing the original mailing groups in half and estimating the response and nonresponse for these groups in the first mailing by using the percentage response rate. Thus, the inflation of the sample size was avoided. Since one-half of the nonrespondents in each initial treatment group was assigned to different follow-up treatments, the overall response rates for each of the final six conditions were obtained by adding the follow-up responses directly to the appropriate initial mailing group (40, p. 475).

In this study, the foot-in-the-door procedure was not as effective as the monetary incentive. The foot-in-the-door technique performed no better than the control during the initial mailing. Although the difference was not statistically significant, the follow-up mailing without any additional incentive produced a slightly better response rate with the foot-in-the-door group than with the control group (40, p. 476). However, Yu and Cooper (135, p. 40) reported in their literature review that foot-in-the-door techniques ($\chi^2 = 68.3, p < .001$) had significant positive effects on the response rate.

A study reported by Futrell and Lamb (41, p. 11) investigated the effect on mail survey return rates of sending questionnaires with follow-up cover letters. They compared
the return rate when the questionnaire was included with the follow-up letter to that achieved when only the follow-up letter was sent. The purpose was to study the influence of the number of follow-ups, the types of follow-up (questionnaire plus letter versus the letter only), and certain combinations of experimental treatments.

This research was completed as a part of a study for an agricultural lending institution with branches throughout Texas. The determination of the perceptions of agricultural producers concerning financial lending institutions in their immediate area was the objective of the study. A consulting firm supplied a random quota sample of farmers and ranchers. Two parameters were used to stratify the sample. They were the region of the state where the farm or ranch was located and its annual sales volume. The 2,002 subjects in the study were randomly assigned to one of seven possible treatment cells. Thus, 286 subjects were assigned to each cell (41, p. 12).

Three models were formulated to determine whether there were significant differences in return rates which could be attributed entirely to the number of follow-up mailings sent. No differences due solely to the number of follow-ups were found. Three follow-ups were needed to improve the response rate significantly, indicating the futility of sending only one reminder letter. After one follow-up, there were no significant differences among the three treatments. However, a
significantly higher return rate for the questionnaire-plus-letter format compared to the letter-only format was reported after the second and third follow-up waves. A significant difference between the return rates for the experimental and control groups combining questionnaire-plus-letter and letter-only formats was reported (41, pp. 13-14).

Hinrichs (57, p. 249) reported three studies which investigated differences in response rates to mail surveys. One of these studies contrasted rates of response in three populations from 1,906 employees who received a follow-up reminder with three populations from 3,525 employees who received no follow-up. The populations were composed of employees of a large manufacturing company, and the surveys were concerned with job attitudes. The rate of response from those who received the follow-up reminders was significantly greater than the response rate from those who did not receive the follow-up reminders.

A two-page mail questionnaire survey was used in combination with personalized cover letters and follow-up postcard reminders to gather data for another experiment designed to appraise consumer evaluations of financial institutions and the services which they offer. The most recent metropolitan telephone directory of a medium-sized southwestern city was used to randomly select 4,000 residents. A 2 X 2 design was achieved by randomly assigning each person to one of the four treatment groups. Two of the four treatment groups
received a follow-up postcard reminder three days after receiving the original mail questionnaire. Also, a personalized cover letter was sent to two of the four treatment groups with the original mail questionnaire (21, p. 413).

The overall response rate for this experiment was 17.8 per cent, which means a total return of 710 completed questionnaires. The response rate differences among the four treatment groups were found to be highly significant when tested by chi-square analysis. The effect of using follow-up postcard reminders was one of the factors to which these significant differences could be attributed (21, pp. 413-414).

An experiment reported by Etzel and Walker (30, p. 219) utilized a large-scale mail survey of 700 consumers to compare the effects on response rate of (a) not sending a follow-up letter (control group), (b) sending a follow-up letter with a duplicate questionnaire and return envelope, and (c) sending a follow-up letter without duplicates.

The overall response rate was 48.6 per cent. The control group which received no follow-up achieved a response rate of 38.8 per cent. The experimental group which received a follow-up letter without duplicates of the questionnaire and return envelope yielded a response rate of 59.0 per cent, while 52.9 per cent of the experimental group which received a follow-up letter with a duplicate copy of the mail questionnaire and another return envelope responded.
Thus, this study suggested that the optimal strategy to maximize response rate would be to send a follow-up letter without a copy of the questionnaire and another return envelope. Furthermore, the additional printing, clerical, and perhaps postage expenses associated with the inclusion of the duplicates in a follow-up letter could be avoided (30, p. 220).

Watson (124, pp. 48-49) reported two studies which were related and were completed during the winter and spring of 1964. A representative sample of approximately 10,500 subscribers of Business Week was selected by using every nth name from a segment of its domestic subscribers. All of those selected were identified by title and industry. This sample was then divided into twenty groups. The nineteen experimental groups were composed of 500 subjects in each, while the control group numbered 1,000.

Identical packets containing the questionnaire were mailed in January, 1964, using the same mailing method to all groups except for a single variable introduced in each of the mailings to the nineteen experimental groups. Eight of the nineteen experimental groups yielded a response rate which was less than that of the control group. The experimental group which received a follow-up postcard was one of the eleven experimental groups which resulted in higher response rates than did the control group.
The April, 1964, mailing used the same questionnaire as was used in the January mailing except that classification questions were omitted. The four best performing variables in the January mailing were used in combination to design the experiment conducted in April (124, p. 50). The first wave sent in April had a 25-cent coin on a sticker attached to the questionnaire. The second wave was mailed two days later to the entire sample and was the same as the first wave except for the sticker attached to the questionnaire. Instead of the 25-cent coin used with the first wave, the second wave utilized a sticker thanking the respondent for answering the questionnaire promptly if he had already done so and asking him to cooperate by returning it if he had not done so previously (124, p. 49).

One month was allotted for returning the questionnaires in both studies. The control group in the January study yielded a 30 per cent response rate. The control group in April had a response rate of 39 per cent, which was about the same as the return rate for the experimental group which was not asked the classification question during the January mailing. The response rate of 84 per cent was achieved in the April mailing by utilizing the combination of the four best performing variables from the January study. It was determined by analysis of the returns that no respondent returned more than one questionnaire (124, p. 50).
In a previously described study involving 1,000 randomly selected young women who passed their Pennsylvania State Nursing Board examination in 1950, Kephart and Bressler (72, p. 127) reported that the follow-up procedure which they utilized yielded an increase of sixteen percentage points in the response rate. This was a statistically significant increase at the .05 level. A similar increase in the return rate resulted from using the follow-up technique with the preview group. The increase of fourteen percentage points was significant at the .05 level. Variability in sampling apparently caused the small difference between the two amounts of increases in response rates.

Hence, much evidence existed in the literature to suggest that the use of follow-ups will result in an increase in the response rate to mail survey questionnaires. However, agreement on the number of waves of follow-ups to use was not found. Most agreed that no more than three waves could be used effectively.

Types of mailing for outgoing and return envelopes.—Several references in the literature to the effects of the type of postage used on the outgoing and return envelopes on the return rates to mailed questionnaires were found. However, Kanuk and Berenson (70, p. 450) reported that few studies have tested the same variables. Hence, comparisons of results are difficult to do.
Fuqua and Hartman (37, pp. 17-18) in their study which has already been described in this chapter found eight studies involving postage as a treatment variable. The following six postage treatment levels were included in those studies: metered postage (third class), regular stamp (first class), commemorative stamp, multiple stamps, airmail, and special delivery. This was the order in which the six treatment levels were weighted for the analysis. It should be pointed out that not all studies utilized each treatment level.

Analysis of the data pooled across studies resulted in a significant linear trend ($z = 5.50, p < .001$). Furthermore, a significant departure from linearity ($\chi^2_{\text{diff}} (4) = 20.05, p < .001$) was found. The same number of studies used the metered postage treatment level as did the regular stamp treatment. According to this study, regular stamps yielded a slightly higher return rate than did metered postage. However, no significant differences in return rates for metered, regular, and commemorative postage were discovered. The results indicated that the lowest return rate accompanied the use of multiple stamps, and a sharp increase in return rates was evident when airmail and special delivery postage was used. However, due to the small number of studies which included airmail and special delivery with the other treatment levels, caution should be exercised in interpreting these results. It is not recommended by Fuqua
and Hartman (37, p. 17) that one conclude that airmail and special delivery are superior to other postage types in increasing the response rates to a mailed questionnaire.

Miller (91, p. 78) stated that although the amount of increase in percentage of returns resulting from the method of return is unknown, the use of stamped return envelopes is better than using metered return envelopes. Linsky, in his review of the literature (84, p. 88), found evidence that "high-powered" postage arrangements on outgoing and return envelopes yielded a higher percentage of returns. Similarly, Berdie and Anderson (7, pp. 64-65) reported that special delivery, certified mail, and stamped postage are specific tactics used to increase return rates to mail surveys. However, Yu and Cooper (135, p. 40) reported in their literature review that providing postage had no significant effect on the response rate.

Buse (15, pp. 507-508) in a study previously described utilized a technique which included hand-stamped mailings and special delivery handling to achieve a response rate of 91 per cent. Furthermore, results from a study of nurses described earlier indicated that both airmail and special delivery stamps were effective in increasing the return rates. However, Kephart and Bressler (72, p. 128) reported a statistically nonsignificant (p = .05) difference between the regular and airmail samples; but they found a significant difference between the regular and special-delivery
inducements. Hence, in their study, an airmail stamp and a special delivery stamp were no more effective than a regular questionnaire-and-follow-up procedure when the costs are not considered.

In another study, already described in this chapter, Watson (124, p. 49) reported mixed results in the January mailing. The commemorative stamp on the return envelope and the business reply return envelope yielded a smaller rate of return than the control group did. However, airmail outgoing and return postage, first class outgoing postage, and five one-cent stamps on the return envelope all resulted in response rates higher than that of the control group.

In a study reported by Kernan (75, p. 420), the comparative effectiveness of two variables in affecting mail questionnaire return rates was assessed. The variables used were the form of addressing and the type of postage. The levels of the address variable were personalized (addressed to the respondent by name) and nonpersonalized (addressed merely to "Occupant"). The types of postage used were first class and bulk rate.

The 400 subjects for the study were randomly selected from the Greater Cincinnati telephone directory and were then randomly assigned to one of the four experimental groups. Each cell had 100 in it. Identical questionnaires accompanied by identical cover letters were sent to each subject in each group.
After three weeks had elapsed since the questionnaires were mailed, the responses in each group were tallied. The personalized/first-class group had a response rate of 42 per cent; the personalized/bulk-rate group yielded a 32 per cent rate; the occupant/bulk-rate group had a 40 per cent response rate; and the occupant/first-class group responded with a return rate of 35 per cent. The differences among the groups were both slight and statistically insignificant (75, pp. 420-421). Further analysis of the data demonstrated that first-class postage yielded a rate only insignificantly higher than bulk-rate postage in this study. Thus, the results do not warrant the conclusion that only first-class postage should be used with mail surveys. Moreover, personalized addressing yielded a response rate effectively equal to "occupant" addressing. Thus, no particular advantage and more than modest disadvantage existed when the mail questionnaire was personally addressed and sent by first-class mail (75, p. 422).

One of the five variables investigated by Wolfe (132, p. 9) was the payment of the return postage on questionnaires sent to public school superintendents in the state of Ohio. All combinations of the five variables were utilized to achieve a completely crossed design.

A total of 512 persons was required by the research design. Since the population included all 746 public school superintendents in the state of Ohio, it was possible to
randomly select enough for each of the sixty-four cells to have eight subjects.

The questionnaire designed to gather basic information about questionnaires was mailed to each subject along with a cover letter and return envelope with an indicated deadline of four weeks. The study did not utilize any kind of follow-up (132, p. 10).

The overall response rate yielded by the study was 72.27 per cent. The overall return rate for the groups receiving a stamped return envelope was 72.66 per cent, while the overall response rate for the groups receiving no stamp was 71.88 per cent. An analysis of the data utilizing analysis of variance (ANOVA) with all factors being classified as fixed found that the main effect due to postage as well as all interaction effects was not significant (132, pp. 50-51).

Kerin and Harvey (74, p. 279) reported similar results with an experiment involving mail questionnaires sent to the corporate presidents of companies on Fortune magazine’s list of 500 largest firms in the nation. The effect of three variables on response rates in a university-sponsored mail survey was studied in the experiment. The four-page questionnaire sought information on product recall practices among organizations listed by Fortune magazine as the 500 largest companies in the nation (74, pp. 277-278).
Since two applications of each factor were operationalized, a 2 X 2 X 2 factorial design resulted with eight treatments. The postage treatment variable consisted of two levels. Although all questionnaires were accompanied by a self-addressed return envelope, only half of them had a stamp attached. No stamp was included with the other half of the questionnaires (74, p. 278).

Since fifty-five firms were randomly assigned to each experimental cell, a total of 440 questionnaires were mailed. The technique used to analyze the response rates for each treatment was the analysis of variance. If the number of observations in each treatment are equal and exceed fifty, this procedure has been found appropriate for dichotomous dependent variables (74, pp. 278-279). The impact of the availability of return postage on response rates was not statistically significant in this study. Furthermore, no higher order interaction effects between variables were found to be statistically significant (74, p. 279).

The type of postage was one of the three treatment variables utilized in a study to modify return rates as reported by Landy and Bates (79, p. 147). A 3 X 3 X 3 contingency table was analyzed by using chi-square analysis. The three levels of postage used were airmail, first class (stamped), and first class (metered). The results showed that neither the main effect due to type of postage nor interactions with the other independent variables were significant.
Furthermore, the type of postage had no effect on the latency of return. Identical results were achieved by a replication of the study.

The general hypothesis that there is a relationship between the three treatment variables used in this study and the rate of return for a mail questionnaire was tested by using two samples. The sample size of 810 was achieved by the random selection and assignment of each subject to one of the twenty-seven cells in each study. The overall return rate for the primary sample was 25 per cent. The replication sample yielded an overall response rate of 17 per cent (79, pp. 147-148).

Brzezinski and Worthen (14, p. 6) reported a study which investigated techniques to maximize response rates. Six variables were included in the study including the use of a stamped versus an unstamped return envelope and follow-up correspondence. The experimental sample was composed of 4,608 college faculty members. Three analyses of response rates at different points in time found no significant differences for the two forms of return envelope. The population for this study could be expected to have free mailing privileges which could have some effect on the results. The data from this study indicated no significant increase in response rates when a stamped return envelope was enclosed. On the other hand, a significant increase in response rates resulted from the sending of a follow-up
letter with which another questionnaire was enclosed (14, pp. 102-105). These conclusions match those reached in similar research cited above.

Vocino (122, pp. 76-77) reported a study using the membership of the American Society for Public Administration to test for the effects of three variables, each of which was randomized. In August, 1975, questionnaires were sent to 1,400 randomly selected members of the organization. After a follow-up postcard in mid-September, 506 questionnaires were returned, resulting in a 36 per cent rate of return. One of the variables tested was the type of postage. Commemorative stamps and metered mail were the levels of the postage variables utilized in this study. The analysis of the data used indicated that the use of commemorative postage stamps was less effective in stimulating response than the use of postage meters.

Russell, Konrad, and Kaluzny (109, p. 22) reported a field experiment designed to evaluate factors causing differential response rate and response speed of mail questionnaires. A stratified probability sample of 623 hospitals was selected. Questionnaires were addressed and mailed to each hospital's administrator. Each subject was randomly assigned to one of the twelve treatment groups which resulted from combinations of the three mailing condition variables. Postage was one of these. Regular, airmail, and airmail special delivery were the three levels of postage
used in the study. Although the postage variable had no
direct effect, the first and second order interactions ac-
counted for some differences in response rate and response
speed. For example, 92 per cent of the group whose question-
aire was mailed using airmail-special delivery postage, a
postscript, and the envelope marked personal on the out-
side returned the questionnaire. On the other hand, only 67
per cent of the questionnaires sent with airmail, no post-
script, and no personal were returned.

One of the purposes of a study reported by Jones and
Linde (67, p. 284) was to investigate the effect of the type
of return postage on response rate, quality of response, and
response bias of a mail survey experiment. A 3 X 3 X 3 fac-
torial field experiment was done utilizing 4,212 individuals
identified as having planned group conventions or meetings.
Each of the 156 observations/cell was randomly assigned to
one of the twenty-seven treatment cells. After six weeks
from the date of the initial mailing, 1,242 questionnaires
had been returned. This meant that the return rate was 29.5
per cent (67, p. 280).

Findings of the above study indicated that the type of
return envelope postage affected only the response rate. The
highest response rate was achieved with the use of regular
stamps. The next highest response rate was achieved by the
use of commemorative stamps, while the lowest response rate
was achieved by the use of the business reply envelope.
Finally, no interaction effects were reported among the three treatment variables (67, p. 284).

A market survey for a medium-sized marina in northern New England studied the reactions of its customers to its service department's performance. The sample of 200 was randomly selected from customers who had patronized the service department of the marina during the 1975 calendar year. One of the three techniques tested for its ability to induce greater response to mail questionnaires was the use of a commemorative stamp affixed to the return envelope. To implement this test, one-half of the return envelopes used had a commemorative stamp attached while the other half had a regular stamp affixed (78, p. 82).

Since the study used a $2 \times 2 \times 2$ factorial design, twenty-five customers were randomly assigned to each of the eight experimental groups. The design of this experiment included the use of follow-up telephone calls and postcard reminders. The overall response rate of 43 per cent of the total sample was reached by the cutoff date, which was four weeks after the mailing of the letters. The response rates for the individual experimental groups varied from 32.0 per cent to 58.3 per cent (78, p. 82). Analysis of these data revealed that the effect of the commemorative stamp was not statistically significant. However, a small trend in the right direction was observed in the groups which used a commemorative stamp on the return envelope (78, p. 83).
House, Gerber, and McMichael (60, p. 96) reported a mail survey on health and stress among all 2,856 blue-collar workers in a tire, rubber, plastics, and chemical plant located in a small northeastern city. The workers were predominantly (over 90 per cent) white males. The study examined the effects of various follow-up techniques and type of postage used on the outgoing envelopes upon the response rate.

All 2,856 plant employees were first sent the questionnaire in April, 1974. An intensive follow-up through union and company channels was initially launched. The investigators thought that this technique would be more effective than mail follow-up techniques because the study had full union and management support. Thus, nonresponders were subjected to reminders in union and company newsletters and on bulletin boards and to personal requests from shop stewards and foremen throughout the summer. Further follow-ups by letter and personal contact in combination with highly visible health testing of selected workers were used in the fall. In spite of the seven months of such efforts, only a 57.5 per cent response rate was achieved. This was very close to the average (56.9 per cent) obtained in a similar study before the final certified mail follow-up (60, p. 96).

A final follow-up in January, 1975, tested three methods of delivering a final request along with a replacement questionnaire. The methods utilized were (1) first-class mail,
(2) certified mail, and (3) hand delivery by company supervisors. Each of these methods was applied to only one work shift. The method used on the day shift was the first-class mail. The evening shift received the final follow-up by certified mail. Company supervisors personally delivered the final follow-up to the workers on the night shift (60, p. 97).

The response rates varied from 50.7 per cent on the night shift to 63.0 per cent on the day shift before the final follow-up was implemented. The chi-square test showed that the response rates to the three final follow-up methods were significantly different ($\chi^2 = 40.36$, df = 2, $p < .001$). Examination of the data revealed that certified mail yielded a significantly higher rate of response (42.7 per cent) than either first-class mail (25.8 per cent) or supervisor delivery (20.2 per cent) procedures. The latter two did not differ significantly from each other. The overall response rate of 57.5 per cent would have been increased to 72.4 per cent if all shifts had received the final follow-up by certified mail and the 42.7 per cent response rate had been constant over all shifts since an additional 423 responses would have been produced. The projected results would have been strikingly similar to those of the other study (60, pp. 97-98).

Veiga (121, p. 217) reported a study which was designed to evaluate the effectiveness of the three most often used
return methods. One hundred managers were randomly selected and divided into three groups according to the type of mailer each received. The subjects were sent a questionnaire which was to be returned by either a stamped envelope, a business reply envelope, or their firm's interplant mail system. Results from this study indicated that the interplant mail system yielded the greatest return rate. Also, it did so at the lowest cost and did not produce respondent bias. Furthermore, the data from this study revealed that the business reply envelope elicited a very poor response rate.

In another study of the effect of the use of a commemorative stamp upon the response rate to a mail questionnaire, Martin and McConnell (87, p. 410) reported that a newly issued Spokane, Washington, telephone directory was used to select a simple random sample of 240 names. The mailing was done in conjunction with another study to evaluate the public and judicial attitudes toward various aspects of the legal machinery and toward a selected list of misdeeds. Two questionnaires which differed considerably in difficulty were used. The easier one was composed of twenty-six Likert-type items; the more difficult one required the respondent to rank, without ties, a set of thirty-five "misbehaviors." Also, the questionnaires requested that the respondent supply some basic personal data, such as age and income.
Sixteen groups of fifteen subjects each were randomly formed from the sample (87, p. 410). Four treatment variables were applied to the appropriate groups. One of these was the type of postage attached to the return envelope. As mentioned above, the commemorative stamp was used at one level of this variable while business-reply franking on the return envelope was the other level.

A cutoff date of four weeks after the mailout date was established. At that time, usable returns of both questionnaires had been returned by 17.5 per cent of the sample (87, p. 411). Another 3 per cent had provided some usable data but were not considered completed returns. In addition, some 4 per cent (nine) responded by returning refusal letters. Some of these gave as a reason for the action a preference for supernatural over scientific understanding of the law-morality issue. These data provided evidence that the commemorative stamp influenced the return rate in the predicted direction and was significant at the .05 level (87, pp. 411-412).

Kimball (76, p. 63) reported that "split-runs" were used to test several simple format possibilities in a survey among technical personnel of electronic manufacturers. Six subsamples with 500 subjects in each were formed from a total of 3,000 randomly selected respondents. One of the three incentives tested to determine the effects on rate of return in mail surveys was the use of an airmail stamp on the
return envelope versus the use of an airmail postal permit. The questionnaire packages sent to the respondents in each of the subsamples varied only in terms of the appropriate incentive variations. The three pairs of subsamples which varied only on the postage detail were compared. The airmail stamp was better than the airmail permit as an incentive to increase the rate of return as was evident upon comparison of both the size and the consistency of increases in return percentages (76, pp. 63-64).

Thus, it is evident from the wealth of material in the literature on increasing response rates to mail surveys that researchers have been concerned with the type of postage on both outgoing and incoming mail. Unfortunately, comparison of results is difficult because of the lack of studies which utilized the same techniques. Naturally, some types of postage are not always appropriate in all circumstances. However, one study reported that, since its inclusion facilitates questionnaire return, a stamped, return envelope does encourage response (70, p. 450). On the other hand, Yu and Cooper (135, p. 40) reported in their literature review that the use of a return envelope was not manipulated within a single study.

Length of questionnaire.--Another important concern in research design is the length of the questionnaire (84, p. 89). Intuitively, it would seem that short questionnaires should result in a higher rate of response than long
questionnaires. However, some researchers have reported better results with long questionnaires, and others have reported no difference in response rate due to questionnaire length (23, p. 7). In fact, evidence provided little support for a blanket endorsement of shorter questionnaires (84, p. 90). Research evidence did not support the view that shorter questionnaires should obtain higher response rates than longer questionnaires (70, p. 450). Yu and Cooper (135, p. 39) reported in their literature review that questionnaire length is nearly uncorrelated with the weighted average response rate associated with that length. They found a small negative correlation coefficient of -0.06. Since questionnaires as long as thirty-two pages or 1,000 questions have reportedly been used successfully, the manner in which the proposition is presented and the appearance of the first page have been suggested as having more to do with completing the questionnaire than does length (11, p. 119).

As previously stated, studies of the general public (24, p. 744) and a nationwide faculty survey (19, p. 313) have successfully utilized lengthy mail questionnaires. This is not to say that the length of the questionnaire should not be considered in mail survey design. Each study has different goals and requirements. Although not stating that the length of the questionnaire will increase or decrease the rate of response, Berdie and Anderson (7, p. 61) listed it as a specific tactic to be considered in the design and
use of questionnaires. Miller (91, pp. 77-78) suggested that the length of the questionnaire could cause an increase of 22 per cent of the total percentage of returns.

Several studies of the effect of questionnaire length on the return rate for mail questionnaires were located. In a previously described study, Brzezinski and Worthen (14, p. 6) utilized two different lengths (in pages) of questionnaire. They found that questionnaires with fewer items were returned more often after the initial mailing. However, they concluded that the response rates did not increase significantly when the length of the questionnaire was restricted to one page in length (14, p. 102).

In another study described earlier, Blumberg, Fuller, and Hare (9, pp. 113-114) reported using five survey forms with several sections varying in length and content. They claimed that higher response to postal surveys typically results from the use of a questionnaire that is not overly long, while stating that length does not make as much difference as previously thought.

Sheth and Roscoe (117, p. 252) reported no significant differences in response rate between a short (four-page) and a long (six-page) questionnaire in a study described in another section of this chapter. Among the four follow-up methods used in that study, the best results were achieved with a telephone reminder. The second best results were produced by a postal reminder. Furthermore, the poorest
results were reported when telephone interviews both with and without prior alert were utilized.

Length of form and mode of addressing were the two aspects of procedure tested for their effects on the response rate to a mail survey of beginning teachers as reported by Mason, Dressel, and Bain (88, p. 296). Four forms were used to test the two factors. Form A consisted of eight pages with ninety-two items and included the name and address of the respondent on the form. Form B was the same length as Form A but contained a code number on the form. Form C consisted of six pages with sixty-two items and included the name and address on the form. Form D was the same length as Form C but had a code number on the form.

Some school districts were asked to submit the names and school addresses of their beginning teachers to form a judgment sample for the pretest for the above study. Although weighted heavily in favor of larger districts, a sample of 741 teachers was selected from various sections of the country and from school districts of various sizes. Since Form A was sent to the first name on the list, Form B to the second, and so on, the distribution of the four forms was claimed to be randomized (88, p. 297).

Chi-square was used to test the null hypothesis that there were no differences in response to the four forms. Comparisons were made by comparing total received with the total not returned among the four forms, between the two
long forms and the two short forms, and between the two addressed forms and the two coded forms. No significant differences in response were found in any of the tests. There was a 2 per cent observed difference between the two long forms and the two short forms. On the other hand, there was no difference between the two addressing procedures (88, p. 298).

Berdie (6, p. 278) reported the results of a study which examined the relationship between questionnaire length and response rate. Examination of the University of Minnesota staff directory yielded four departments within each of the three colleges with at least three professors, three associate professors, and three assistant professors. Using a random number table, a stratified random sample of 108 subjects was selected. Included in the sample were three professors of each rank from each department. Also, the sample consisted of thirty-six subjects from each of the three colleges, thirty-six subjects from each of the three levels of professorship, and nine subjects from each of the twelve departments (6, p. 279).

The questionnaire used in the study contained forty questions concerning current social problems. The order of the questions was determined by random assignment of them to four different pages. Because of random assignment of questionnaires to subjects, each level of professorship in each department received a one-page questionnaire, a two-page
questionnaire, and a four-page questionnaire. Thus, bias due to differences between the personnel of various departments or to differences between the levels of professorship should have been avoided (6, p. 279).

The campus mail was the vehicle used to distribute the 108 questionnaires simultaneously. A self-addressed return envelope and a letter requesting participation in a research project were sent with each questionnaire. No questionnaires were received after the twenty-day cutoff date. However, prior to the cutoff date, 58 (53.7 per cent) of the 108 questionnaires were returned (6, pp. 279-280).

According to the data gathered by the study, there was not a statistically significant relationship between questionnaire length and response rate. However, a small negative correlation was noted. Furthermore, the college of the subject was not related at a statistically significant level to the length of the questionnaire to which he responded. Also there was not a statistically significant relationship between the level of professorship of the subject and the length of the questionnaire to which he responded (6, p. 280).

Citing as the rationale for the need of the study that past research evidence on the effects of follow-up methods and questionnaire length on response rate was not decisive, Roscoe, Lang, and Sheth (107, p. 21) described a study which investigated the individual and joint effects of these
factors in a variety of market areas. The comparison of the present questionnaire follow-up procedure with several alternative methods under controlled conditions to determine the best procedure for increasing the response rate was one purpose of the study. Determining whether a set of attitude items could be added to the questionnaire without decreasing the response rate was a second objective. The design of the study required the use of a $2 \times 4 \times 8$ three-factorial fixed-effect field experiment and a subsequent series of postexperiment interviews to explore customer attitudes toward the mail survey.

Questionnaire length/content was the first test variable. Two questionnaires were used. The short questionnaire was composed of twenty-eight items, and the long questionnaire used the same twenty-eight questions plus twenty-six attitudinal items (107, p. 21). Follow-up method was the second experimental factor used. It was implemented with four levels. The present follow-up method utilized a postcard reminder and a second mailing of the questionnaire. The second follow-up method consisted of a telephone reminder and a second mailing of the questionnaire. The third follow-up method required a letter alert followed by a telephone interview (107, p. 22). The fourth follow-up method used a telephone interview without any alert (107, p. 23).
The study yielded an overall response rate of 67.3 per cent. Analysis of the data revealed significant differences across various experimental treatments. First, the four follow-up methods resulted in considerably different response rates across the eight markets and across the two versions of the questionnaire. The best follow-up method was the telephone reminder with an average response rate of 76.4 per cent. The postcard reminder with an average response rate of 69.9 per cent was the second best. The follow-up method which yielded the third highest average response rate of 65.6 per cent was the telephone interview with an alert. On the other hand, the telephone interview without an alert with an average response rate of 57.8 per cent was the least effective follow-up method. Secondly, the data revealed no significant differences in the response rate between the short and the long questionnaire (107, p. 24).

Childers and Ferrell (17, p. 429) reported a study using a 2 x 2 factorial design to test the physical trim size of the questionnaire and the number of sheets used for printing the questionnaire as the variables that relate to the perceived questionnaire length. The two sizes of paper used were 8 1/2 by 11 inches and 8 1/2 by 14 inches. The number of sheets used was either one printed on front and back or two printed on the front only.

The 1977 American Marketing Association membership roster was used to select a systematic random sample of 440
subjects for the experiment. College or university affiliation was used to exclude academic members from the study. All questionnaire versions mailed to the sample contained the same ten open-end and multiple-choice questions concerning usage of selected marketing concepts, job characteristics of the subject, and the employing firm (17, pp. 429-430).

Usable data were returned by 145 (33 per cent) of the recipients. Response rates for the two levels of sheet size (38 per cent versus 28 per cent) varied considerably, while a moderate difference in response rates was found for the number of sheets (36 per cent versus 30 per cent). The highest response rate of 39 per cent resulted when the size of the questionnaire sent was 8 1/2 by 11 inches on one sheet. The lowest response rate of 24 per cent was achieved when the size was 8 1/2 by 14 inches on two sheets. The size variable was found to be statistically significant at the .033 level by an analysis of variance. The response rate for the number of pages was not statistically different across the two levels. Likewise, the interaction effect was not statistically significant (17, p. 430). Thus, the size of the data-collection instrument proved to be an important determinant of response rate in this study. This was contrary to findings of some prior research. More research in this area is needed (17, p. 431).

Goldstein and Friedman (46, p. 43) reported a study utilizing standard double postcards obtained from the United
States Postal Service and single-page 8 1/2- by 11-inch forms. Using a table of random digits, a sample of 1,200 was selected from a mailing list of approximately 16,500 travel-agent subscribers to a particular travel-oriented magazine. Four equal groups were formed by random assignment of the sample members into groups (46, p. 44).

The questionnaires were mailed to the four groups in two waves. One group received its questionnaire on a double postcard. Those who did not respond received another questionnaire in the same format during the second wave. A second group was sent a questionnaire on the single-page 8 1/2- by 11-inch form. The second mailing resulted in the same format being used on the questionnaire sent to the second group. The third and fourth groups were sent questionnaires in different formats during the two waves. A total of 770 usable questionnaires were returned. The size of the sample was reduced to 1,191 since nine respondents had moved and left no forwarding address. Data analysis revealed that the rate of return of the 8 1/2- by 11-inch forms was significantly higher than that of the postcards ($\chi^2 = 42.207, p < .01$). Also, the total response was significantly different among the four survey groups ($\chi^2 = 21.801, p \leq .01$). However, the difference was not significant when the first group which received postcards on both waves was removed from the analysis (46, p. 45). This group resulted in a low response rate which was
significantly less than the other three groups. The other three groups appeared to have done equally well in achieving returns as evidenced by the nonsignificant differences in total rate of response among them. Furthermore, the differences between double postcards and one-page questionnaires in terms of validity, content, length, and depth of response were not found to be significant (46, pp. 46-47).

Because of the differences in research designs and variables tested, comparison of the results of research on the effects of questionnaire length on the response rate is difficult. However, it would appear that there are more important aspects to the mail survey procedure than the length of the questionnaire in relationship to response rate.

Printed versus mimeographed questionnaires.--It would seem likely that the more professional-looking questionnaire would be able to achieve a higher return rate than the one having the appearance of being unprofessional. Following this line of thought, one would conclude that printed questionnaires should contribute to higher return rates than mimeographed ones. Printing and paper were listed as specific tactics to be considered in questionnaire design by Berdie and Anderson (7, p. 56). Although Linsky (84, p. 91) reported finding only one experimental study of this factor, almost no difference between the response rates was found. The return rate for the printed questionnaire was 22 per cent; 21 per cent of the group receiving the mimeographed
questionnaires returned them. Furthermore, Kanuk and Berenson (70, p. 450) concluded the same thing based on the few studies that they located which utilized the form of reproduction as a factor. Likewise, they reported no significant differences in response rates which were attributable to the method used to reproduce the questionnaires. Hence, the literature indicated that the response rate was not significantly affected by the reproduction technique used.

Precoded versus open-ended questionnaires.--According to Miller (91, p. 78), the need for inducements to stimulate response rate could be dependent upon the population and the type of questionnaire used in the study. He claimed that the type of questions used may yield a 13 per cent increase in the total percentage of returns. However, Linsky (84, p. 91) reported a survey of college alumni found no significant differences between precoded and open-ended questionnaires upon return rates.

On the other hand, a very large difference between the return rates was reported in a study of the two different styled questions by Falthzik and Carroll (31, p. 1122). The closed questionnaire resulted in a return rate of 78 per cent, whereas the open-ended questionnaire yielded a response rate of 27 per cent. The chi-square value of 15.73 calculated on these data was statistically significant indicating that the difference in the response rate was both practical and statistical.
The experimental study utilized a one-question questionnaire which was sent to the personnel departments of 200 firms from Fortune magazine's list of 500 largest firms in the nation. The question asked was concerned with the hiring of college graduates. The questionnaires with the closed question were mailed to the odd-numbered firms on the list. The even-numbered firms were sent the questionnaires with the open-ended question.

Hence, the results of these two studies were different. The expected response rate could influence the decision to use closed versus open-ended questions. Another factor which should be considered is the place where the survey instrument will be received.

Alutto (2, p. 430) studied the impact of the site where the questionnaire was received upon the response rate. He surveyed the membership of a western New York State Chamber of Commerce. The attitudes of the respondents toward various aspects of five local colleges and universities were the initial and primary focus of the survey. A systematic sample of 700 men employed in positions classified as professional or managerial was selected, consisting of every seventh name included in the current Chamber of Commerce directory. The questionnaires were coded, and every second respondent's questionnaire was mailed to his place of employment rather than his residence. All communications with the respondents were sent to the same location. Of the 143 questionnaires
returned, 70 were returned by those who received it at their home address. Furthermore, the code numbers were removed from three questionnaires which were returned, making it impossible to determine group membership of the respondents. The data gathered by the study indicated that the speed of questionnaire return was not affected by either mailing destination (2, p. 431). Furthermore, the overall response rate and completion rates for closed-ended questions were independent of the place where the questionnaire was received.

On the other hand, the completion rates for open-ended questions were affected by the survey instrument's destination. It was suggested that higher completion rates for open-ended questionnaire items sent to middle-class males employed in professional or managerial occupations might be achieved by sending the survey instrument to their work addresses rather than their home addresses (2, p. 430).

It would seem plausible to assume that some respondents who do not have the option to respond as they desire might choose not to answer closed types of questions. This could be the case when the respondents have definite opinions about the topic. On the other hand, a higher response rate to questionnaires consisting of closed questions could result since they are easier to complete than open-ended questions. Some authorities have expressed the opinion that open-ended questions are best adapted to situations where the issue is complex, where the relevant dimensions or critical factors
are unknown, and where exploration is the goal of the researcher (31, p. 1121). Thus, Falthzik and Carroll (31, p. 1122) recommended that open-ended questions be used first to identify the important alternatives followed by the use of closed questions to get satisfactory response.

**Color of questionnaire.**—Color of the questionnaire should be considered in designing a questionnaire study (7, p. 56). According to Wendling (126, p. 53), colored paper has been identified as an aspect of instrument layout which controls nonresponse bias. Fuqua and Hartman (37, p. 21) stated that the effect of the color of the questionnaire upon the return rate is not well understood. However, in their reanalysis of studies described previously, they questioned the efficacy of color as an incentive to survey responses (37, p. 9).

Linsky (84, p. 91) in his literature review reported finding few studies which tested the efficacy of color questionnaires upon mail return. Similarly, Kanuk and Berenson (70, p. 450) stated in their review of the literature that no significant differences in response rates existed in the few studies which examined color of questionnaire. On the other hand, Dillman (23, p. 7) claimed in his literature review that some researchers have reported better results with white or off-white stationery while others have reported more favorable results with brightly colored stationery.
Pressley and Tullar (102, p. 109) reported a mail survey study involving a random sample of 280 marketing research directors employed by large manufacturing firms in four different industrial classes. Since eight letters were returned as undeliverable, the sample size was reduced to 272. Each sample subject was assigned randomly to one of the sixteen experimental conditions existing in the three-factorial experimental design. A small monetary incentive at two levels was the first factor. Cartoon illustrations were the second factor. It was implemented at two levels, cartoons versus no cartoons, which served as the control. Color of questionnaire was the third factor. The four levels of color of the paper used were yellow, blue, green, and white, which was the control. By the time the final cutoff date of six weeks had arrived, 39 per cent of the questionnaires had been returned.

By using an analysis of variance, the main and interactive effects of the three variables on response rate in a mail survey of a commercial population were investigated. Data from this study suggested that paper color does not significantly affect the response rate in commercial surveys. The effect of the cartoon illustration upon the return rate from the commercial population was not significant. None of the four interactive effects tested were found to be significant. These results agreed with those found in an earlier survey of a general-public population (102, p. 111).
Matteson (89, p. 535) investigated the effects on response rates of using a form versus a semipersonal transmittal letter and a white questionnaire versus a colored one. The questionnaires were mailed to 2,123 members of a national professional organization composed primarily of individuals holding advanced academic degrees with approximately 95 percent holding teaching, research, or administrative positions in colleges and universities. The rate of return was not significantly different among the groups receiving the semipersonal letter with respect to color of questionnaire. However, color of questionnaire did affect the response rate among the groups receiving the form letter with a significantly greater number (p < .05) of colored questionnaires being returned.

The literature concerning the color of the questionnaire seemed to indicate that its effect was not significant. However, more research is needed since the issue has not been resolved.

This concludes the discussion of some mechanical and perceptual factors which may be used to increase the response to a mail questionnaire. A discussion of some broad motivational factors in the return rate of mail surveys follows in the next section.

**Broad Motivational Factors**

Anonymity, cover letters, sponsoring organizations and titles, and use of deadlines are techniques which will be
discussed under the category of broad motivational factors. These are some methods which have been used to affect the return rate of mail questionnaires.

Anonymity.—Anonymity and confidentiality are among the large number of topics which have been studied in hopes of finding ways to improve response rates in mail surveys (23, p. 6). Furthermore, they are general tactics to be considered in designing a questionnaire study (7, p. 54). However, the issue of anonymity is quite complex because it is closely tied to personalization although designed to accomplish the opposite effect (84, pp. 91-92). The promise of anonymity to respondents has no significant effect upon response rates, according to experimental evidence. That is the case for either explicit or implied promises of anonymity (70, p. 450). In a previously described experimental study, Brzezinski and Worthen (14, pp. 102-105) reported no significant increase in response rates when the anonymity of the respondent was assured. Likewise, Yu and Cooper (135, p. 40) reported in their literature review that assurances of anonymity had no significant effect on the response rate.

Dillman (22, p. 254-256) reported an unusually high response rate of 75 per cent in each of two surveys which utilized ten-page questionnaires sent to the general public. No tests were used to determine the effect of a particular manipulable aspect of the mail questionnaire procedure. Techniques utilized in these studies included questionnaire
format, follow-ups, anonymity, appeals, and personalization. The questionnaires were photographically reduced from 8 1/2 by 11 inches to 8 1/4 by 6 1/8 inches, printed on both sides and placed in a booklet form. The follow-ups were carried out in three phases. After one week, a postcard was sent; after three weeks, a letter was sent; and after seven weeks, a certified letter containing another questionnaire was sent. Although anonymity was promised, an identification number was clearly placed on the cover of each questionnaire in order to cut costs. The other two facets will be discussed later.

Fuller (36, p. 292) reported a mail survey of Navy personnel involving both officers and enlisted men. The instrument used was the Navy Personnel Survey 71-1. Two equivalent groups of 6,500 officers and two equivalent groups of 16,250 enlisted men were randomly selected. One group of the officers and one group of the enlisted men were instructed to place their service numbers on the answer sheets to identify them. The other two groups were instructed not to identify their answer sheets in any way. The sample was reduced by 3,559 since the post office returned that many questionnaires as undeliverable. Thus, the group of officers who identified their answer sheets was composed of 6,173, while 6,203 officers remained in the group of officers who were to return their answer sheets anonymously. The former group had a response rate of 51 per cent, and the latter
group had a response rate of 40 per cent. The number in the
group of enlisted men who were to identify their answer
sheets was reduced to 14,780, whereas the number in the
other group of enlisted men was reduced to 14,785. The re-
turn rates for these groups were 36 per cent and 39 per cent,
respectively. Thus, the data from this study suggested that
those officers who identified their responses were more
likely to respond than were those who replied anonymously.
The response rates were more similar for the two groups of
enlisted men (36, p. 293). This phenomenon could be the re-
sult of the population used in the study. On the other hand,
the differences in answers to attitude questions were low in
relative frequency and small in magnitude. A higher propor-
tion of the identified officers endorsed the pro-Navy
statements whereas the negative statements were endorsed by
a higher proportion of the anonymous officers. The
anonymous-identified group differences for the enlisted men's
questionnaires were not large enough to be of practical im-
portance (36, p. 292).

Jones (66, p. 102) studied population specific inter-
actions with mail survey response inducement techniques by
use of a 2 X 2 X 110 randomized block experimental design
involving 23,350 survey subjects. Since a total of 4,854
questionnaires was returned, the overall response rate was
21 per cent. The response rates across the cells in the
2 X 2 X 110 design varied between zero and 64 per cent. The
general interaction hypotheses were tested by performing a partitioned chi-square analysis on the data which were cross-tabulated with sponsorship, anonymity, and county as the three factors used to accomplish the cross-tabulation (66, p. 106). Secondary data sources were used to obtain data concerning specific population characteristics that might be predictively related to interactive effects. Assurance of anonymity appeared to have a more positive effect on response rates in higher-income, more highly educated populations. On the other hand, it was found to depress response rates substantially in populations experiencing higher rates of membership change (66, p. 110).

Skinner and Childers (119, p. 61) reported that respondents, when given the choice, are willing to identify themselves when replying to a mail survey. The results of two research studies have indicated that positive results can be obtained by using the return envelope for respondent self-identification. The study described below addressed a single element of the population, specifically insured persons over 65 years old, although the other one reportedly included policyholders of all ages.

A mail survey of 1,500 randomly selected policyholders of a large midwestern-based property and casualty insurance company was administered to evaluate the effectiveness of inserting information brochures in the policyholder's premium notice. Questionnaires containing a series of questions
concerning premium-rating factors and premium payments were sent to the 1,500 policyholders, all of whom were over 65 years of age. A return rate of 66 per cent was achieved since a total of 995 completed questionnaires were returned. Although the respondents were not asked to identify themselves and keying was not used, the return envelopes included provisions for a return address. Hence, the respondents included their names and addresses on 890 envelopes. This represented 90 per cent of the questionnaires returned and provided identification of a large portion of the sample (119, p. 58). The quality of the survey data was not adversely affected by the use of the return address for respondent-identification purposes according to Skinner and Childers (119, p. 60).

Hence, the literature concerning the effects of anonymity upon the response rate of mail questionnaires revealed somewhat mixed results. While most appeared to find no significant differences, others indicated that there was a difference for certain samples.

Cover letters.--The cover letters are one of the few direct opportunities for researchers to influence respondents and motivate them to reply, according to Linsky (84, p. 92). However, Kanuk and Berenson (70, p. 450) stated that almost no experimental attention has been given to the influence of the cover letter. Miller (91, pp. 77-78) stated that the introductory letter could result in a possible increase of
7 per cent of the total percentage of returns. On the other hand, Yu and Cooper (135, p. 40) reported in their literature review that the cover letter had no significant effect on the response rate.

Berdie and Anderson (7, pp. 59-61) stated that the cover letter should convey information about the purpose of the study, the reason why respondents should reveal information such as their age, the ease of responding to the questionnaire, the availability of additional copies of the questionnaire for the respondent's files, and the urgency of the respondent's replying as soon as possible.

Personalization.—Personalization is one aspect of the cover letter which has been studied. Boyd, Westfall, and Stasch (11, p. 122) stated that most researchers think that personalization of the survey is very important. However, Linsky (84, p. 94) claimed that insufficient evidence exists to indicate that personalization should be universally adopted. In fact, Kanuk and Berenson (70, p. 450) reported that personalization of the mailing does not have a clearcut advantage in improving response rates according to empirical evidence. Dillman (23, p. 7) claimed that some studies indicate that personalization increased response rates, others report no effect, and still others claim a decrease in the number of responses. On the other hand, Yu and Cooper (135, p. 40) reported in their literature review that personalization ($\chi^2 = 180.0, p < .001$) had significant positive
effects on the response rate. With respect to response error or bias, Houston and Ford (61, p. 402) reported potential negative effects on the validity of response caused by personalized cover letters and removal of anonymity in two separate studies. Boyd, Westfall, and Stasch (11, p. 122) claimed that a personalized cover letter may reduce the credibility of the researcher who promises the respondents that their replies will be anonymous since personalization is the opposite of anonymity. Finally, Fuqua and Hartman (37, p. 20) concluded that a personal salutation did not offer any significant advantage to response rates when compared with an impersonal salutation in their study of mail survey results. They suggested that the researcher invest the extra time and expense on an additional mailing instead of on personalization.

In a study described earlier, Kerin (73, p. 181) found that the cost of survey implementation could be reduced by personalizing only the advance notice or cover letter to improve total response and item response to personal questions and not the follow-up. While acknowledging that the effect of personalization on response rates may be either positive or negative, Wiseman (129, p. 111) reported that no evidence exists that the magnitude of a positive effect would warrant the extra expense involved. However, he warned that more investigations into the interaction effect between personalization and other variables, such as questionnaire
length, which affect the response rate of a mail question-naire are needed before the final conclusion with respect to the personalization effects can be reached.

Several studies located in the literature reported little or no effect of personalization on the response rate of mail surveys. Kimball (76, p. 63), in a previously described study, reported that one incentive tested included use of the respondent's name on the cover letter versus the use of an impersonal "Dear Sir." He found the results of the comparisons of the two paired groups which varied on the address detail indicated almost identical returns regardless of the type of address used (76, p. 64). In another experiment described earlier, Martin and McConnell (87, p. 411) used personalization as one of the treatment variables. Some subjects received an individually typed letter signed in blue ink while others got a mimeographed "Dear Spokane Area Resident" letter with a mimeographed signature. Although its effect was in the predicted direction, the personalization factor had such a small effect on the response rate for this study that it has little or no informational value.

Landy and Bates, in a study described earlier (79, p. 147) reported using personalization as one of the independent variables. The three levels of personalization used were hectographed cover letter, mimeographed cover letter, and individually typed cover letter. The data were analyzed using a chi-square test for a 3 X 3 X 3 contingency table
which indicated that the personalization main effect and the corresponding interaction effects had no effect on both the rate of return and the latency of return. Identical results were found in a replication of the study. Likewise, a study described earlier and reported by Labrecque (78, p. 82) used personalization as an antecedent variable. One-half of the sample received a hand-addressed outside envelope and an inside cover letter with a hand-written salutation and signature. The signatory of the cover letter was another treatment variable. The owner of the marina signed one-half of the cover letters, and the service manager signed the others. The results showed no statistically significant increase in response rates from the personalization of the cover letters, but the letters signed by the owner had a clear advantage over the others (78, p. 83).

Moore (92, p. 138) did a questionnaire study dealing with an evaluation of the curricula offered to superintendents by institutions of higher learning. He mailed a conventional questionnaire and a check list to 494 superintendents. The questionnaires were one page long and were single spaced; the check lists were four pages long and were also single spaced. A higher percentage of returns was not expected due to the extreme length of the check lists. A typewritten letter of transmittal accompanied a part of the questionnaires, and a duplicated letter of transmittal was sent with the rest. All letters of transmittal contained
the same message. Reminders were sent to those superintendents whose responses had not been received within eight weeks of the initial mailing date. The reminders were all duplicated and consisted of the same message on each one. The results of this study indicated that the typewritten letter of transmittal was more effective in generating responses than the duplicated letter of transmittal. The total effect of this factor as measured by the techniques used in this experiment was equal to 16.3 per cent of the number of questionnaires mailed. An increase of approximately 16.2 per cent in addition to the increase percentage produced by the typewritten letters was produced by the reminders sent to the superintendents (92, p. 141).

In order to test the traditional rule of thumb that a personal signature on the cover letter is necessary for yielding higher rates of return of mailed questionnaires, Kawash and Aleamoni (71, p. 589) mailed 3,091 faculty members at the University of Illinois questionnaires concerning their uses of and attitudes toward audiovisual instructional materials. The researchers personally signed the cover letters sent to one group of 1,546 of the subjects. A cover letter, identical except that it contained a mimeographed facsimile of the researcher's signature, was sent to the other group of 1,545 subjects. Of the faculty members who received the letters with the personalized signatures, more than 28 per cent returned the questionnaire, either completed or
uncompleted with an explanation. On the other hand, approximately 27 per cent of those who were sent the letters with the facsimile signatures either returned a completed questionnaire or an uncompleted one with an explanation. The total returns, completed returns, and uncompleted returns formed the basis of the tests of significance for differences between proportions which were performed. The results showed no significant differences in initial return rates for any of these return categories (71, pp. 590-591). Even when the rank of the faculty member was identified, the results of the tests for the difference between proportions were that no significant differences existed. Thus, the conclusion reached was that a personal signature on the cover letter sent with a questionnaire concerned with audiovisual materials did not induce a greater number of the faculty at the University of Illinois to respond than did a cover letter bearing a mimeographed facsimile (71, p. 589).

Andreasen (4, pp. 274-275) reported a study of New York State Lottery winners who might have had an unusual interest in maintaining anonymity in a mail questionnaire study. The original mailing utilized three forms of cover letters, all of which were mimeographed and hand signed. The least personal form used a general-purpose mimeographed salutation (Dear Lottery Winner). A hand-typed salutation which addressed the individual respondent was used on the second form to make it somewhat more personalized. The third form
was the most personalized. It addressed the respondent individually and concluded with a handwritten two-line postscript which encouraged the recipient to respond by indicating an interest in his response. As a further test of the personalization variable, the sample members who did not respond to the first mailing were sent a follow-up reminder letter about three weeks after the initial mailing. Although the contents of the follow-up letters were identical, two alternative forms were used. One-half of the reminder letters were completely mimeographed, including the signature. The other one-half were entirely handwritten and handwritten. One week later another copy of the questionnaire accompanied by a mimeographed general letter was mailed to each of the remaining sample members. The assignment of correspondence forms to respondents was entirely random in all applications. The results from the first mailing indicated that the least and most personal forms were somewhat superior in securing responses. However, the differences were not statistically significant, and the intermediate form recovered somewhat after the implementation of the follow-up procedures.

Two studies were located which indicated that personalization had a negative effect upon the response rates of mail research. In a study described previously, Watson (124, pp. 48-49) claimed that the use of a personal salutation with a group resulted in a smaller rate of response than
that achieved by the control group. Similarly, he reported that the control group yielded a higher rate of response than did either the group receiving an envelope with personal stamped on the outside or another group who was sent return envelopes with attention and the name of the letter signer printed on the outside of it. All of the groups were composed of 500 domestic subscribers to Business Week.

Houston and Jefferson (62, p. 114) hypothesized that personalization could act as a depressant to subject response for a certain type of population. They designed a study to examine the effect on nonresponse, item omission, and response slowness of a personalized approach to a mail survey of new car buyers. They extended the analysis to include possible interaction of a personalized approach with the inclusion of a nonmonetary incentive. The study sample was composed of the first 400 new car buyers in Scott County, Iowa. Four equal groups of 100 subjects each were randomly selected from the study sample. Within two months of his purchase of a new car, each subject received one of the four types of survey packages which included a questionnaire concerning the sources of information used by the respondent in purchasing his new car. The first group received a personalized survey packet with a medium-priced ballpoint pen included as an incentive. The second group was sent a personalized survey packet without the incentive included. The third group got a nonpersonalized survey packet with the
incentive included. A nonpersonalized packet without the incentive included was mailed to the fourth group (62, p. 115). The results generally supported the main hypothesis that personalization would have a negative effect on response patterns. The incidence of nonresponse by subjects receiving a personalized survey packet was significantly higher than that of subjects receiving an impersonal survey. However, Wiseman (129, p. 111) took issue with these results. He claimed that attributing the strong negative effect to the personalization variable was not valid since it was confounded with the confidentiality variable.

On the other hand, seven studies were found which apparently used personalization techniques to increase response rates to mail questionnaires. In a study described previously, Dillman and Frey (25, p. 297) reported a higher return rate in the personalized condition implemented by sending one-half of an alumni sample three personalized cover letters with a university questionnaire while the other half of the sample received three letters which were not personalized. However, the later introduction of a highly personalized method in both personal and nonpersonal conditions did not yield an increase in response rate. Furthermore, Dillman (22, p. 256) reported using personalization as one of many procedures combined to yield 75 percent response in each of two cases to ten-page questionnaires in research previously described. The cover letters were
typed on letterhead stationery and reproduced by a multilith process to maintain a personalized appearance while keeping the cost low. Furthermore, Cox, Anderson, and Fulcher (21, pp. 413-414) attributed highly significant response rate differences in previously described research evaluating financial institutions and their service offerings to the effect of using personalized cover letters and the interaction between the use of personalized cover letters and follow-up postcard reminders among other factors. Likewise, a field experiment, reported by Russell, Konrad, and Kaluzny (109, p. 22) and described earlier, found interaction effects among the three mailing condition variables used on a survey of hospital administrators. One of the variables used was the presence or absence of a postscript. Another was the presence or absence of marking personal on the outside of the envelopes. Although none of the three mailing condition variables had any direct effect, some differences in response rate and response speed were accounted for by first- and second-order interactions. For example, a 25 per cent increase in response rate was achieved by the group sent a questionnaire by airmail-special delivery with a postscript on the cover letter and marked personal on the outside of the envelope over the group sent a questionnaire by airmail with no postscript on the cover letter and not marked personal on the outside of the envelope.
Matteson (89, p. 535) reported a study investigating the effects on response rates of using a form versus a semi-personal transmittal letter, and a white questionnaire versus a colored one. The 2,123 subjects who were members of a national professional organization comprised primarily of individuals with advanced academic degrees, approximately 95 per cent of whom hold teaching, research, or administrative positions in colleges and universities, were randomly assigned to four groups. The number of returns received from the groups receiving the semipersonal letter (31.9 per cent) was significantly greater than those received from the groups receiving the form letter (22.0 per cent) at the .001 level. The color of the questionnaire did not significantly affect the rate of return among the groups receiving the semipersonal letter. However, a significantly greater number (p < .05) of colored questionnaires were returned by the groups receiving the form letters. Hence, the results of this study supported the importance of personalizing the transmittal letter in a mail survey and suggested further that the use of a colored questionnaire may significantly improve the response rate when a form letter must be used but not to the level reached by the use of the more personalized format (89, p. 536).

Carpenter (16, pp. 614-615) reported a study which utilized an experimental design with a control group and three treatments to address the question of the importance
of personalization. Varying degrees of personalization were employed by each treatment group, while a method that had previously elicited a response rate of 75 per cent was replicated by the control group. The subjects for the samples were selected randomly, using a probability proportional to the number of households in each of 298 postal zip-code districts in Arizona. The source of the names and addresses of potential respondents was the annually compiled Arizona automobile registration list. The control group was composed of 2,269 potential respondents while the three treatment groups had 302 potential respondents each. The response rates for all groups were high for mail surveys of the general public. The response rate of the control group was 71.3 per cent; the response rates of the three treatment groups were 64.3 per cent, 66 per cent, and 72.2 per cent. The group receiving the least personalized treatment yielded the lowest response rate while the most personalized treatment technique was utilized on the group with the highest response rate. Three chi-square tests were computed, allowing each treatment group to be compared with the control group. The only significant difference reported was between the control group and the treatment group administered the least personalized technique. This result was interpreted to mean that response may be related to the degree of personalization. The probability of this interpretation being incorrect was reported to be .05 (16, p. 618).
Brown and Hartman (12, p. 20) reported the use of personalization of the cover letter as one incentive in a study of the differential effects of incentives on response error, response rate, and reliability of a mailed questionnaire. The 1,368 certified counselors employed in the Indiana schools composed the population from which a sample of 225 was randomly selected. The participants were randomly assigned to one of three groups made up of seventy-five members each. Each of the three groups was randomly assigned one of the three experimental treatments. The sex of the counselor or number of years of work experience were not part of the participant-selection process. The Counselor Function Inventory (CFI) was the instrument utilized. Its content validity, test-retest reliability for school counselors, and an odd-even, split-half reliability were all reported (12, p. 21).

The packet mailed to Group 1 consisted of a personalized cover letter requesting participation in the study, a postage-paid envelope, a nonretractable ballpoint pen, and the CFI. The cover letter was signed by the chairman of the Counseling and Guidance Department and the chairman of the Department of Vocational Guidance. Group 2 was sent the same cover letter with an impersonal salutation (Dear Counselor), a stamped, addressed return envelope, and the CFI. The cover letter was signed by a graduate student. Group 3 received the same cover letter as Group 2. The only difference
between Groups 2 and 3 was that the return envelope enclosed for Group 3 was a postage-paid envelope. Nine days after the original mailing a follow-up mailing was sent. Envelopes with United States postage stamps were used to send all outgoing mailings (12, p. 22). Based on the results of two-sample t-tests, it was concluded that the different number of incentives included to reduce the nonresponse bias did not introduce any response error into the initial or follow-up data (12, p. 24). Furthermore, a linear trend test in proportions was used to analyze the return rates. It was concluded that the cover letter signed by the chairmen increased the follow-up response rate over that of the letter signed by the graduate student (12, p. 26).

In a previously described study of corporate presidents, Kerin and Harvey (74, pp. 277-278) reported using cover letter format as an inducement technique. They found a statistically significant main effect due to cover letter format at the .005 level. Individualized letters produced a return rate of 42 per cent, whereas form letters resulted in a much lower response rate of 29 per cent.

Linsky (83, p. 183) also reported on an experimental study of the effects on the content of the cover letter on the frequency of questionnaire response. One of the four factors investigated during a survey of members of a state nurses' association was the personalization of the cover letter through use of a handwritten personal salutation and
signature. Since the four all-or-none factors were varied systematically, the $2 \times 2 \times 2 \times 2$ factorial design resulted in sixteen different letters using all possible combinations. A 25 per cent random sample of the membership yielded a total sample of 912 nurses. After the total sample was randomly divided between the sixteen letter groups, fifty-seven persons received each letter (83, p. 184). The total response rate of 36.2 per cent was achieved by three weeks after the letters were mailed. The variation in the proportion responding to the individual letters ranged from 56.1 per cent to 24.6 per cent. Personalization of the letter proved to have a significant influence on the return rate as 40.4 per cent of those receiving a letter with personal salutation and signature responded as compared to 32.0 per cent of those receiving a letter with a mimeographed salutation and signature. On the other hand, the particular combination in which the four factors were grouped did not appear to have much influence on response rates. No statistically significant interaction effects were found among the six two-factor interactions, the four three-factor interactions, or the single four-factor interaction (83, p. 185).

Place and importance of the respondent.—Another aspect of the cover letter which has been the subject of study is the use of references to the place and importance of the respondent. This refers to including explanations in the cover letter for things such as how the respondent was
selected for the sample, the importance of returning the questionnaire, and why the respondent is especially qualified to answer (84, p. 94). Blumberg, Fuller, and Hare (9, pp. 122-123) claimed that a covering letter containing an explanation of the study and the place of the respondent within it, a moderate level of ingratiation, sender's title under the "signature," and some form of official sponsorship rather than a completely private address typically yields a higher response to postal surveys. However, Linsky (84, p. 94) believed that the appeal to the place and importance of the respondent should be effective when the respondents are positive toward the surveying organization. On the other hand, he stated that it should fail when the respondents are inclined to be suspicious. Yu and Cooper (135, p. 41) reported in their literature review that appeals stressing the importance and place of the respondent were not tested in a single study.

Brzezinski and Worthen, in a study described earlier (14, p. 6), claimed that typed cover letters with a personal appeal elicited higher response rates. In two different analyses, they reported that the response rate was higher when a personal appeal was used in the cover letter rather than a professional one and when the cover letter was typed (14, pp. 102-105). Similarly, Linsky (83, p. 183) reported investigating an explanation of the place and importance of the respondent in a study as one of four factors affecting
the frequency of questionnaire response in a previously de-
scribed survey of nurses. It was one of the two factors
which proved to have a significant influence on returns. The
response rate was 42.5 per cent for the groups whose letters
emphasized the place and importance of the respondent, but
only 29.8 per cent for those whose letters omitted this
point (83, p. 185).

On the other hand, Martin and McConnell (87, p. 411)
reported using an appeal to the respondent's importance in
the letter accompanying the questionnaire sent to a sample
of the general public as previously described. Although it
was not statistically significant, they reported that the
effect was opposite in direction from what was expected.
Similarly, Kerin and Harvey (74, p. 278) reported employing
the appeal used in the cover letters as an inducement tech-
nique in a study of corporate presidents. The study which
was previously described utilized altruistic and egotistic
levels of appeal. According to Robertson and Bellenger
(104, p. 632), altruistic appeals are used to emphasize a
respondent's "opportunity to do something for someone else,"
whereas egotistic appeals are utilized when the stress is on
the importance of the individual's response so that his or
her opinion will be known. Kerin and Harvey (74, p. 279)
oberved that the main effect of the appeal was statistically
significant at the .025 level. The response rate of those
who received a letter containing the altruistic appeal was
41 per cent; the rate of those who received a letter containing an egotistic appeal was 30 per cent. Hence, for this study, a larger return rate was generated by the altruistic appeal than by the egotistic appeal.

Hendrick and others (55, pp. 349-351) reported on a study of the effects of ingratiation tactics in a cover letter on the response rate to a mail questionnaire which was sent to 400 residents of Akron, Ohio. The ingratiation tactics involved either the inclusion or the exclusion of adjectives flattering the respondent as well as adjectives flattering the solicitor. Hence, a 2 X 2 factorial design was used to test the effects of the ingratiation tactics within both levels of effort necessary to honor the requests for help. A small amount of effort was required to answer a one-page questionnaire; however, a large amount of effort was required to answer a seven-page questionnaire. In the low-effort condition, no differences in return rate were observed which were attributed to ingratiation tactics. On the other hand, a strong interaction effect was present between the solicitor and respondent ingratiation tactics in the high-effort condition. Lower return rates resulted when either both tactics or neither were used. The results of this study indicated that the solicitor should do only a certain amount of cajoling and pleading to achieve a high response rate in a mail survey.
Wolfe, in a previously described survey (132, pp. 50-51), investigated the effects of five variables on response rate to questionnaires mailed to public school superintendents in Ohio. One of the variables studied was the content and personalization of the cover letter. The cover letters were either typed individually or multilithed. Each contained either a personal appeal or a professional appeal. The response rate for superintendents who received an individually typed cover letter with a personal appeal was 72.66 per cent; it was 71.09 per cent for those who received an individually typed cover letter containing a professional appeal. On the other hand, 71.88 per cent of those receiving a multilithed cover letter utilizing a personal appeal returned the questionnaire as compared with 73.88 per cent of those whose multilithed cover letters contained a professional appeal. An analysis of variance with all factors classified as fixed was used to test for main effects and interactions. The main effect due to cover letter content and personalization was not significant at the .001 level. Furthermore, none of the interaction effects was statistically significant at the .01 level.

In related research previously described, Jones and Linde (67, p. 280) used the content of the cover letter as one of the three factors studied in a mail survey experiment. They studied its effect on response rate, response quality, and response bias. The results showed that the type of
cover letter message affected both the response rate and quality. The best results were achieved by using a science appeal in the cover letter. A user appeal yielded the second best results, followed by a state government agency appeal (67, p. 284).

Furthermore, the effects of the source of a consumer mail survey and the type of the appeal used in the accompanying cover letter were examined in research reported by Houston and Nevin (63, p. 374). A probability sample of 2,000 households was selected from the Madison, Wisconsin, telephone directory. Eight groups of 250 sampling units were formed randomly from the total sample. Each subsample received a different combination of treatments in conjunction with the five-page questionnaire about shopping-center patronage motives and behavior sent to each sample household (63, p. 375). An analysis of variance was used to test for main or interaction effects along with appropriate t-tests to uncover the specific nature of differences in response rates. The study yielded an overall response rate of 41.4 per cent (63, p. 376). The results of this study indicated that universities and commercial research firms should use different types of appeals to elicit the most favorable response rates. An appeal stressing the importance of the respondent's opinions was most effective when used by a commercial sponsor. On the other hand, an appeal emphasizing
the social utility of the research proved best for mail sur-
vey conducted by a university (63, p. 377).

Argument for social utility.—Argument for social util-
ity is another type of appeal used in cover letters which has
been the object of research in mail surveys. Linsky (84,
p. 95) claimed that, although the verdict was not in, a
social utility appeal might prove to be effective with cer-
tain populations. However, Yu and Cooper (135, p. 41)
reported in their literature review that the social utility
type of appeal did not significantly affect response rates.
Likewise, in a research study reported on earlier, Linsky
(83, p. 185) found that the argument for the social utility
of the study had virtually no effect on the response rate of
a sample of nurses. On the other hand, Dillman (22, p. 256)
reported using a social utility appeal, while stressing the
importance of each respondent's role in making it possible,
in both the cover letter and each follow-up in each of two
studies involving large samples of the general public. Both
studies which were previously described yielded a 75 per
cent response rate. Furthermore, Houston and Nevin (63,
p. 377) reported that the best type of appeal to use in the
cover letter to increase response rate depended upon the
sponsor of the survey. Their conclusion was based on the
results of a study reported earlier. Its results indicated
that a social utility appeal was most effective when the
survey sponsor was a university.
In related research, Wendling (126, p. 53) reported successfully using numerous procedures to control nonresponse bias in an attitudinal survey of the total population of 522 federal recreation-resource managers in an eight-state area. The overall response rate of the survey was 82.8 per cent. The methodological procedures utilized included approval along with written support for conducting the survey by the respondents' superiors, pretesting, notification of respondents prior to initial mailout, questionnaire neatness, item arrangement, colored paper, cover letters emphasizing the importance of the study, letterhead stationery, first-class postage, stamped and return-addressed envelopes, and follow-ups. However, due to the design of the survey, the results cannot be attributed to any single methodological procedure (126, p. 54).

Childers, Pride, and Ferrell (18, p. 365) conducted two mail surveys to experimentally assess the effect of using appeals and postscripts on the response rate. The results demonstrated that the use of appeals presented as postscripts to cover letters did not improve survey response. In one study, the overall effect was to depress survey response, although differences in response rates between treatment groups existed. The response rate of the treatment group receiving the social utility appeal via a typed postscript was 25 per cent as compared to 44 per cent for the control group (18, p. 366). In the second study, no differences in
response rates between treatment groups and the control group were observed. Furthermore, the results in both studies indicated that response bias was not affected, and no improvement in completeness of survey response was observed (18, p. 365).

Appeal to help those conducting the study. — Another aspect of the use of the cover letter to increase the response rate involves the use of an appeal to help those conducting the research. However, Linsky (84, p. 95) claimed that all experimental studies using this technique which he located were ineffective in increasing returns. Likewise, Yu and Cooper (135, p. 41) reported in their literature review that the help-the-researcher type of appeal did not significantly affect response rates. In fact, in his own research described previously, Linsky (83, p. 185) reported that the appeal to help the researcher by responding to the survey had virtually no effect on the response rate. In the only other research located, Childers, Pride, and Ferrell (18, p. 366) reported that an appeal to help the sponsor via a typed postscript yielded a response of 42 per cent, which, while greater than the response rates of the other treatment groups, was less than the response of 44 per cent by the control group. This research was described in the previous section of this chapter.
Sponsoring organizations and titles.—Linsky (84, p. 92) declared that identification of sponsoring organization and title is one of the broad motivational factors used in classifying mail survey research. Kanuk and Berenson, in their literature review (70, p. 450), claimed that little experimental evidence exists concerning the influence of survey sponsorship on response rates. However, they stated that the sparse evidence available indicates a positive influence of official or "respected" sponsorship upon response rates. Yu and Cooper (135, p. 40) reported in their literature review that they found only studies employing the survey sponsorship technique without using a control group. The average response rate in the 138 studies identifying the survey sponsor was 48.9 per cent for 27,023 contacts.

Berdie and Anderson (7, p. 57) listed study sponsorship as a specific tactic which could be used to increase response to mail questionnaires. Furthermore, Miller (91, p. 77) suggested that the use of a sponsor could result in a 17 per cent increase in the percentage of returns from a mail questionnaire.

Four different research studies which examined the effects of sponsorship upon the response rate in mail surveys were located and have already been described. One reported by Jones and Linde (67, p. 284) found significant effects of survey sponsorship upon response rates. They claimed that the results of their research showed that
university sponsorship yielded the best results, followed by
government agency and private firm sponsorship in descending
order of response rates. Furthermore, they discovered no
effects from survey sponsorship on response bias or quality.
No interactive effects among the inducement techniques used
in this study were reported. On the other hand, Jones (66,
p. 102) found highly significant interactions between cer-
tain population factors and survey sponsorship in another
study. The population factors linked to interactive effects
included income level, education level, population flux, and
regional sponsor loyalties.

Another experimental study involving survey sponsor as
an independent variable was reported by Wolfe (132, pp.
50-51). He found that the main effect of sponsorship was
not statistically significant at the .001 level and no sig-
nificant interactive effects were found at the .01 level. He
stated that 74.61 per cent of the superintendents who re-
ceived a questionnaire sponsored by him responded, while
only 69.92 per cent of those whose questionnaires were spon-
sored by Ohio University's School of Applied Behavioral
Sciences and Educational Leadership returned their question-
naires. The other study located was reported by Vocino (122,
p. 77). He claimed a slightly larger response rate from a
cover letter on an association's letterhead signed by a well-
known individual than from a cover letter on university
stationery signed by a less well-known individual.
Use of deadlines.—The last category used by Linsky (84, p. 96) to classify broad motivational factors in mail survey research was the use of deadlines. He stated that people will either respond right away or not at all. Hence, he claimed that deadlines, by preventing people from delaying answering, may also decrease the probability of their not responding. However, Kanuk and Berenson (70, p. 450) reported finding few studies examining the use of deadlines, but the ones that they located did not report an increase in the response rate due to its use. Similarly, Yu and Cooper (135, p. 40) reported in their literature review that stating a deadline had no significant effect on the response rate.

Vocino (122, p. 76) reported a study which assessed the effect of the use of a deadline in the cover letter. The variables under study were randomized in the mailing process in this study which was described earlier. No positive effect on the rate of response was reported from the use of a deadline in questionnaire cover letters for this study (122, p. 77). On the other hand, Nevin and Ford, in a previously described study (94, p. 116), found that, while deadline dates did not stimulate a heavier, more immediate response, their use did seem to decrease the rate of returns following the deadline date.

Henley (56, p. 374) reported using a deadline for returning a civic-issues questionnaire mailed to 1,000 residents of Fort Worth, Texas. The questionnaires were
randomly divided into two groups of 500 before they were mailed. A one-by-four-inch slip of paper requesting that the questionnaire be returned by a specified date was stapled to the questionnaires in the experimental group. The two groups were treated equally in all other respects. The researchers logged in the number of completed questionnaires and nondeliverable letters for the two groups during the first fourteen mail-delivery days following the mailing of the questionnaires. These data supported the hypothesis that inclusion of a deadline would yield a higher response rate by the announced date. The returns by the declared deadline were 25.6 per cent for the experimental group and 18.0 per cent for the control group. A probability level of .003 was produced by the test for difference of proportions. Another hypothesis for this study was that the inclusion of a deadline would insure a higher response rate in the long run. The data gathered showed it to be less tenable. A telephone reminder to nonrespondents was made approximately one week after the declared deadline. The return rate from the experimental group was 28.8 per cent while 24.1 per cent of the control group had responded by the day of the telephone call. The probability that sampling error accounted for this difference was reported as .051. A tendency toward convergence in response rates existed after the deadline as returns from the control group continued while returns virtually ceased from the experimental group (56, p. 375).
Monetary Rewards and Other Direct Motivational Factors

The last category used by Linsky (84, p. 83) to organize the research on various techniques to improve the response rates to mailed questionnaires was monetary rewards and other direct motivational factors. In his review of the literature, Pressley (100) listed twelve studies involving monetary incentives and fourteen involving other types of incentives.

The rate of return is almost always increased by cash awards (11, p. 123). Linsky (84, pp. 96-97) reported finding ten experimental studies in which the use of cash rewards increased the response rates over that achieved by the no-reward control groups. Although these experiments were associated with commercial or market research, he reported that cash rewards have been used successfully with academic surveys and studies of professional nurses. Furthermore, its use in educational research has been documented where sending money with the survey questionnaire has consistently yielded higher response rates (38, pp. 13-14). In their re-analysis of data from eight studies involving the enclosures of monetary incentives with the questionnaire, Fuqua and Hartman (37, pp. 11-12) found no inconsistent findings. Furthermore, Yu and Cooper (135, p. 39) reported in their literature review that studies which manipulated the presence versus absence of monetary incentive found incentives to be superior (50.5 per cent versus 35.2 per cent;
\( \chi^2 = 188.1, p < .001 \). Linsky (84, p. 99) claimed that all studies utilizing nonmonetary premiums report favorable results. The variety of premiums used included trading stamps, ballpoint pens, pencils, flat packages of coffee, and lottery tickets (11, p. 123). Yu and Cooper (135, p. 40) reported in their literature review that offering a nonmonetary premium or reward increased the response rate over not offering any nonmonetary incentive \( (\chi^2 = 18.3, p < .001) \). However, their conclusion was based on very few studies and contacts. Similarly, they found that offering survey results had a negative effect on response rates in studies that manipulated this variable. This effect was not significant.

In a study involving both monetary and nonmonetary incentives, Goodstadt and others (48, p. 391) sent mailed questionnaires to 2,416 randomly selected magazine readers. They reported that with the use of 25-cent premiums the response rates were significantly increased. On the other hand, the use of either a free-book premium or a free-book reward did not significantly affect the response rates. A nonsignificant tendency for the quarter group to be most negative and the book-reward group to be most positive was noted (48, p. 395).

Another study to assess the effect of monetary and nonmonetary incentives on both the quantity and quality of responses to a mail survey was reported by Hansen (52,
The three levels of incentives used included the 25-cent monetary incentive, a ballpoint pen with a 25-cent retail value, and no incentive. The subjects were asked to complete the questionnaires received by mail and return them via the enclosed business reply envelope. The sample of 2,496 safety engineers was selected by a proportional stratified random sampling plan from the study population consisting of industrial safety engineers who are required by their employers to wear safety hardhats on the job. Without the use of follow-up mailings, the overall response rate was 24.7 per cent. Both incentive groups had significantly higher response rates than the no-incentive control group. Furthermore, the monetary incentive group yielded a significantly higher response rate and faster response. The response rates yielded by the monetary, nonmonetary, and control groups were 39 per cent, 22 per cent, and 14 per cent, respectively (52, p. 80).

Whitmore (127, p. 47) reported in a study involving a sample of 1,000 new car purchasers in the continental United States. The make of automobile bought formed the basis for dividing the sample into two groups. Half of the sample had purchased Ford Pintos, and the other half had bought Volkswagen Beetles. Each person in these two groups was assigned randomly to one of two additional groups. The subjects in one of the additional groups received the premium, a relatively inexpensive key ring, while those in the other one
received no premium. A follow-up mailing, including a second cover letter and a color-coded questionnaire, was sent to all who had not responded to the first survey two weeks after the initial mailing. The overall response rate attained was 54.8 per cent. When the responses were analyzed across eighty-three different variables, chi-square values which are significant at the .10 or less probability level were produced by five variables when cross-classified with premium category. Since the five variables which were significant appear to be trivial, and no systematic direction to the variations was observed, random behavior was the reason given to explain the results. Thus, it was claimed that no systematic bias was produced in this mail survey as a result of the premium being included. Furthermore, reported income levels and social class of the subject were not found to be significantly different between premium inclusion categories in this study (127, pp. 47-49). However, Brown and Coney (13, p. 385) took exception to the results reported by Whitmore. The study's literature review, the reasonableness of the premium used, and the methodology employed are given as the reasons for questioning the results of Whitmore's research.

One of the three independent variables utilized in a study described earlier was nonmonetary incentive. Landy and Bates (79, p. 147) reported the three levels of the incentive variable as the inclusion of a short article
dealing with perceptions of movies, inclusion of a short article dealing with scaling, and no inclusion. The main effect due to the incentive and all associated interaction effects on the rate of return were not found to be significant using a chi-square analysis for a 3 X 3 X 3 contingency table. Furthermore, these variables had no effect on latency of return. The same results were found on a replication of the study.

As a result of a study reported by Brown and Hartman (12, p. 27) and discussed earlier, it was concluded that the researcher could expect to increase response rate without increasing response error or affecting questionnaire reliability by utilizing a nonretractable ballpoint pen. They claimed that increasing the number of incentives increased the response rate (12, p. 25). However, the incentives used in the study consisted of different amounts of personalization in the cover letter, the use of different kinds of postage, and the inclusion of the ballpoint pen with the questionnaire sent to one of the three study groups.

The inclusion of a 10-cent incentive along with a brief explanation related to its presence was suggested by Pressley (100, p. 233) when surveying a commercial population. He stated that the amount of the incentive should be increased to at least 25 cents when the study population is composed of consumers or the general public. Kanuk and Berenson (70, p. 450) reported finding a number of studies
which sent 25 cents with the questionnaire and found it to be effective in increasing response rates. While stating that the use and amount of the incentive should be tailored to fit each sample and study, Berdie and Anderson (7, p. 63) claimed that 25 cents is the optimal amount to use as an incentive based on effectiveness and economic efficiency.

Kanuk and Berenson (70, p. 450) stated that larger incentives seem to increase the number of responses. However, Fuqua, Hartman, and Brown (38, pp. 13-14) claimed that their analysis of studies indicated that the increase in response rates leveled off after the 25-cent level was reached. On the other hand, Boyd, Westfall, and Stasch (11, p. 123) reported data supporting the claim that the rate of return increased as the amount of the incentive increased. They did not specify what the optimum amount is but claimed some believe that it is something between 50 cents and one dollar. Likewise, Yu and Cooper (135, p. 39) reported in their literature review that the amount of the incentive paid had a strong, positive linear relation to response rate. In analyzing why groups receiving 25 cents had a higher response rate than those receiving 50 cents and one dollar, Fuqua and Hartman (37, pp. 20-21) stated that the violation of the assumption of equal representation could explain it. They felt that the question had not been resolved. The data from the eight studies were grouped by level of monetary incentive. The seven treatment levels used included zero cents
control group), 1 cent, 5 cents, 10 cents, 25 cents, 50 cents, and one dollar. A significant linear trend \( z = 3.87, p < .001 \) was discovered when the data across all eight studies were pooled. A test for departure from linearity showed significance \( \chi^2_{\text{diff}} (5) = 94.29, p < .001 \) for the pooled data. These results may be a function of the fact that the 50-cent and one-dollar groups were not equally represented by all the studies (37, p. 18).

Since credibility of survey research is largely a function of response rate (82, p. 347), ways to increase the number of subjects who will respond to the mail questionnaires are always being sought. Erdos said,

Incentives are needed whenever the subject matter of the questionnaire is not of sufficient interest, or the prestige of the sender not impressive enough, to induce a high proportion of the sample to complete and return the questionnaire (29, p. 94).

The only techniques which have been consistently effective in improving response rates are follow-up contacts and monetary incentives (40, p. 473). Furthermore, Linsky (84, p. 99) reported in his literature survey that the additional costs involved in sending follow-ups to those who do not respond initially may raise the cost of surveys conducted without cash inducements above those that offer them. The extra postage, materials, printing, addressing and stuffing envelopes, and return postage stamps used to send follow-ups may increase the cost of a survey substantially. Thus, it has been suggested that cash payments yield a given
proportion of returns somewhat more cheaply than either follow-up letters or other efforts to convince nonrespondents to cooperate (11, pp. 123-124). According to Boyd, Westfall, and Stasch (11, p. 123), the direct incentives used to elicit response to mailed questionnaires include cash enclosed with the questionnaire, a promise of cash to be sent upon receipt of a completed questionnaire, and a premium included in the mail questionnaire packet.

Gelb (44, p. 107) reported the results of a study involving the distribution in person to grocery store shoppers of 400 questionnaires in Houston on a single Saturday. Two supermarkets which are a part of a locally owned chain of stores were selected as the distribution points. The neighborhood in which the first store was located was inhabited by middle-class residents who were almost exclusively white, whereas the other store was in a lower-class neighborhood composed almost exclusively of black residents. A total of 428 questionnaires were offered, but 28 were refused. Of these, sixteen were refused before any type of incentive was offered, three when 50 cents was offered, and nine when 50 cents was promised upon the return of the questionnaire. In addition, ten shoppers took the questionnaire but refused the 50-cent pieces offered. Forty of the 200 questionnaires distributed in the working-class neighborhood were returned. Fifteen of these shoppers from the lower-class neighborhood who returned their questionnaire by mail were given 50 cents
and the other twenty-five were promised 50 cents upon receipt of their completed questionnaire. Ninety-nine of the 200 questionnaires distributed in the middle-class neighborhood were returned. Of these, fifty-four were returned by shoppers who were given 50 cents, and forty-five came from shoppers who were promised 50 cents upon returning the questionnaire.

A total of 139 questionnaires was returned. Six of those returned were not complete. Demographic data were omitted from five of them, and one blank questionnaire was returned with 50 cents attached to it. In addition, five of the respondents who were entitled to 50 cents requested that it not be sent to them. A chi-square test for independence was used to determine whether the same proportion of lower-class and middle-class shoppers responded to the two incentive treatments. The hypothesis that the percentage of returns for the immediate incentive group was the same as the response rate for the promised incentive group was rejected at the .01 level (44, p. 108). Thus, a higher rate of response from the middle-class individuals resulted from both methods of offering the 50-cent incentive. However, the results of this study indicated that the immediate monetary incentive may increase the difference in the response rate between classes of people (44, p. 109).

Blumberg, Fuller, and Hare (9, pp. 113-114) reported in a study which has already been described the use of either
no payment, promise of a dollar, or a dollar enclosed to study not only the effects of a monetary incentive but also its timing. In their survey of trainees for nonviolent action, they reported that the 2 per cent response difference between those promised a dollar and those not promised one was not significant although it was in the expected direction. However, the effect of enclosing a dollar was significant in the initial wave. The 30 per cent response from the sample sent the dollar before any reminders were sent out was significantly different from the 20 per cent response from the subjects not sent a dollar. The calculated chi-square value of 25.0 was significant at the .001 level (9, p. 120).

The design of this survey required that a representative group of respondents fill out two different surveys at a two-month interval. Hence, the examination of the value of enclosing premiums with successive surveys was possible. A dollar was sent to some respondents only with the first survey, some only with the second, some with both, and some with neither. As stated above, enclosing the dollar with the first survey yielded an increased response. The difference existed after the nonrespondents were sent reminders with replacement surveys. Although the sample sizes were too small to yield statistically significant differences, the enclosure of the second dollar with the second survey which had a different content once the first dollar had been
paid produced a positive effect on the response rate. The response rate was 38 per cent for those receiving the second dollar, compared to 23 per cent for those who did not receive the second dollar. On the other hand, sending a dollar to those responding to the first survey without a dollar resulted in a decrease in the response rate on the second survey. However, the difference was not statistically significant again. In this category, 42 per cent of the people receiving a dollar only with the later survey responded while 56 per cent of those who never received a dollar returned their questionnaires (9, pp. 120-121).

A variation of the altruistic appeal was used in a study by Robertson and Bellenger (104, p. 632) by examining an incentive of monetary contribution to a charity selected by respondents versus personal monetary payments in exchange for responding to a mail survey. A systematically selected sample of 450 Denver area residents was chosen from the metropolitan area telephone directory. An alternate resident was selected to receive each undeliverable questionnaire returned by the post office, and businesses were excluded from the study sample. Three groups of 150 subjects each were formed by dividing the sample with each group receiving identical questionnaires with varying incentives promised for responding. The control group was promised no incentive; each person in the second group who responded was promised a one-dollar personal cash reward; and each respondent in the
third group was promised a one-dollar contribution to a charity of his or her choice. The response rate for the group promised the charity incentive was 41 per cent, that of the group promised an equal personal cash reward was 26 per cent, and that of the control group was 23 per cent. Since the charity incentive resulted in an increased response rate, the charitable contributions reduced the effect of non-response bias and the cost per respondent, and at the same time provided some monetary benefits for the charitable organizations designated as the benefactors. Furthermore, no significant bias was discovered in studying four demographic variables among the respondents as a result of the variations in types of incentives. The demographic categories tested for significant differences in response rates included sex, marital status, educational background, and annual household income (104, pp. 632-633).

In an attempt to replicate the above study, Furse and Stewart (39, p. 376) tested an alternative theoretical framework to the altruism appeal suggested by Robertson and Bellenger. The 600 microwave oven owners who were sent a two-page questionnaire by mail were selected randomly from the warranty registration records of a major manufacturer. The subjects were assigned randomly to one of six groups of 100 each based on the incentive for participation. Hence, a completely crossed 2 X 3 design was used. The subjects in the six groups received identical questionnaires and
identical cover letters except for the statement concerning the incentives.

The overall response rate was 67.2 per cent. The control group which was offered no personal or charity incentive had a response rate of 54 per cent. The charity incentive group which was promised a one-dollar contribution to the charity of the respondent's choice when the questionnaire was returned had a response rate of 56 per cent. The 50-cent cash incentive group which received 50 cents with the questionnaire had a response rate of 68 per cent. The one-dollar cash incentive group which received one dollar with the questionnaire had a response rate of 76 per cent. The group which received 50 cents with the questionnaire and was promised a one-dollar contribution to a charity of the respondent's choice when the questionnaire was returned had a response rate of 71 per cent. The group which received a dollar with the questionnaire and was promised a one-dollar contribution to a charity of the respondent's choice when the questionnaire was returned had a response rate of 78 per cent.

The effects of the incentive were tested by using pairwise z-tests of equality of proportions (39, p. 377). This analysis revealed that personal cash incentives produced a significantly greater response rate than either the no-incentive control condition or the charity-incentive condition. Thus, contrary to the results of the Robertson and Bellenger study, the charity incentive did not result in a
significantly greater return rate than the no-incentive control (39, p. 375).

Armstrong (5, p. 111) concluded that prepaid monetary incentives have a strong positive influence on the response rate in mail surveys after examining eighteen empirical studies done by fourteen different researchers. One of these studies involved a sample of 100 people randomly selected from the Philadelphia metropolitan-area telephone books. This study used a rather long questionnaire which included a description of a new form of transportation and sixty-one questions, some of which were open-ended. A dollar honorarium was sent with the questionnaire to fifty subjects, while the other fifty received no money. Seventy per cent of the honorarium group responded, but only 22 per cent of the no-monetary incentive group returned the questionnaire. Although the sample size was small, the difference between the response rates of the two groups was statistically significant at the .05 level. Armstrong stated that it was clear from his comparisons of the results of the eighteen studies that large increases in response rates are produced by prepaid monetary incentives, and the increase in the response rate increases as the amount of the monetary incentive increases. He claimed that a 1 per cent decrease in non-response rate for each 1 per cent increase in the prepaid incentive up to 40 per cent is a good rule of thumb (5, p. 116). On the other hand, he found that the promise of a
reward had a small effect on the response rate in comparison with that of a prepaid incentive (5, p. 113).

Godwin (45, p. 378) reported on a study which represents a major departure from the ordinary, involving promises of relatively large monetary incentives. The questionnaire was mailed to 291 individuals in sixty countries. No monetary incentive was promised to the subjects in twenty countries; a 25-dollar incentive was promised to the responding subjects in twenty other countries; and a 50-dollar incentive was promised to the subjects in the remaining twenty countries for completing and returning the questionnaire. The vocations of the subjects ranged from university professor to cabinet minister. The questionnaire, designed to elicit detailed factual information and subjective opinions about the politics surrounding the family planning programs and population policies of developing countries in Asia, Africa, and Latin America, was quite lengthy, having more than 100 close-ended and 15 open-ended questions. To overcome the difficulty in placing postage on the return envelope due to the international character of the survey, each questionnaire was accompanied by a 3-dollar check to cover the estimated cost of the return postage (45, p. 379).

The questionnaire packet was mailed to each subject by airmail. A letter from the principal investigator explaining the nature and purpose of the survey, promising the confidentiality of the responses, and stating that each
participant in the study would be sent a summary of its findings accompanied the questionnaire. The letters also specified the amount of the incentive promised to the subject when applicable. The letters sent to the members of the sample who were not to be paid made no mention of payment. The packet also included a letter from a respected member of the international population activity community verifying the authenticity of the principal investigator's letter and urging cooperation, a 3-dollar check to be used for the necessary return postage, and a self-addressed airmail return envelope to be used for returning the completed questionnaire. The cover letter requested the return of the questionnaire within three weeks. Two weeks after the initial mailing, all respondents were sent a single follow-up letter with another copy of the questionnaire enclosed. The response rate for all respondents was 69 per cent despite the length of the questionnaire and its relatively structured format (45, pp. 381-382).

The results of this international study indicated that neither the promise of a monetary incentive nor the difference in the incentive amount had a statistically significant impact on the response rate. However, both the promise of an incentive and its size significantly increased the quality of the responses received. The probability that a more fully completed questionnaire with fewer errors in responses to factual questions would be returned by a respondent was
significantly improved by the promise of an incentive and its size. The probability that a respondent would provide additional or clarifying information was increased by the promise of a larger incentive (45, pp. 383-384). Hence, the promising of a large monetary incentive for returning a questionnaire statistically improved the quality of the responses even though its impact upon the response rate was not statistically significant. The data from this survey indicated that the respondents promised 50 dollars upon completion of the questionnaire were 11 per cent more likely to complete and return the questionnaire, almost three times more likely to have high completion levels, and approximately two and one-half times more likely to provide high levels of correct responses and additional information than the respondents who received no incentive except for the 3-dollar check for international postage. The differences in response rates between the 25-dollar and 50-dollar promised incentive groups was not statistically significant. However, the differences in response quality between respondents who were promised 50 dollars and those who were promised 25 dollars were much greater than the differences between those who were promised 25 dollars and those who received no monetary incentive (45, p. 386).

Schewe and Cournoyer (113, pp. 105-106) focused their attention on the effects of variations in the level of the promised incentive and the effects of either prepaid or
promised incentives over one dollar. In preparing to conduct a longitudinal study of out-of-state automobile tourists under a grant from the Massachusetts Department of Commerce and Development, a university-sponsored pilot study was conducted to determine the expected response rates and the associated costs as well as to help formulate plans for the future research. Using a standardized procedure to which the variation in incentive rates was the only exception, they tested the promised incentive rates of 1 dollar, 2 dollars, 3 dollars, and 5 dollars as well as no incentive. The different incentive values were randomly distributed to persons in randomly selected automobiles with out-of-state license plates at two entry points on the Massachusetts Turnpike. On two separate dates, 450 questionnaires were distributed at each location to tourists who verified that they were not residents but were bound for destinations in Massachusetts. Each questionnaire was ten pages long and was accompanied by a 13- by 10-inch postage-paid return envelope and a cover letter. In addition, some packets included a sheet promising a cash payment upon questionnaire completion and return. The results revealed that the promised incentive of 2 dollars resulted in an appreciable increase in response rate over lower values. A statistically significant difference between the return rates of the groups receiving the 2-dollar promised incentive and the 1-dollar cash incentive was found by running a t-test. The t-value of 3.45 is significant at a
level with a probability less than .001. Furthermore, a
t-value of 2.76 meant that the response rate from the 2-
dollar promised incentive group was significantly different
at the .01 level from the response rate of the no-incentive
group. The differences between the response rates of the
no-incentive and the 1-dollar incentive groups, the 2-dollar
and 3-dollar incentive groups, and the 3-dollar and 5-dollar
incentive groups were not significant.

Furse, Stewart, and Rados (40, p. 473) studied the
effects of a foot-in-the-door technique, cash incentives,
and follow-ups on a survey response as has already been de-
scribed. They found that the cash incentive worked
significantly better than the foot-in-the-door technique.
Furthermore, the overall response rates were not statis-
tically different whether the incentive was sent with the
initial or follow-up mailing or with both mailings. The re-
sults of the study indicated that a statistically significant
chi-square value of 20.89 at the .01 level measures the dif-
fferences in the response rates of the initial three treatment
groups. Also, the pairwise contrasts among the three groups
were examined using the chi-square extension of Scheffe's
method of multiple contrasts. The 50-cent incentive yielded
a significantly higher response rate than did either the
foot-in-the-door or the control condition (40, pp. 473-474).

Frankel (34, p. 1) compared two mail surveys of fam-
ilies where at least one member had personal subscriptions
to *Sports Illustrated* for about a month before the study was done. Identical sampling procedures resulted in the selection of systematic samples of 9,528 for the first study and 9,466 for the second study. Since some additional topics were added to the second study, it was decided to split the sample and ask certain questions of half the sample only. However, the two questionnaires used in the second study were comparable in length and complexity to the one used for the first study.

The same mailing procedure was used for both studies. After the initial mailing to all persons in the sample, one-half of the nonrespondents after a suitable time lapse was sent a second mailing with an incentive of one dollar. Similarly, one-half of those who had not responded by a certain time to the second mailing received a third mailing with a 5-dollar incentive. In order to compute the effective response rates, the sum of the percentage replying to the first mailing, twice the percentage responding to the second mailing, and four times the percentage returned by those receiving the third mailing was computed. The effective response rate was 82 per cent for the first study and 81 per cent for the second one (34, pp. 1-2). However, there were some differences in the incentive programs for the two studies. No incentive was offered during the first mailing of the first study, whereas a 25-cent incentive was used with the first mailing of the second study. In addition,
each person in the sample selected for the second study received a postcard announcing the pending arrival of the questionnaire. Otherwise, the incentive programs of the two studies were alike (34, p. 2). The results of the second study demonstrated that it produced approximately 26 percent less variance and resulted in 21 percent more information per dollar than did the first survey (34, p. 3).

Whereas Boyd, Westfall, and Stasch (11, p. 123) claimed no impact on returns when cash payments for returned questionnaires were promised, Furse, Stewart, and Rados, in a previously described study (40, p. 476), reported finding that the timing of the cash incentive is less important than the fact that it is used. They found the same response rate regardless of whether the incentive was enclosed with the initial mailing, the follow-up mailing, or in both mailings. Thus, they proposed that the use of an incentive has its effect on a particular type of individual. The majority of individuals who respond without inducement responded on the first mailing. On the other hand, some individuals will not respond even after receiving an incentive on two occasions. According to their findings, the sending of the incentive only in follow-up mailings to nonrespondents to the initial mailing would be more cost effective for surveys using both incentives and follow-ups. On the other hand, Berdie and Anderson (7, p. 63) claimed that most studies utilizing money as a reward for subject participation have shown
higher response rates when the money was included with the questionnaire rather than a promise to send money to those who respond. They suggested that receiving the money with the questionnaire may contribute to a feeling of obligation to respond by the subject. However, Yu and Cooper (135, p. 39) reported in their literature review that both prepaid ($\chi^2 = 145.8, p < .001$) and promised ($\chi^2 = 7.5, p < .01$) monetary incentives increased the response rate.

Simon (118, p. 319) suggested that offering gifts or payment to the respondents may increase the number of subjects who will respond. He pointed out that psychological laboratories pay students by the hour for prolonged sessions; market researchers often use dimes, quarters, or dollars; and members of consumer panels receive merchandise as payment for their services. He further stated that often a small inducement is amazingly effective. However, Parten (97, p. 387) warned that financial reward is not always effective. She stated that in market research experience requesting information as a personal favor has resulted in better response rates than offering a trivial reward or stressing that answering the questionnaire will result in some alleged advantage to the respondent. In any case, Simon (118, p. 319) pointed out that one must determine whether the gains justify the cost of the inducement. Some benefits from offering a small payment include the need for fewer mail questionnaires, the requirement of less time for
questionnaires to be returned, and a decrease in the number of incomplete questionnaires returned. Similarly, Wotruba (133, p. 400) stated in a study that the desired number of responses was obtained at least-total cost using the 25-cent inducement when the completeness of response was considered. Furthermore, Linsky (84, p. 99) claimed that the response rate is more important than the cost per return on many studies since an increase in the proportion responding usually is accompanied by a decrease in the amount of sample bias. In addition, the use of the money incentives does not appear to cause much bias in the selectivity of the respondents.

Hancock (51, p. 213) attempted to determine methods which will most efficiently measure the attitude of large populations toward the retail store. The merits of the following four methods were investigated. The first method involved mailing the instrument with an appropriate letter explaining the purpose of the study and how to mark the instrument. The second method required the inclusion of 25 cents with the instrument. The packet mailed also included an appropriate letter stating the purpose of the study, giving instructions for completing the instrument, and explaining the reasons for the inclusion of the 25 cents. The difference between the second and third methods was associated with the incentive. In the third method, the 25-cent incentive was promised to the addressee upon receipt
of the filled-out instrument. The appropriate changes were made to the letter accompanying the instrument. The fourth method utilized a personal interview by the two investigators of the study to contact the desired number of individuals. The same instrument was used with the fourth method as with the other three. Four groups were chosen at random from the personal tax records of the county assessor for each county in the state of Indiana. Only one of the four methods was applied to each group (51, p. 215).

For the first method, the response rate was 9.56 per cent with a standard error of .458 per cent, which means that the limiting response rate lies between 8.19 per cent and 10.93 per cent. Thus, the unit cost for the method which did not use a monetary incentive for mailed questionnaires varied between $1.20 and $1.24 per unit. For the second method, the return rate was 47.2 per cent with a standard error of 1.125 per cent, and the limiting percentage of returns was between 43.82 per cent and 50.58 per cent. Hence, the unit cost for the method which used a 25-cent incentive enclosed with the instrument varied between 76 cents and 82 cents per unit. For the third method, the response rate was 17.6 per cent with a standard error of 1.01 per cent which yielded a limiting range between 14.57 per cent and 20.63 per cent for the return percentage. So the unit cost for the method utilizing the promised monetary incentive upon the receipt of the completed questionnaire varied between
$1.03 and $1.09 per unit. Finally, the fourth method yielded a return rate of 85.5 per cent with a standard error of .66 per cent and the limiting percentage of returns between 83.52 per cent and 87.48 per cent. Consequently, the unit cost for the personal interview varied between 72 cents and 76 cents (51, pp. 220-221). For this study, the personal interview was the most cost effective. The cost of the 25-cent incentive enclosed with the instrument was about the same as the cost per unit of the personal interview. The technique utilizing no monetary incentive with a mailed survey instrument was the least cost effective of the four methods examined in this study.

Cox (20, p. 101) pointed out that Armstrong (5) found an average reduction of 32 per cent in the nonresponse rate for the eighteen empirical studies which he analyzed. This result was independent of the incentive size. Cox (20, p. 102) acknowledged the difficulty and expense involved in moving people from the nonresponse to the response category. He considered this aspect of the problem by reanalyzing the data presented by Armstrong. Thus, Cox examined the percentage reduction in nonresponse in terms of incremental cost per respondent rather than by the amount of the monetary incentive. To carry out this study, the incremental cost per respondent was calculated as the quotient found by dividing the total amount of money spent on the incentives by the estimated number of respondents who were persuaded to
respond because of the incentive. The results of examining the studies in terms of cost effectiveness revealed the wide variation of the studies in this respect. At one extreme, an incentive of one dollar produced a 12.5 per cent reduction in nonresponse at an incremental cost of 10 dollars per respondent. At the other end of the scale, a 77 per cent reduction in nonresponse was achieved in another study at an incremental cost per respondent of only 90 cents by using a 25-cent incentive. An average incremental cost per respondent of $2.47 was reported in achieving the 32 per cent reduction in nonresponse in the eighteen studies examined.

Erdos (29, p. 94) stated that an appropriate incentive usually increases the response rate of a questionnaire. The resultant larger response rate will make the results of the study more reliable. However, he further stated that care must be exercised in choosing the incentives to be used. He listed among the important considerations in the selection of an incentive the following things. The incentive chosen must effectively increase the percentage of response without biasing distribution of the returns in any way. Furthermore, the cost of the incentive must fit within the available research budget.

According to Erdos (29, p. 95) money seemed to be the most effective and least biasing incentive since it is easy to obtain and mail and is useful to all recipients. However, the money should not be thought of as a payment or even a
reward but rather as an attention getter and a token of appreciation. The most often used monetary incentives in the United States are dimes, quarters, and dollar bills. An increase in the response rate by half or more can sometimes be accomplished by utilizing a shiny new 25-cent coin as an incentive. While they were not quite so optimistic, Miller (91, pp. 77-78) and Boyd, Westfall, and Stasch (11, p. 123) reported studies indicating that cash inducements can increase the response rate by one-third. Furthermore, the best way to achieve a high percentage of response is the use of a money premium in a great many cases. Paper money is more dramatic than a coin, but in some cases it does not seem to have made much difference whether the incentive was a 1-dollar or a 5-dollar bill (29, p. 95).

In order to support his claim that money can be an effective incentive, Erdos (29, pp. 255-257) reported the percentage-of-response statistics on questionnaires mailed out on all domestic surveys conducted by his market research company during a period of four years. The 415 separate studies and surveys involved a total mailing of 771,004 questionnaires and ranged from small pilot studies of 200 or fewer questionnaires to major research projects involving mailings of 10,000 to 20,000 persons. Also, surveys of subscribers to publications, consumer surveys, and a variety of other types of research are included. In 330 of the 415
surveys in which a new 25-cent coin was included, the median response rate was 57 per cent.

Erdos (29, pp. 99-100) claimed that it is difficult for people with no research experience to see the benefit of using monetary incentives. In fact, they may feel that it is wasteful to give away money. On the other hand, it can be shown easily that by using monetary incentives the researcher can often save money. In the first place, because of the higher response rate, the sponsor is paying for a reliable survey instead of wasting money on a poor one. Secondly, even though the total cost of the research is somewhat higher, there can be actual savings on a per-questionnaire basis. Finally, there can be an actual savings in terms of total research cost because of the reduction in the number of questionnaires which must be mailed since sometimes the percentage of replies is much higher when an incentive is used. Also, there is evidence that the use of monetary incentives yields more completely filled-out questionnaires in addition to higher response rates.

In view of the savings which could be possible, Parten (97, p. 388) suggested that it might be worthwhile to experiment with really large incentives. She used as an example the offering of a prize of 1,000 dollars to be given by the survey agency to a person chosen by lot from among the respondents. She further stated that it is quite likely that
the response would be fairly good. However, Parten did not reveal any known studies using this technique.

Furthermore, Salomone and Miller (111, p. 56) suggested the lottery approach as an area of needed research dealing with return rates of mailed questionnaires. They stated that research is limited in this area and propose that many related questions remain unanswered. No reference to any related research on the lottery technique was included in their study.

It would appear that Knox (77, pp. 366-367) used the technique of offering a chance at a prize as an incentive the first time it was used. In a study of unemployed railroad firemen in Knoxville, Tennessee, he reported offering a prize of a turkey to the lucky respondent whose number was drawn from a hat. Because of the approaching Christmas season, the prize was a timely one to offer the unique population. During the first phase of the study, fifty-one (29.5 per cent) of the 173 questionnaires initially mailed were returned in three weeks. A follow-up letter offering the chance on the turkey with another copy of the questionnaire was sent to the 122 nonrespondents. Twenty-three (18.8 per cent) of the 122 replied to the second mailout. Because of the special characteristics of the population, this return could not be compared with returns which did not offer a prize.

Anderson and Berdie (3, pp. 255-256) reported examining some different techniques for increasing survey response
rates, including the lottery. A total of 3,627 questionnaires were mailed in the study. The overall response rate was 88 per cent, with the response rates varying from 82 per cent for faculty to 94 per cent for university administrators. The same communications were sent to all groups in the study. The one-page, typed preletter which explained the nature of the study and the one-page, typed cover letter accompanying the questionnaire were mailed to all subjects in the study sample. In addition, the 210 administrators, 344 faculty members, 2,288 graduate assistants, and 785 undergraduate students received humorous, whimsical, and formal follow-ups and typed label-addressed follow-ups. Different groups responded better to different follow-up techniques. When a formal follow-up technique was used, administrators responded more than undergraduates. The chi-square value of 26.89 was significant at the .001 level. When the follow-up technique was a whimsical one, the response rate of graduate assistants was greater than that of the faculty. The chi-square value of 23.11 was significant at the .001 level. When the follow-up technique used was humorous, graduate assistants responded more than did the faculty but less than undergraduates did. The chi-square values of 8.86 and 9.74, respectively, were both significant at the .01 level. Undergraduates responded at a greater rate when hand-addressed follow-up postcards were used than when those with typed labels were used. The chi-square value
of 9.14 was significant at the .01 level. Although no data were presented, Anderson and Berdie claimed that a notice announcing a raffle with a 25-dollar prize to be awarded to one lucky respondent was mailed to nonrespondents to the initial mailing.

Since no other study using this technique was located, a study was planned which utilized the technique by offering a chance on a 50-dollar savings bond to eight groups with the probability of winning set at one chance in fifty for four of the eight groups and at one chance in two hundred for the others. The other four groups acted as the control groups and did not receive any incentive.

The rest of this section will consist of studies reported in the literature which are directly related to the hypotheses tested in this study. The order will be the same as used in the previous chapter of this report where the hypotheses were stated.

In addition to the many studies already discussed, several reports of studies utilizing monetary inducements exist. Among them are studies by Doob, Freedman, and Carlsmithe (26); Doob and Zabrack (27); Hackler and Bourgette (50); Huck and Gleason (64); Kanuk (69); Kephart and Bressler (72); Kimball (76); Labrecque (78); McDaniel and Rao (90); Pressley and Tullar (102); Robin and Nash (105); Robin and Walters (106); Salomone and Miller (111); Watson (124); and Wotruba (133). All agreed that money sent with
the questionnaires significantly increased the return rate. Doob, Freedman, and Carlsmith (26) showed that while including 5 cents helped, the highest rate of return was achieved by sending 20 cents, whether the sponsor was a university or a commercial firm. This suggests that increasing the amount of money increases the rate of return. On the other hand, a study by Kanuk (69, p. 37) found some evidence that a substantial increase in response can be achieved by sending a 25-cent incentive with the questionnaire while larger sums are often not worth the increase in cost, even though they result in somewhat greater response. However, Hackler and Bourgette (50) reported a study in which 71 per cent of the group receiving a dollar bill had returned the questionnaire on the eighth day after the questionnaires were initially mailed, whereas only 39 per cent of the nondollar group had. Furthermore, Wotruba (133) stated that sending a quarter with the questionnaire is more effective than promising 50 cents to all those who return the completed questionnaire. In fact, the results of the study by Wotruba showed that the delayed inducement produced no significant difference from the no-inducement approach. As this study was a pilot study to a larger-scale study, the validity of its results was tested when the major questionnaire was mailed using a 25-cent inducement, and was supported by the results obtained from the main study.
The samples used in the studies mentioned above are very diverse. Huck and Gleason (64) randomly selected 200 college students who were then randomly assigned to one of four groups, and reported that 78 per cent of the subjects in the group which received a quarter returned their questionnaires as opposed to 50 per cent of the subjects in the remaining three groups. A chi-square value of 10.8 indicated that the difference between these two percentages was significant at or beyond the .001 level. Salomone and Miller (111, p. 32) reported that a study involving 1,320 professional counselors yielded an overall return rate of 79.6 per cent after a lapse of ten weeks from the original mailing. Hackler and Bourgette (50) cited a study which involved 218 mothers of ninth- or tenth-grade students living in one neighborhood. The study by Doob, Freedman, and Carlsmith (26) was reported to have involved 804 persons who were selected from a telephone directory. Also, Kanuk (69, p. 37) stated that she used a sample of 1,100 plant management executives who were randomly assigned to four experimental groups, and found no significant relationships among the socioeconomic, demographic, or personality variables measured by the questionnaire.

In their study cited above, Salomone and Miller (111, p. 32) stated that when combined with two follow-up letters, a token compensation of 25 cents had a greater effect with the original letter, whereas an appeal to the professionalism
of the subject was more effective in the follow-up letters. Specifically, the token compensation appeal group returned 65.5 per cent of the questionnaires after the original letter, while 48.4 per cent of the group receiving the professionalism appeal did. On the other hand, the first follow-up letter mailed three weeks after the original packet yielded a return rate of 12.8 per cent for the token compensation group and 21.5 per cent for the group receiving the professionalism appeal. Furthermore, a second follow-up letter sent three weeks after the first one resulted in a return rate of 6.5 per cent for the token compensation group and 9.7 per cent for the professionalism-appeal group. Also, this research indicated a significant effect at or beyond the .05 level for the main effects of appeals and threat of follow-up letter.

In previously described studies, Watson (124, p. 49) found groups receiving a 10-cent incentive, a packet of stamps as an incentive, or a 25-cent incentive produced a higher response rate than the control group did. Furthermore, the group who received the 25-cent incentive had the largest response rate of all of the twenty study groups. Also, Labrecque, in a study described earlier (78, p. 82), sent a 5-dollar coupon which was redeemable for service at the marina with all questionnaires in a market survey of customers. Hence, no tests of effectiveness were possible. Likewise, Kimball (76, pp. 63-64) reported in a previously
described study of technical personnel that he found the increase in response rates to be highly significant when a 10-cent incentive was enclosed. The comparison of two sets of two groups, differing only because 10 cents was used in one group whereas no money incentive was used with the other, revealed increases of 28 per cent and 47 per cent when the money was included. He was surprised by the number of respondents who wrote on the questionnaire to express their thanks for the dime, the coffee, or the "coke."

Pressley and Tullar (102, p. 111), in another previously discussed investigation of mail survey response rates of a commercial population, used a small monetary incentive at two levels as one of the experimental factors. They reported the 10-cent incentive increased the response rate by slightly more than 10 per cent over the control group. Furthermore, no significant interactive effects among the three variables were found. Also, Kephart and Bressler (72, p. 128) reported on a study described earlier using four different levels of monetary incentives: a penny, a nickel, a dime, and a quarter. Some of the coins were returned both with and without the questionnaires. The increases in the response rates for each group were 3 per cent for the penny group, 2 per cent for the nickel group, 5 per cent for the dime group, and 18 per cent for the quarter group (72, pp. 128-129). Thus, the inducement value was minimal except for the quarter, which was obviously effective for this academically
oriented study. However, they reported that the quarter did not produce significantly higher return rates than the questionnaire-plus-follow-up procedure.

McDaniel and Rao (90, p. 265) examined the effect of a 25-cent monetary inducement in three components of response quality on a mailed questionnaire study. The results of this study suggested that the monetary inducement decreased item omission and response error significantly. Although the results were not statistically significant, the use of the monetary inducement seemed to improve the completeness of the answers given by the respondents who received it. Furthermore, the response rate of 40 per cent for the monetary-inducement group was significantly higher than the response rate of 18.5 per cent for the no-monetary-inducement group. This difference was significant at the .005 level for the t-test (90, p. 267). Hence, the respondent receiving a quarter with the mailed questionnaire was found not only to be more likely to return the questionnaire but also to be more likely to provide more complete and accurate information in responding to the questionnaire (90, p. 268).

Robin and Nash (105, p. 38) reported a study which tested the effects of a range of monetary incentives on the return rate in mail questionnaire studies. The study was a part of a pretest to a major mailout of 10,000 questionnaires which accumulated information on the image of several major manufacturing firms in Mississippi. Among the topics dealt
with on the survey were air pollution, water pollution, and labor relations. The study was limited to people within selected counties in the state of Mississippi. The levels of the inducement variable used were none, one dime, two dimes, and a quarter. The results of the study were analyzed using the chi-square test at the .05 level. The response rate of 28.6 per cent of the group given one dime was significantly different from the 11.1 per cent response of the no-incentive group. Also, a 42.9 per cent response of the two-dimes group was significantly different from the response of the one-dime group. Although the 41.8 per cent response rate of the quarter group was significantly different from the response rate of the one-dime group, it was not significant when compared with the response rate of the two-dimes group (105, p. 40). Thus, the two dimes and the quarter were both significantly more effective in increasing return rates than the one dime although it was also effective. Furthermore, the monetary-inducement approach utilized in this study to obtain additional returns was at least competitive with using a follow-up for the same purpose. For this study, the cost per unit mailed was more for a follow-up than when a dime incentive was used. In addition, the follow-up produced a lower return rate than a dime did (105, p. 42).

Doob and Zabrack (27, p. 408) studied the effects of threatening instructions and monetary inducements on return rates of mailed questionnaires. They conducted three
experiments in which subjects selected from the Toronto telephone directory were sent questionnaires containing one of four different sets of instructions. Half of the instructions consisted of the normal request to complete the questionnaire and return it. The other half of the instructions were designed in such a way that pressure was exerted upon the subjects to respond. In addition, money was sent along with the request to half of the subjects in each of these conditions; no money was sent to the other half. The results of all three experiments indicated that money included with the request significantly increased the response rate. The incentive used with the first two experiments was 10 cents whereas 20 cents was used on the third one. On the other hand, there was no significant overall effect from the threatening instructions. However, an unexpected result surfaced in the third experiment: the blank questionnaires with the money were returned in the stamped self-addressed envelopes by 11 per cent of the subjects who received the 20-cent incentives and the instructions considered to apply the most severe pressure to respond. No subject in any of the other conditions reacted in this manner (27, p. 411).

Robin and Walters (106, p. 49) reported doing a study of the effect of different messages accompanying a monetary reward on the response rate to mailed questionnaires. There were three basic divisions for the mailout on this study. The first division was by area of the country. The sample
was systematically selected by taking every nth name from the master mailing list of three different postal sectional centers. This resulted in a sample having a total of slightly over 1,500 individuals. The second division characterized each subject as being either the general public or a business executive. The third division concerned the type of message accompanying the monetary incentive. A total of five conditions were tested by using three groups with different messages and two control groups (106, p. 50). The results of the study revealed that the response rates for each of the three messages were not significantly different for either the general public or business executives. Thus, it was concluded that any reasonable explanation concerning the use of a monetary incentive is about equally effective. In fact, the general public responded favorably to a monetary incentive without any explanation at all. The response rate yielded for this condition was as high as any other and was not significantly different from the first three conditions. The response rate yielded by the monetary-incentive group of the general public was more than twice that of the no-incentive group of the general public. The 10-cent monetary incentive was also favorably received by the business executives as reflected in the markedly higher return rates when the incentive was used (106, p. 53).

A study done by Pucel, Nelson, and Wheeler (103) examined how the sex of the subject affects the probability of
responding. They used as their population 1,100 post-high-
school vocational school graduates, who were randomly divided
into eleven groups of 100 each to receive a follow-up ques-
tionnaire. Each of the eleven groups received a different
treatment involving nonmonetary incentives. The study found
that the probability of a questionnaire being returned was
significantly related to the sex of the subject. At the end
of the four-week study period, an overall return rate of
54.0 per cent was achieved, with 60.2 per cent of the females
responding versus 41.8 per cent of the males. The chi-square
value of 32.45 was significant (p < .001) when testing for
differences in the return rates of males and females. For
the population used in this experiment, females were more
likely to return questionnaires than were males. On the
other hand, the number of incentives used was more important
to the males. Thus, the increase in return was found to be
consistent over differences in sex. The study also attempted
to determine the effect of the type of occupational training
that persons completed on their likelihood of responding.
The response rates of persons receiving different numbers of
incentives were analyzed for occupational clusters. The
chi-square test of the data revealed that the differences in
response rates among groups receiving different numbers of
incentives in each cluster were not significant although in
all three cases an increase in the number of incentives was
accompanied by an increase in the number of returns.
One very provocative finding of a study by Kanuk (69, p. 197), which was mentioned above, was the effectiveness with which a small monetary reward induced top and middle management officials to respond to an hour-long questionnaire. She stated that the obvious catalytic agent responsible for the increase in response rate was the 25 cents sent to the group with the largest response rate. However, the motivating stimulus did not appear to be economic in nature because of the small sum involved.

It might seem that poor people would be more apt to respond because of a monetary incentive than wealthy people. This, however, does not seem to be true. Erdos (29, p. 97) reported a survey conducted by a publication on the newspaper and magazine reading habits of the top executives of the largest corporations of the United States. The same mailing, except for the incentive and the reference to it in the postscript of the accompanying letter, was sent to three random samples of 666 executives of United States firms having a net worth of a million dollars or more. Sixty-three per cent of the group receiving the 25-cent coin incentive responded, while 54 per cent of the groups with the 10-cent coin incentive responded, and 40 per cent of the no-incentive group returned the questionnaires. Hence, this test showed that powerful, affluent business executives are susceptible to coin premiums. On another readership survey of 5,000 people, most of whom were in business or professional
occupations, a random 1,000 received a 25-cent coin with the questionnaire. On a single mailing, 58 per cent returns were received from the premium sample and 35 per cent returns from the nonpremium group. The classification-data tables for the two groups showed that the differences in the income percentages were too small to affect the results of the survey and were in the opposite direction from what might be expected. In other words, the average income of the respondents who received the premium was somewhat higher than that of the repliers in the nonpremium group.

Wiseman (130) cited an experiment involving 464 Massachusetts residents who were sent a three-page questionnaire after being chosen at random from statewide telephone listings to investigate main and interaction effects of four variables. Of the 464 questionnaires, 199 were returned for an overall response rate of 43 per cent. The study used a factorial design to identify the relationships existing among four variables previously used to increase the response rates in mailed questionnaire surveys. The data suggested that the variables—which included small monetary incentive, nature of the return envelope, follow-up reminder, and offer of survey results—operate independently since only one of the eleven interaction effects was significant at the .10 level.

Heberlein and Baumgartner (53, p. 448) tried to identify the quantitative effect of a variety of factors on response
rates to mailed questionnaires. They reported finding seventy-one factors in the ninety-eight methodological studies they examined. Since many of the studies utilized more than one treatment of the independent variables, 214 treatments were identified and retained for analysis. The unit for analysis was the individual treatment. A single mailing of the questionnaire yielded an average response rate of 48 per cent with a standard deviation of 19.9 per cent in the studies examined. Thus, some studies received better than an 80 per cent return while others yielded less than a 20 per cent return on a single mailing (53, p. 450). Incentives were used on relatively few of the studies. Two studies used a one-dollar incentive to produce an 80 per cent response, nine yielded a 66 per cent response with the use of a 50-cent incentive, and seven achieved a 45 per cent response with a 25-cent incentive. In all of the above cases involving incentives, only one mailing was used. On the other hand, an average response rate of 62 per cent was reported for the 187 studies which utilized no incentives (53, p. 453). One need for experimental study is the possible interactions (53, p. 458).

Houston and Jefferson (62, p. 114) hypothesized that personalization through the removal of individual anonymity would produce the opposite of the desired effect due to the possibility of subsequent, undesirable contact of the respondent. In an extension of the analysis on a previously
described study, they considered the interaction of a personalized approach with the inclusion of a nonmonetary incentive. The incentive used was a medium-priced ballpoint pen (62, p. 115). The results supported their hypothesis concerning the effect of personalization. Although the subjects receiving an incentive responded to a greater extent than those not receiving an incentive, the positive benefits from the nonmonetary incentive were diminished by the significant interactions found between personalization and the nonmonetary incentive used with this study (62, pp. 116-117).

Conclusion

Several things are evident about the literature concerning techniques used to increase the response rates on mailed questionnaires. Even though there exists a multitude of reports on studies of the various techniques, the questions about techniques that are always effective remain unanswered. Many of the studies were poorly designed and did not use control groups. Comparisons of the results are usually difficult because of the lack of similarities in the many studies. Most of the experiments are focused on the effects of the techniques upon the response rate and totally ignore the effects upon response quality and speed. Furthermore, the results reported for most techniques are very inconsistent. Since no scientifically based systematic body of knowledge relates specific techniques to questionnaire response behavior, more pure research in the field is needed.
A researcher preparing to conduct a mail survey must consider whether the use of a technique to induce response is advisable. The goals of the survey, the research budget available, any time constraints operative, the nature of the data-gathering instrument and the data to be gathered, and the experimental population are some of the factors to be considered.
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CHAPTER III

METHODS AND PROCEDURES

The assessment of educators' willingness to participate in a descriptive research study as a function of a monetary incentive was the problem investigated in this study. The study was exploratory in nature, and its results are applicable to the area of behavioral science. The results of the present study would help the researcher in education using a mail questionnaire as a data-collection device determine whether offering a chance on a prize is a viable method to increase the percentage of subjects who are willing to participate.

Procedures for Collecting Data

A list of all educators in selected public schools of north Texas was obtained from each of the eleven schools selected. This list comprised the parent population for this study. Information vital to this study included name, home address, position held, and sex of each educator, and was available from the individual school district directories.

The study sample consisted of 600 subjects, with an equal number of male and female teachers and male and female administrators. The schools were placed into three strata according to the number of teachers employed by the district.
Two of the strata consisted of five school districts each while the third was composed of only one school district. From each stratum, a disproportional sample of fifty male and fifty female teachers and fifty male administrators was systematically selected with the first in each sample chosen randomly. Due to the number of female administrators in the school districts used, all of them were included in the study sample. Also, the male administrators in one stratum were selected utilizing random sampling procedures and techniques described by Wiersma (11, p. 203) because of the number of male administrators in the stratum.

The subjects in the study sample were then assigned to one of the twelve groups, with each group having fifty subjects. The assignment was made so that no two educators from the same school were placed in groups with different levels of the inducement variable.

Since the effect upon the subjects' willingness to participate when using a chance on a monetary incentive in a descriptive research study was the main thrust of this study, and not the information which would have been gathered from the questionnaire, a postcard was used instead of a mailed questionnaire. A similar idea was used in a study done by Salomone and Miller (10, pp. 18-20), who were studying procedures for increasing the response rates of mail questionnaires. A questionnaire was not actually sent since they argued that the type of questionnaire might affect the
results of the research. Furthermore, they claimed that agreement to participate in a study and to answer a questionnaire was similar to actual performance of the tasks.

Also, Gullickson (8) reported a study which had as its purpose the testing of the effect of a 5-dollar incentive on the return rate of mail questionnaires sent to 353 schools in the United States. He stated that, although the actual gain in data was not large, a larger percentage of the schools offered the 5-dollar incentive actually participated after having agreed to do so than those offered no incentive.

Each subject in the present study received a data-collection packet which included an appropriate cover letter and a self-addressed postcard. The original cover letters were typed on an IBM Selectric typewriter. All copies were printed using a multilith process on an offset printer. The addressee's name and the mailing date were typed on each cover letter. Each cover letter was individually signed, using a pen with blue ink. The same procedure was used to print the information on the front and back of the postcard. In addition, the name and address of each recipient of a packet were individually typed on each postcard. Each postcard had a first-class stamp attached to it. Furthermore, the addresses on the envelopes used in mailing the packets were individually typed. The same typewriter used for the original cover letters was used on all items which were typed. All packets were mailed using first-class postage
on the same day from the same post office. There was no follow-up mailing, and no replacements were sent for the returned packets.

The cover letters explained that a study was being designed, to assess the attitudes of educators about the problems facing the public schools in Texas during the next decade. Each subject was asked to return the postcard, indicating on it whether he or she was willing to participate in the study by returning a questionnaire which was to be sent later, although one was not actually going to be sent. In addition, the subjects in the eight groups which were offered a chance on a savings bond were informed in the cover letter that by indicating their willingness to participate in the study and upon returning the completed postcard, they would have a chance to win the 50-dollar United States Savings bond. The probability of winning was stated at the bottom of the cover letter. (See Appendix A for an example of the cover letter.) The cover letters sent to the subjects in the other four groups did not contain the information concerning the savings bonds in the fourth paragraph or the probability of winning at the bottom. Otherwise, the cover letters sent to each subject were identical.

In addition to indication of the willingness of the subject to participate, other information requested on the postcard included the number of years in the educational field, the level of assignment in the present position, and
the highest degree held. These data were extracted by short questions and were used in an attempt to determine some characteristics of the respondents who indicated a willingness to participate in survey research.

As the postcards were returned, a tally was kept of the number returned by each of the twelve groups in order that the response rate for each group could be computed. A separate count was kept for those indicating a willingness to participate and one for those not wanting to participate. Also, a count of the packets returned by the post office as undeliverable was maintained. Furthermore, the overall response rate was calculated for those who indicated a willingness to participate and for those who did not. Also, the overall response rate was calculated, regardless of the subject's willingness to participate. Any incomplete postcards were rejected and were not counted. Only the data received within three weeks from the date the packets were mailed were analyzed statistically.

To determine the nonrespondents' reactions to the incentive offered in this study, a telephone follow-up, of a random sample of twenty subjects in the eight groups offered an incentive, was used. (Refer to Appendix B for a copy of the interview guide used.) Because of the delimitations on time and cost, twenty subjects were selected from a large metropolitan area to interview. The results are appropriately reported.
Procedures for Analysis of Data

This study used a factorial design with four factors. One factor, the position held by the subject, was represented symbolically as P and consisted of two categories (teachers and administrators). Similarly, S represented the sex of the subject and contained two levels (male and female), and I represented the level of inducement and was subdivided into three levels: (a) no inducement, (b) a chance on a 50-dollar savings bond with probability of one in fifty of winning, and (c) a chance on a 50-dollar savings bond with probability of one in 200 of winning. The dependent variable represented the willingness of the subjects to participate in a survey study. One level of this variable represented the total number of postcards returned indicating a willingness to participate within three weeks of the date the survey packets were mailed while the other level indicated the number of subjects who were not willing to participate. These data are presented in tabular form in the next chapter.

The response rates by groups were calculated by dividing the appropriate total number of postcards returned by the appropriate number of packets sent. Any incomplete postcards were not used in these computations. Furthermore, any packets returned to the investigator without being delivered were not counted. These response rates are reported in tabular form.
In addition, the overall response rates of those willing to participate as well as those not willing to participate, but who returned the postcard anyway, were calculated by dividing the appropriate number of postcards returned by the total number sent. Likewise, any packets which could not be delivered were not used in these calculations.

In order to test the first hypothesis, the chi-square procedure for testing the significance of the differences between proportions for independent samples as described by Ferguson (4, pp. 186-187) was utilized. The data which are needed to conduct this test are reported in tabular form.

In searching the literature to find a statistical technique which is applicable to a four-way contingency table, one finds several different approaches. Doob, Freedman, and Carlsmith (3) reported a study using the arc sine transformation on the proportions of returns for the groups in a three-way contingency table. After the data were transformed, an analysis of variance (ANOVA) was done, thereby making it possible to test for both main effects and the interaction between the two variables. Furthermore, Wiseman (12) stated that most investigators use a controlled experimental design to ascertain the effect of the one variable under study. Without explaining the technique used, he reported a study involving a factorial design with four factors, each having two levels, to test for main and interaction effects among four variables.
On the other hand, Bishop, Fienberg, and Holland (1, p. 31) claimed that because of the complexity of multidimensional contingency tables, the tendency has been to give up and combine data by adding over the categories of all except two variables. Then, the technique involves examining a large number of two-way tables. However, they pointed out that this practice may be very misleading if any of the variables are interrelated (1, p. 47). Instead, they advocated the use of log-linear models which are descriptive of the full array.

Furthermore, Bock (2, p. 528) advocated the use of the log-linear models in the analysis of contingency data and claimed that the resulting analysis is the same, except for the computational techniques used, as that presented by Bishop, Fienberg, and Holland (1); Fienberg (6); and Goodman (7), who is responsible for the computer programs used in the present study. Also, Salomone and Miller (10, p. 23) reported the use of a linear model to analyze categorical data by testing for goodness-of-fit of the model. Therefore, they were able to test for the main effects and interactions in a $4 \times 2 \times 2$ factorial design.

The basic inferential tool for testing the other seven hypotheses (2 through 8) was multidimensional contingency analysis. The method as described by Bishop, Fienberg, and Holland (1) and also by Fienberg (6) involved partitioning a likelihood-ratio chi-square statistic and its degrees of
freedom into independent additive components because of given sources of variation. Thus, it was analogous to an analysis of variance and allowed for conditional tests of interaction between the experimental factors as well as for main effects when no significant interactions existed.

This method was used to analyze data sampled from a multinomial distribution. A log-linear model, a model with the log of the expected cell counts expressed as a linear function of the logs of the appropriate marginal totals, was fitted to the cell counts of the resultant contingency table. The hypothesis being tested determines which marginal totals are used in a model. An iterative proportional fitting procedure (1, pp. 83-97) was used to compute the expected cell counts given by the model. Actually, a hierarchy of models was fitted to the data, each model being a subset of the previous model. Thus, if an interaction term was in a model, all lower-order interaction and main-effect terms implied by the initial one must be included in the model. The log-likelihood ratio was used to test the goodness-of-fit of each of these models. Since the log-likelihood ratio statistic was partitioned into additive components, the differences between the hierarchy of models were tested. Hence, a "best" model which was dependent upon the hierarchy of models chosen was selected. The differences between the log-likelihood statistics of adjacent models allow for the testing of the magnitude of an interaction effect with the
differences in degrees of freedom of the models as degrees of freedom (1, pp. 136-155).

The general log-linear model of the data in a 2 X 2 X 3 X 2 contingency table is

$$\log m_{ijkl} = u + u_1(i) + u_2(j) + u_3(k) + u_4(l) + u_{12}(ij) + u_{13}(ik) + u_{14}(il) + u_{23}(jk) + u_{24}(jl) + u_{34}(kl) + u_{123}(ijk) + u_{124}(ijl) + u_{134}(ikl) + u_{234}(jkl) + u_{1234}(ijkl)$$

where $m_{ijkl}$ is the expected value of the corresponding cell under some model and the usual ANOVA-like constraints on the $u$-terms (5, pp. 24-26).

Since the effects of the independent variables (P, S, and I) upon the willingness to participate in a survey were the primary focus of this study, logit models which are a subset of the log-linear models are appropriate to use in the data analysis (5, p. 79). The design of the study was such that the three-dimensional marginal totals corresponding to the independent variables were fixed.

The general logit model for a four-way contingency table is

$$\text{logit } ijk = \log \frac{m_{ijkl}}{m_{ijkl}} = w + w_1(i) + w_2(j) + w_3(k) + w_{12}(ij) + w_{13}(ik) + w_{23}(jk) + w_{123}(ijk)$$

with the usual ANOVA-like constraints on the $w$-terms. However, since the three-dimensional marginal totals are fixed
by the experimental design, log-linear models are translated into logit models which are linear regression-like models. This procedure involved utilizing special cases of the above expression with iterative-proportional fitting of log-linear models, each of which has the terms $u_{1}$, $u_{2}$, $u_{3}$, $u_{12}$, $u_{13}$, $u_{23}$, and $u_{123}$ all included in them (5, p. 79).

The model selection procedure was similar to that described by Bishop, Fienberg, and Holland (1, pp. 155-168). The stepwise procedure used involved backward elimination, which was somewhat analogous to stepwise linear regression. The saturated model (i.e., the general log-linear model) was fitted to the data. The standardized estimated effects of each component of the model were calculated. The order selected for removal of the components was based on these values. The component which contributed least at each step was removed. The procedure was halted when the likelihood-ratio chi-square statistic of the last component removed or of the cumulative value of the components remaining in the model was significant at the .05 level. The model from the previous step was then selected as the "best" model (5, p. 50). The computer programs necessary for the analysis are available from the Department of Statistics at the University of Chicago. The name of the programs was Everyman's Contingency Table Analysis (ECTA).

In case of significant interactions, the "best" model was used to estimate the magnitude of the various components.
of the model so that an analysis of the main effects could be made. In this way, it was possible to discuss the main effects.

A discussion of the characteristics of the subjects who returned the postcards was possible, based on the information given there, and the appropriate descriptive statistics were calculated and reported. Furthermore, the reactions of the recipients of the incentive offered, as reported by the telephone follow-up of the random sample of those who did not return their postcards, were discussed.

Findings were summarized, and conclusions were drawn from the findings. Appropriate implications and recommendations are stated.


CHAPTER IV

ANALYSIS OF DATA AND FINDINGS

The data collected from this study are presented along with the analyses of data in this chapter. Furthermore, the findings based upon the data analysis are stated.

Of the 600 packets mailed out, thirty-six (6 per cent) were returned by the post office as undeliverable. Assuming that the others arrived at their intended destination, the number of subjects in the study was reduced to 564. The distribution of the subjects into groups is presented in Table I.

TABLE I

FREQUENCIES OF PACKETS SENT

<table>
<thead>
<tr>
<th>Position Held</th>
<th>Sex</th>
<th>$0</th>
<th>$50 Bond*</th>
<th>$50 Bond**</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>Female</td>
<td>50</td>
<td>45</td>
<td>46</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>43</td>
<td>46</td>
<td>44</td>
<td>133</td>
</tr>
<tr>
<td>Administrator</td>
<td>Female</td>
<td>48</td>
<td>49</td>
<td>47</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>50</td>
<td>48</td>
<td>48</td>
<td>146</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>191</td>
<td>188</td>
<td>185</td>
<td>564</td>
</tr>
</tbody>
</table>

*Probability of winning = 1 in 50.
**Probability of winning = 1 in 200.

Of the 564 subjects in the study, a total of 247 returned their postcards within three weeks of the date the
packets were originally mailed. Among the returned post-cards, there were 232 with an indication that the subject was willing to participate in the survey while the other fifteen contained evidence that the subject was not willing to participate. The highest number returned by a group was thirty by the male administrators offered a chance on the 50-dollar savings bond with a probability of winning one in fifty. On the other hand, the eleven returned by the male teachers offered no incentive represented the smallest number returned by a group. The total number of returns from female teachers was slightly higher than the number from male teachers. However, the number of returns from male teachers was considerably less than the number from male administrators. On the other hand, the total number of returns from teachers was smaller than the total number of returns from administrators. These data are presented in Table II.

**TABLE II**

OBSERVED FREQUENCIES OF POSTCARDS RETURNED

<table>
<thead>
<tr>
<th>Position Held</th>
<th>Sex</th>
<th>Level of Inducement</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$0</td>
<td>$50 Bond*</td>
</tr>
<tr>
<td>Teacher</td>
<td>Female</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Administrator</td>
<td>Female</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>63</td>
<td>85</td>
</tr>
</tbody>
</table>

*Probability of winning = 1 in 50.

**Probability of winning = 1 in 200.
The 332 subjects assumed not willing to participate included the fifteen who indicated their desires on a returned postcard. Also included in that number are the twenty-one who returned their postcards after the three-week deadline indicating a willingness to participate. The observed frequencies of subjects who did not indicate a willingness to participate are presented in Table III.

**TABLE III**

OBSERVED FREQUENCIES OF POSTCARDS NOT RETURNED

<table>
<thead>
<tr>
<th>P</th>
<th>S</th>
<th>I Level of Inducement</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sex</td>
<td>$0</td>
<td>$50 Bond*</td>
</tr>
<tr>
<td>Teacher</td>
<td>Female</td>
<td>37</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>Administrator</td>
<td>Female</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>29</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>128</td>
<td>103</td>
</tr>
</tbody>
</table>

*Probability of winning = 1 in 200.
**Probability of winning = 1 in 200.

The response rates for each group were calculated. They ranged from a low of 25.58 per cent for male teachers offered no incentive, to a high of 62.50 per cent of the male administrators offered a chance on a 50-dollar savings bond with a probability of one in fifty of winning. The response rates by group are presented in Table IV. Group membership is indicated by the level of each of the three factors. The position-held (P) factor has either an A for administrator
TABLE IV
RESPONSE RATES BY GROUP

<table>
<thead>
<tr>
<th>Group</th>
<th>Postcards Returned</th>
<th>Response Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>None</td>
<td>26.00</td>
</tr>
<tr>
<td>T</td>
<td>None</td>
<td>25.58</td>
</tr>
<tr>
<td>A</td>
<td>None</td>
<td>37.50</td>
</tr>
<tr>
<td>A</td>
<td>None</td>
<td>42.00</td>
</tr>
<tr>
<td>T</td>
<td>1/50</td>
<td>51.11</td>
</tr>
<tr>
<td>T</td>
<td>1/50</td>
<td>28.26</td>
</tr>
<tr>
<td>A</td>
<td>1/50</td>
<td>38.78</td>
</tr>
<tr>
<td>A</td>
<td>1/50</td>
<td>62.50</td>
</tr>
<tr>
<td>T</td>
<td>1/200</td>
<td>47.83</td>
</tr>
<tr>
<td>T</td>
<td>1/200</td>
<td>47.73</td>
</tr>
<tr>
<td>A</td>
<td>1/200</td>
<td>36.17</td>
</tr>
<tr>
<td>A</td>
<td>1/200</td>
<td>50.00</td>
</tr>
<tr>
<td>Total</td>
<td>232</td>
<td>41.13</td>
</tr>
</tbody>
</table>

or a T for teacher. The sex (S) factor is represented by either an F for female or an M for male. Furthermore, the level of inducement (I) factor is indicated by using the following designators: None for subjects receiving no inducement, 1/50 for subjects with a probability of one in fifty of winning a 50-dollar savings bond, and 1/200 for subjects with a probability of one in 200 of winning a 50-dollar savings bond.

The response rates from the groups which received no inducement ranged from a low of 25.58 per cent from male teachers to a high of 42.00 per cent from male administrators. Likewise, the response rate from female administrators was considerably more than the response rate
from female teachers. On the other hand, the response rate of male teachers was slightly less than the response rate of female teachers. However, the response rate of male administrators was greater than the response rate of female administrators.

The response rates from the groups who received a chance on the 50-dollar savings bond with a one-in-fifty probability of winning ranged from a low of 28.26 per cent of male teachers to 62.50 per cent of male administrators. Although the range is greater, this parallels the results among the groups not receiving an inducement. However, the response rate of female teachers was considerably more than the response rate of female administrators. Unlike the results among the no-inducement groups, the response rates from female teachers was considerably larger than the return rate from male teachers. Approximately the same difference existed between the response rates from the male and female administrators, although the difference was in the opposite direction among these groups.

The response rates from the groups who received a chance on the 50-dollar savings bond with a probability of one in 200 of winning ranged from a low of 36.17 per cent for female administrators to 50.00 per cent for male administrators. The response rates from these groups were higher than the corresponding groups who received no inducement except for the female administrators whose response rate was slightly
less than their counterparts who received no incentive. The response rates for male and female teachers were almost identical. There was a substantial difference between the response rates of male and female administrators. However, the response rates for male and female teachers were fairly close to the response rate for male administrators. One thing evident in these groups was that the response rate for the male teachers was much improved over male-teacher groups under the other levels of inducement.

Table V indicates the results of calculating the overall response rates. As it indicates, the overall response rate was 43.79 per cent. Among the returned postcards, there were 232 indicating a willingness to participate in the survey while fifteen indicated that they did not want to participate. Hence, the overall response rate of those willing to participate was 41.13 per cent. On the other hand, 2.66 per cent of the recipients responded by declaring their unwillingness to participate.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willing to participate</td>
<td>232</td>
<td>41.13</td>
</tr>
<tr>
<td>Not willing to participate</td>
<td>15</td>
<td>2.66</td>
</tr>
<tr>
<td>Grand total</td>
<td>247</td>
<td>43.79</td>
</tr>
</tbody>
</table>
Selection of "Best" Model

In order to facilitate the discussion of the results of the model-selection procedure and other inferential statistics, some notational conventions were adopted. In making references to the explanatory variables, [1] will be used to mean the effect due to the P (position held) factor, [2] will refer to the effect due to the S (sex) factor, and [3] will denote the effect due to the I (level of inducement) factor. Similarly, when referring to the response variable, willingness to participate, the notation [4] will be used. The fact that all models must contain all possible combinations of the P, S, and I factors is denoted by [1 2 3]. Thus, all log-linear models have the terms $u_1, u_2, u_3, u_{12}, u_{13}, u_{23}$, and $u_{123}$ included. This is necessary since the three-dimensional marginal totals are fixed by the experimental design.

The initial step in the model-selection process was to fit the saturated model. This model contains all possible combinations of the four variables. Thus, the model would be referred to as $[1 2 3 4]$. Hence, the fitted log-linear model states that

$$
\log m_{ijkl} = u + u_1(i) + u_2(j) + u_3(k) + u_4(l) + u_{12}(ij) \\
+ u_{13}(ik) + u_{14}(il) + u_{23}(jk) + u_{24}(jl) + u_{34}(kl) \\
+ u_{123}(ijk) + u_{124}(ijl) + u_{134}(ikl) + u_{234}(jkl) \\
+ u_{1234}(ijkl)
$$
with the usual ANOVA-like constraints on the u-terms. The estimated standardized values of the effects under the saturated model are given in Table VI. Due to the relative sizes of these estimated effects under the saturated model, the order of removal of the three-variable effects was [2 3 4], [1 3 4], and [1 2 4].

TABLE VI

ESTIMATED STANDARDIZED VALUES
FOR SATURATED MODEL

<table>
<thead>
<tr>
<th>Effect Due to Model Component</th>
<th>Estimated Standardized Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>u</td>
<td>3.113</td>
</tr>
<tr>
<td>u_{1(1)}</td>
<td>-1.090</td>
</tr>
<tr>
<td>u_{2(1)}</td>
<td>0.357</td>
</tr>
<tr>
<td>u_{3(1)}</td>
<td>-0.315</td>
</tr>
<tr>
<td>u_{3(2)}</td>
<td>0.045</td>
</tr>
<tr>
<td>u_{3(3)}</td>
<td>0.278</td>
</tr>
<tr>
<td>u_{4(1)}</td>
<td>-4.274</td>
</tr>
<tr>
<td>u_{12(1)}</td>
<td>0.712</td>
</tr>
<tr>
<td>u_{13(1)}</td>
<td>-0.550</td>
</tr>
<tr>
<td>u_{13(2)}</td>
<td>0.071</td>
</tr>
<tr>
<td>u_{13(3)}</td>
<td>0.494</td>
</tr>
<tr>
<td>u_{14(1)}</td>
<td>-1.729</td>
</tr>
<tr>
<td>u_{23(1)}</td>
<td>0.130</td>
</tr>
<tr>
<td>u_{23(2)}</td>
<td>0.187</td>
</tr>
<tr>
<td>u_{23(3)}</td>
<td>-0.322</td>
</tr>
<tr>
<td>u_{24(1)}</td>
<td>-0.681</td>
</tr>
</tbody>
</table>

The first unsaturated model which includes all three-way interaction terms was fitted to the data next. This
model included the following effects: \([1 \ 2 \ 3]\), \([1 \ 2 \ 4]\), 
\([1 \ 3 \ 4]\), and \([2 \ 3 \ 4]\). Thus, the log-linear model differs
from the saturated model since the \(u_{1234}\) term has been re-
moved. This model resulted in a likelihood-ratio chi-square
value of 4.48 with 2 degrees of freedom and a probability of
.106. This model fits the data very well.

Due to its relatively small effect, the \(u_{234}\) term was
removed to determine whether the resulting model fits. Thus,
the second unsaturated model included the following effects:
\([1 \ 2 \ 3]\), \([1 \ 2 \ 4]\), and \([1 \ 3 \ 4]\). Hence, it differs from the
first unsaturated model because of the removal of the \(u_{234}\)
term. Otherwise, the two models are identical. The likeli-
hood-ratio chi-square value for the second unsaturated model
was 4.95 with 4 degrees of freedom and \(p = .291\). Likewise,
this model fits the data.

The third unsaturated model was derived from the second
one by removing the \(u_{134}\) term because of its relatively small
contribution to the saturated model. Hence, the following
effects were included in this model: \([1 \ 2 \ 3]\), \([1 \ 2 \ 4]\), and
\([3 \ 4]\). Therefore, this model contains all terms contained
in the second unsaturated model except for the \(u_{134}\) term.
The value of the likelihood-ratio chi-square for this model
was 9.15 with 6 degrees of freedom and \(p = .166\). Conse-
quently, this model also fits the data quite well.

The \(u_{124}\) term was removed to form the fourth unsaturated
model. The effects included in this model are \([1 \ 2 \ 3]\),
[1 4], [2 4], and [3 4]. This model represents the model with all three-variable effects removed. The [1 2 3] effect cannot be removed from the model due to the experimental design. The only term contained in the third unsaturated model which this model does not have is the $u_{124}$ term. This model yielded a likelihood-ratio chi-square value of 16.03 with 7 degrees of freedom and $p = .025$. Hence, the likelihood-ratio chi-square is significant. The model selection procedure was terminated, and the "best" model was the third unsaturated model.

The model which fits the data best can be expressed in terms of a log-linear model as follows:

$$\log m_{ijkl} = u + u_1(i) + u_2(j) + u_3(k) + u_4(l) + u_{12}(ij) + u_{13}(ik) + u_{14}(il) + u_{23}(jk) + u_{24}(jl) + u_{34}(kl) + u_{123}(ijk) + u_{124}(ijl)$$

with the usual ANOVA-like constraints on the $u$-terms. The corresponding logit model can be stated as

$$\text{logit } ij = \log \frac{m_{ijkl}}{m_{ijk2}} = w + w_1(i) + w_2(j) + w_3(k) + w_{12}(ij)$$

with the usual ANOVA-like constraints on the $w$-terms. The estimated standardized values of the effects under the "best" model are stated in Table VII.

A summary of the model-selection procedure is contained in Table VIII. It lists the log-linear models fit to the data and the likelihood-ratio chi-square statistics.
### TABLE VII

**ESTIMATED STANDARDIZED VALUES FOR "BEST" MODEL**

<table>
<thead>
<tr>
<th>Effect Due to Model Component</th>
<th>Estimated Standardized Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$u$</td>
<td>3.122</td>
</tr>
<tr>
<td>$u_1(i)$</td>
<td>-0.882</td>
</tr>
<tr>
<td>$u_2(j)$</td>
<td>0.305</td>
</tr>
<tr>
<td>$u_3(1)$</td>
<td>-0.399</td>
</tr>
<tr>
<td>$u_3(2)$</td>
<td>0.335</td>
</tr>
<tr>
<td>$u_3(3)$</td>
<td>0.075</td>
</tr>
<tr>
<td>$u_4(1)$</td>
<td>-4.290</td>
</tr>
<tr>
<td>$u_{12}(ij)$</td>
<td>0.832</td>
</tr>
<tr>
<td>$u_{13}(il)$</td>
<td>-0.175</td>
</tr>
<tr>
<td>$u_{13}(i2)$</td>
<td>0.050</td>
</tr>
<tr>
<td>$u_{13}(i3)$</td>
<td>0.130</td>
</tr>
<tr>
<td>$u_{14}(il)$</td>
<td>-1.660</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effect Due to Model Component</th>
<th>Estimated Standardized Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$u_{23}(ji)$</td>
<td>0.171</td>
</tr>
<tr>
<td>$u_{23}(j2)$</td>
<td>-0.139</td>
</tr>
<tr>
<td>$u_{23}(j3)$</td>
<td>-0.037</td>
</tr>
<tr>
<td>$u_{24}(jl)$</td>
<td>-0.703</td>
</tr>
<tr>
<td>$u_{34}(i1)$</td>
<td>-2.852</td>
</tr>
<tr>
<td>$u_{34}(i2)$</td>
<td>1.457</td>
</tr>
<tr>
<td>$u_{34}(i3)$</td>
<td>1.474</td>
</tr>
<tr>
<td>$u_{123}(ijl)$</td>
<td>0.784</td>
</tr>
<tr>
<td>$u_{123}(ij2)$</td>
<td>-0.623</td>
</tr>
<tr>
<td>$u_{123}(ij3)$</td>
<td>-0.183</td>
</tr>
<tr>
<td>$u_{124}(ijl)$</td>
<td>2.609</td>
</tr>
</tbody>
</table>

### TABLE VIII

**LOG-LINEAR MODELS FIT TO DATA WITH LIKELIHOOD-RATIO CHI-SQUARE STATISTICS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Likelihood-Ratio Chi-Square</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1 2 3] [1 2 4] [1 3 4] [2 3 4]</td>
<td>4.48</td>
<td>2</td>
<td>.106</td>
</tr>
<tr>
<td>[1 2 3] [1 2 4] [1 3 4]</td>
<td>4.95</td>
<td>4</td>
<td>.291</td>
</tr>
<tr>
<td>[1 2 3] [1 2 4] [3 4]</td>
<td>9.15</td>
<td>6</td>
<td>.166</td>
</tr>
<tr>
<td>[1 2 3] [1 4] [2 4] [3 4]</td>
<td>16.03</td>
<td>7</td>
<td>.025</td>
</tr>
</tbody>
</table>

Results as Related to Study Hypotheses

The purposes of this study were (1) to determine the effect of a monetary incentive upon the willingness of
educators to participate in a descriptive research study and (2) to analyze the implications of the effect in relation to studies in education which utilize the mail questionnaire. In order to accomplish the purposes of this study, eight hypotheses (Chapter I, pp. 7-9) were formulated. The results as related to each hypothesis will now be discussed.

Hypothesis 1 stated that the proportion of all postcards returned by the subjects who were offered a chance on the monetary incentive for participation in this study would be significantly greater than the proportion of all postcards returned by the subjects who were not offered any special inducement. To test this hypothesis, the chi-square procedure for testing the significance of the difference between proportions for independent samples was utilized. The calculated value of chi-square was 7.92 with 1 degree of freedom. Since the chi-square value is significant at better than the .01 level, the hypothesis of no difference in the proportions of all postcards returned by the subjects offered a chance on the monetary incentive for participation in the study and all postcards returned by the subjects who were not offered any special inducement was rejected. Since the proportion (0.453) returned by groups receiving a monetary incentive was larger than the proportion (0.330) returned by the group not receiving any incentive, the first research hypothesis was accepted. Data needed for the calculations
related to this hypothesis are given in Table IX, which lists the observed frequencies of postcards.

TABLE IX

OBSERVED FREQUENCIES OF POSTCARDS

<table>
<thead>
<tr>
<th>Offering</th>
<th>Returned</th>
<th>Not Returned</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentive</td>
<td>169</td>
<td>204</td>
<td>373</td>
</tr>
<tr>
<td>No incentive</td>
<td>63</td>
<td>128</td>
<td>191</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>232</strong></td>
<td><strong>332</strong></td>
<td><strong>564</strong></td>
</tr>
</tbody>
</table>

The testing of Hypotheses 2 through 8 involved the use of log-linear models. The comparison of two adjacent models in a hierarchy of log-linear models was used to determine whether the term included in one model, but not in the other, was significantly different from zero. The process involved determining the differences between the degrees of freedom associated with the two adjacent models.

Hypothesis 2 stated that the main effect due to the chance on the monetary incentive as an inducement would be significant upon the total number of postcards returned, indicating a willingness to participate in the study. The models needed to test this hypothesis along with the corresponding goodness-of-fit statistics are listed in Table X. The residual likelihood-ratio chi-square value of 8.43 has 2 degrees of freedom and is significant at the .02 level. Hence, the data indicate that the main effect due to the
monetary incentive is not zero. Hence, this hypothesis cannot be rejected based on the data from this study.

**TABLE X**

GOODNESS-OF-FIT STATISTICS FOR HYPOTHESIS 2 MODELS

<table>
<thead>
<tr>
<th>Model Effects</th>
<th>df</th>
<th>Likelihood-Ratio Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1 2 3] [1 2 4]</td>
<td>8</td>
<td>17.58</td>
</tr>
<tr>
<td>[1 2 3] [1 2 4] [3 4]</td>
<td>6</td>
<td>9.15</td>
</tr>
<tr>
<td>Difference between Models</td>
<td>2</td>
<td>8.43</td>
</tr>
</tbody>
</table>

Hypothesis 3 stated that the main effect due to the position of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. Since the "best" model includes a term involving the interaction between the position and the sex of the respondent, this hypothesis was not tested. However, as was stated in Table VII, the estimated standardized value of the effect due to the position held by the respondent upon willingness to participate was -1.660 under the "best" model. Hence, the main effect of position appears to have a fairly large negative effect on willingness to participate.

Hypothesis 4 stated that the main effect due to the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. Again, due to the inclusion of an
interaction term in the "best" model involving the sex and the position of the respondent, this hypothesis was not tested. The estimated standardized value of the effect due to the sex of the respondent was -0.703, as was stated in Table VII. Thus, a relatively small negative effect due to the sex of the respondent was present in the "best" model fitted to the data from this study. The effect of the position of the respondent appears to be larger than the effect of the sex of the respondent upon willingness to participate.

Hypothesis 5 predicted that the interaction effect between the chance on the monetary incentive as an inducement and the position held by the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. The models needed to test this hypothesis along with the corresponding goodness-of-fit statistics are listed in Table XI. The residual likelihood-ratio chi-square value of 4.20 has 2 degrees of freedom with a probability greater than .10. Hence,

**TABLE XI**

GOODNESS-OF-FIT STATISTICS FOR HYPOTHESIS 5 MODELS

<table>
<thead>
<tr>
<th>Model Effects</th>
<th>df</th>
<th>Likelihood-Ratio Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1 2 3] [1 2 4] [3 4]</td>
<td>6</td>
<td>9.15</td>
</tr>
<tr>
<td>[1 2 3] [1 2 4] [1 3 4]</td>
<td>4</td>
<td>4.95</td>
</tr>
<tr>
<td>Difference between models</td>
<td>2</td>
<td>4.20</td>
</tr>
</tbody>
</table>
this value is not significant. Therefore, the data support
the hypothesis that the interaction effect between the in-
centive offered and the position held by the respondent is
equal to zero. This hypothesis was accepted based on the
data from this study.

Hypothesis 6 stated that the interaction effect between
the chance on the monetary incentive as an inducement and
the sex of the respondent would not be significant upon the
total number of postcards returned, indicating a willingness
to participate in the study. The models needed to test this
hypothesis along with the corresponding goodness-of-fit
statistics are given in Table XII. The residual likelihood-
ratio chi-square value of 0.47 with 2 degrees of freedom has
a p-value greater than .70. Therefore, it is not signifi-
cant, which indicates that the data support the hypothesis
that the interaction effect between the monetary incentive
and the sex of the respondent is equal to zero. This re-
search hypothesis was accepted based on the data from this
study.

TABLE XII
GOODNESS-OF-FIT STATISTICS FOR HYPOTHESIS 6 MODELS

<table>
<thead>
<tr>
<th>Model Effects</th>
<th>df</th>
<th>Likelihood-Ratio Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1 2 3] [1 2 4] [1 3 4]</td>
<td>4</td>
<td>4.95</td>
</tr>
<tr>
<td>[1 2 3] [1 2 4] [1 3 4] [2 3 4]</td>
<td>2</td>
<td>4.48</td>
</tr>
<tr>
<td>Difference between models</td>
<td>2</td>
<td>0.47</td>
</tr>
</tbody>
</table>
Hypothesis 7 stated that the interaction effect between the position of the respondent and the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. The models needed to test this hypothesis and the corresponding goodness-of-fit statistics are stated in Table XIII. The residual likelihood-ratio chi-square value of 6.88 with 1 degree of freedom is significant at the .01 level. Hence, the null hypothesis that this interaction effect is equal to zero is contradicted by the data. Therefore, the research hypothesis is rejected based on the data from this study. There was a nonzero interaction effect between the position and the sex of the respondent upon the respondent's willingness to participate in this study.

### TABLE XIII

**GOODNESS-OF-FIT STATISTICS FOR HYPOTHESIS 7 MODELS**

<table>
<thead>
<tr>
<th>Model Effects</th>
<th>df</th>
<th>Likelihood-Ratio Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1 2 3] [1 4] [2 4] [3 4]</td>
<td>7</td>
<td>16.03</td>
</tr>
<tr>
<td>[1 2 3] [1 2 4] [3 4]</td>
<td>6</td>
<td>9.15</td>
</tr>
<tr>
<td>Difference between models</td>
<td>1</td>
<td>6.88</td>
</tr>
</tbody>
</table>

Hypothesis 8 claimed that the interaction effect among the chance on the monetary incentive as an inducement, the position of the respondent, and the sex of the respondent would not be significant upon the total number of postcards
returned, indicating a willingness to participate in the study. To test this hypothesis, a model which included all three-way interaction terms was fit to the data. This means that the effects included in the model were \([1 \ 2 \ 3], [1 \ 2 \ 4], [1 \ 3 \ 4], \text{ and } [2 \ 3 \ 4]\). The likelihood-ratio chi-square value of \(4.48\) with \(1\) degree of freedom has a probability of \(.106\). Thus, the model fits the data quite well. Hence, this is interpreted to mean that the interaction effect among the incentive, the position held by the respondent, and the sex of the respondent is nil. Therefore, the research hypothesis is not rejected as it is supported by the data.

Characteristics of the Respondents

The postcards returned by the respondents requested that other information besides the answer to the question about willingness to participate in the study be provided. The additional information included the number of years in the educational field, the level of teaching or administrative assignment, and the highest degree held. Only selected responses were provided as alternative answers for the latter two.

In an attempt to gain insight into the characteristics of the respondents who were willing to participate in the study, the information from the 232 respondents was compiled. Descriptive statistics were computed. Included in these data was the average number of years in the educational field. An overall average for all respondents as well as
the averages for the incentive and no-incentive groups, the female and male groups, and the administrator and teacher groups are reported in Table XIV. The overall average number of years in the educational field for the respondents to this study was 16.78.

TABLE XIV

AVERAGE NUMBER OF YEARS IN EDUCATIONAL FIELD OF RESPONDENTS BY GROUP

<table>
<thead>
<tr>
<th>Group</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>16.78</td>
</tr>
<tr>
<td>Incentive</td>
<td>17.51</td>
</tr>
<tr>
<td>No-Incentive</td>
<td>14.75</td>
</tr>
<tr>
<td>Females</td>
<td>15.88</td>
</tr>
<tr>
<td>Males</td>
<td>17.66</td>
</tr>
<tr>
<td>Teachers</td>
<td>11.19</td>
</tr>
<tr>
<td>Administrators</td>
<td>21.41</td>
</tr>
</tbody>
</table>

Likewise, the data gathered concerning the level of teaching or administrative assignment were compiled. The two categories used for teaching assignments are elementary and secondary. The three categories used for administrative assignments are elementary, secondary, and central office. The compiled data are presented in Table XV by the same groupings used to report the average number of years in the educational field. The totals in the table add up to more than the number of respondents due to the multiple assignments listed for some respondents.
TABLE XV

LEVEL OF ASSIGNMENT OF RESPONDENTS BY GROUP

<table>
<thead>
<tr>
<th>Group</th>
<th>Assignment</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elementary</td>
<td>Secondary</td>
<td>Central Office</td>
</tr>
<tr>
<td>Overall</td>
<td>84</td>
<td>110</td>
<td>43</td>
</tr>
<tr>
<td>No-Incentive</td>
<td>29</td>
<td>26</td>
<td>10</td>
</tr>
<tr>
<td>Incentive</td>
<td>55</td>
<td>84</td>
<td>33</td>
</tr>
<tr>
<td>Females</td>
<td>49</td>
<td>46</td>
<td>22</td>
</tr>
<tr>
<td>Males</td>
<td>35</td>
<td>64</td>
<td>21</td>
</tr>
<tr>
<td>Teachers</td>
<td>43</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Administrators</td>
<td>41</td>
<td>47</td>
<td>43</td>
</tr>
</tbody>
</table>

Also, the data concerning the highest degree held by each respondent were compiled. Again, due to some respondents holding multiple degrees at the same level, the totals reported here may exceed the number of respondents. The degree categories used here are as reported in Table XVI, which presents the compiled data for the highest degree held by the respondents by selected groups. The same groupings used above are included here.

TABLE XVI

HIGHEST DEGREE HELD BY RESPONDENTS BY GROUP

<table>
<thead>
<tr>
<th>Group</th>
<th>Degree</th>
<th>B.S.</th>
<th>B.A.</th>
<th>M.S.</th>
<th>M.A.</th>
<th>M.Ed.</th>
<th>Ed.D.</th>
<th>Ph.D.</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td>29</td>
<td>16</td>
<td>39</td>
<td>26</td>
<td>95</td>
<td>15</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>No-Incentive</td>
<td></td>
<td>7</td>
<td>2</td>
<td>9</td>
<td>9</td>
<td>30</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Incentive</td>
<td></td>
<td>22</td>
<td>14</td>
<td>30</td>
<td>17</td>
<td>65</td>
<td>12</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td>16</td>
<td>12</td>
<td>7</td>
<td>16</td>
<td>46</td>
<td>7</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Males</td>
<td></td>
<td>13</td>
<td>4</td>
<td>32</td>
<td>10</td>
<td>49</td>
<td>8</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Teachers</td>
<td></td>
<td>28</td>
<td>13</td>
<td>11</td>
<td>9</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Administrators</td>
<td></td>
<td>1</td>
<td>3</td>
<td>28</td>
<td>17</td>
<td>55</td>
<td>15</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>
Postcards Received after Processing Deadline

In addition to the 232 respondents who returned their postcards within three weeks of the date the survey packets were mailed, twenty-two postcards were returned after the deadline for inclusion in the statistical analysis as willing to participate. Of the late arrivals, twenty-one indicated a willingness to participate whereas only one who returned the postcard late was not willing to participate in the study. Of course, all twenty-two were counted as not being willing to participate in all data analyses presented heretofore. Table XVII contains the data concerning late returns as compiled by selected groups. It is interesting to note that fifteen of those late postcards indicating a willingness to participate were from respondents in the incentive group promised a one-in-fifty chance of winning a 50-dollar savings bond for participation in the study.

**TABLE XVII**

NUMBER OF LATE-RETURNED POSTCARDS COMPILED BY SELECTED GROUPS

<table>
<thead>
<tr>
<th>Group</th>
<th>Willing to Participate</th>
<th>Not Willing to Participate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>No-Incentive</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Incentive</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Females</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Males</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Teachers</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Administrators</td>
<td>9</td>
<td>1</td>
</tr>
</tbody>
</table>
Reactions to Incentive by Recipients
Not Willing to Participate

It was proposed that the reactions of the recipients of the incentive offered who did not return their postcards be compiled and reported. A random sample of twenty recipients in the incentive groups who did not return their postcards was selected from a large metropolitan area. On two separate occasions, attempts were made to interview these subjects by telephone. The majority claimed that they had not received the survey packet. A few stated that they had already returned the postcard agreeing to participate. A few others promised to send the postcard that day. None of these postcards was received. This phase of the study was abandoned due to the inability to complete it.
CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS,
AND RECOMMENDATIONS

Summary

The mail questionnaire is a frequently used data-gathering device in the social sciences, including education, and in business, especially in marketing and advertising. Since the response rate affects the validity of surveys utilizing the mail questionnaire, this exploratory study was designed to analyze the effect of a monetary incentive upon the return rate.

The problem investigated in this study was the assessment of educators' willingness to participate in a descriptive research study as a function of a monetary incentive. In order to achieve the purpose of this study, a stratified sample of 600 subjects was systematically selected from the directories of eleven selected public schools of north Texas. The study sample was composed of an equal number of male and female teachers and administrators. All female administrators in the school districts used in the study were included in the study sample because of the small number of them employed by the selected school districts. Each subject was assigned to one of the twelve treatment groups in such a way that no two educators from the same
school were placed in groups with different levels of the inducement variable. The treatment variable, the incentive used, had three levels. Hence, four of the twelve treatment groups received one of the three levels of the incentive. One level of the treatment variable consisted of not offering the subjects any added incentive. The other two levels concerned the promise of a chance on a 50-dollar savings bond with two different probabilities of winning. One level involved a probability of one in fifty of winning, whereas the other level included one in 200 as the probability of winning. Subjects were informed of this information through the cover letters sent with the survey packets.

Since the main thrust of this study was the effect of a monetary incentive upon the subjects' willingness to participate in a descriptive research study, the survey packets did not include a questionnaire. Instead, a postcard was sent to be returned by those willing to participate, with instructions given in the enclosed cover letter. The 600 survey packets were sent by first-class mail on the same day from the same post office. The postcards also had a first-class postage stamp attached to them.

The post office returned thirty-six of the 600 packets mailed out, as undeliverable. Thus, the number of subjects in the study was reduced to 564. A total of 247 postcards was returned by the remaining subjects in the study sample within three weeks of the date the packets were mailed. This
represented an overall response rate of 43.79 per cent. Of the returned postcards, 232 indicated a willingness to participate in the survey. Thus, 41.13 per cent was the response rate of the subjects who were willing to participate in the survey. The response rates by group ranged from a low of 25.58 per cent for male teachers who were not offered an incentive, to a high 62.50 per cent for male administrators offered a chance on a 50-dollar savings bond with a probability of one in fifty of winning.

The total number of postcards returned by female teachers was slightly more than the number returned by male teachers. However, the number of postcards returned by male teachers was substantially less than the number returned by male administrators. Furthermore, the total number of postcards returned from teachers was smaller than the total number of postcards returned from administrators. Likewise, the total number of postcards returned by males exceeded slightly the total number of postcards returned by females. On the other hand, the total number of postcards returned by the groups offered no incentives was considerably less than the total number of postcards returned from either the groups offered an incentive with a probability of one in fifty of winning or the groups offered an incentive with a probability of one in 200 of winning. The total number of postcards returned from the two sets of groups offered incentives was almost identical for the two probability levels of winning.
The statistical treatment of the data secured by this study involved the selection of the "best" model which describes the data best. The logit model selected included the main effects of the position held by the subject, the sex of the subject, the level of inducement used, and the interaction effect between the position held and the sex of the respondent.

Analysis of the demographic data obtained from the answers of questions on the returned postcards revealed some characteristics of the respondents to this study. The overall average number of years in the educational field of the respondents was 16.78. The overall level of teaching or administrative assignment indicated that more of the respondents were assigned positions on the secondary level. Likewise, the highest degree held by the majority of the respondents was the Master of Education.

Conclusions

The conclusions resulting from this study are based on the results of the use of inferential statistics to test the study hypotheses. The statistics involved the chi-square procedure for testing the significance of the difference between proportions for independent samples and logit models which are special cases of log-linear models.

Hypothesis 1 stated that the proportion of all postcards returned by the subjects who were offered a chance on the monetary incentive for participation in this study would be
significantly greater than the proportion of all postcards returned by the subjects who were not offered any special inducement. Since the proportion returned by the groups receiving a monetary incentive was larger than the proportion returned by the group not receiving any incentive and the calculated chi-square value associated with this test was significant, the first research hypothesis was not rejected.

Hypothesis 2 stated that the main effect due to the chance on the monetary incentive as an inducement would be significant upon the total number of postcards returned, indicating a willingness to participate in the study. The corresponding logit-model analysis revealed that the main effect due to the monetary incentive was not zero. Hence, the data from this study do not warrant the rejection of the second hypothesis.

Hypothesis 3 stated that the main effect due to the position of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. A direct test for this hypothesis was not done due to the presence of an interaction effect between the position and the sex of the respondent in the "best" model representing the data. Instead, analysis of the estimated standardized values of effects for the "best" model indicated a fairly large negative effect on willingness to participate by the position of the respondent.
Hypothesis 4 stated that the main effect due to the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. For the same reason stated above, this hypothesis was not directly tested. However, a relatively small negative effect due to the sex of the respondent was revealed by the analysis of the estimated standardized values of effects for the "best" model fitted to the data from this study.

Hypothesis 5 stated that the interaction effect between the chance on the monetary incentive as an inducement and the position held by the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. The corresponding logit-model analysis found this interaction effect was not significantly different from zero. Therefore, the rejection of the fifth research hypothesis was not justified by the data from this study.

Hypothesis 6 stated that the interaction effect between the chance on the monetary incentive as an inducement and the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. The corresponding logit-model analysis revealed that this interaction effect was not significantly different from zero. Hence, the data from this
study did not suggest rejection of the sixth research hypothesis.

Hypothesis 7 stated that the interaction effect between the position of the respondent and the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. The corresponding logit-model analysis indicated this interaction effect was not zero. Thus, the seventh research hypothesis was rejected since one term in the "best" model was the interaction effect between the position held by and the sex of the respondent.

Hypothesis 8 stated that the interaction effect among the chance on the monetary incentive as an inducement, the position of the respondent, and the sex of the respondent would not be significant upon the total number of postcards returned, indicating a willingness to participate in the study. The corresponding logit-model analysis showed that this three-way interaction was nil in its effect upon the subjects' willingness to participate in this study. Hence, the data supported the eighth research hypothesis.

Implications

The implications of the results of this study are varied. Overall, the largest difference in response rate was evident when comparing the groups who received a monetary incentive with those who received no incentive. Groups receiving the monetary incentive responded more frequently than
those who did not receive any incentive. The difference was smaller when comparing the overall response rates of administrators with those of teachers. Administrators responded in larger numbers than did teachers. An even smaller difference existed between the overall response rates of males and females. The males responded more frequently than the females. The difference between the response rates for the two levels of incentives was very small. However, the groups offered an incentive with a probability of one in 200 of winning had a larger response rate than the groups offered an incentive with a probability of one in fifty of winning. Thus, the incentive used was the most important factor in affecting the response rate. The position held was the second most important factor with the sex of the respondent contributing the least of the factors studied.

For the male educators in this study, the position of the respondent was more important than whether or not an incentive was used. The administrators responded more than the teachers and those who received an incentive responded more often than those who did not.

For the female educators in this study, the offering of an incentive was more important than the position of the respondent in determining the response rate. The groups offered an incentive had a greater response rate than those not offered any incentive. However, this difference was slightly less than that for the male educators. On the
other hand, the response rate from teachers was greater than for administrators.

The factors which contributed to the larger increase in response rates were reversed for male and female educators. The larger increase in response rates among male educators was associated with the position of the respondent, whereas the level of the incentive used was associated with the larger increase in response rates among female educators. However, the amounts of increase in response rates associated with the level of the incentive used were almost the same for male and female educators in this study.

For the administrators in this study, the sex of the respondent was more important in increasing the response rate than the level of the incentive used. The response rate for males was greater than for females. Also, the groups who received an incentive responded in greater numbers than those not offered an incentive.

For the teachers in this study, the level of the incentive used was more beneficial in increasing the response rate than the sex of the respondent. The response rate for those groups offered an incentive was greater than for those groups not offered an incentive. Likewise, the response rate for females was greater than for males.

The factors which contributed to the larger increase in response rates for administrators were reversed for the
teachers. Sex of the respondent was associated with the larger increase among administrators, whereas the level of the incentive used was associated with the larger increase among teachers.

For the groups not offered any incentive, the larger increase in response rates was associated with the position of the respondent. Administrators were more inclined to respond than were teachers. The sex of the respondent had a smaller impact with males responding at a larger rate than females.

For the groups who were offered a chance on a monetary incentive with a probability of one in fifty of winning, the position held by the respondent was responsible for a larger difference in the response rate than was the sex of the respondent. The administrators responded in a larger proportion than did teachers. Furthermore, the response rate among males was only slightly higher than among females.

For the groups who were offered a chance on a monetary incentive with a probability of one in 200 of winning, the sex of the respondent yielded a larger difference in response rate than did the position of the respondent. The males responded in higher proportions than the females. Likewise, teachers responded in greater numbers than did administrators.

Again, factors which contributed to the larger increase in response rates for the groups offered a one-in-fifty chance of winning a monetary prize were reversed for those
with a one-in-200 chance of winning a monetary prize. Position held by the respondent was associated with the larger increase among those with a one-in-fifty probability of winning, whereas the sex of the respondent was associated with the larger increase among those with a one-in-200 probability of winning.

In summary, the results of this study indicate that the use of a chance on monetary incentive increased the response rate. The difference in response rate between the different levels of the incentive used was minimal. The position held by the respondent had a greater effect on the response rate than did the sex of the respondent. An interaction effect between the sex and the position held by the respondent was present in this study.

Recommendations

This study was exploratory in nature. More research is needed to assess the willingness of educators to participate in descriptive research studies as a function of a monetary incentive. No empirically based body of knowledge exists which fully explains all ramifications and dynamics of the use of the mail questionnaire to gather data. Yet there is a need for the collection of data which can best be done by using a mail questionnaire. Thus, researchers need to learn how to maximize the technique's strong points while minimizing its weaknesses.
One area of needed research involves utilizing the technique used in this study in studies where questionnaires are actually sent to the respondents. It would be instructive to know whether or not all who promised to participate would follow through. Likewise, the use of the technique with different types of questionnaires should be enlightening.

Another aspect of this study which needs attention is the use of different monetary, as well as nonmonetary, incentives. Also, the use of other study populations involving greater geographical dispersion would be instructive. Perhaps the results of this study apply only to this population from which the sample was drawn. Thus, other sampling techniques should be employed to further assess the effectiveness of the inducement used to try to encourage high rates of return. Other proven techniques, such as the use of follow-up mailings, should be used in conjunction with the present technique.

Studies utilizing different explanatory variables are needed in conjunction with this technique. The effect of mailing out the study packet at other times of the year would be helpful. Similarly, the effect of using different deadlines for processing data should be analyzed.

The attempts made in this study to assess the characteristics of the nonrespondents were not successful. Better techniques need to be devised to allow the assessment of these characteristics and the reasons for nonresponse.
This study did not attempt to determine the incremental cost of the technique. This must be evaluated in order to assess the usefulness of the technique. Similarly, the effect of the technique upon the quality of the responses needs investigation. Likewise, the effect of the technique upon the response bias must be analyzed. Finally, more studies involving interaction effects are needed.

Although much research has been done on the mail questionnaire, much more is needed. However, the research studies need to be planned and executed better than some have been in the past. The use of any technique to increase response rates should be undertaken only after careful consideration of the possible consequences of its use.
APPENDIX
Will you do us a favor?

We are designing a study to assess the attitudes of educators about the problems facing the public schools in Texas during the next decade. Would you be willing to participate in such a study by answering a short questionnaire (about 20 minutes) which will be sent to you later?

Your name appeared in a systematic sample. Your answers are very important to the accuracy of our research and will be kept confidential and used only in combination with others to get a composite picture.

We enclose a stamped, self-addressed postcard for your convenience. Will you please take a moment now to answer the few short questions on it? If you are willing to participate in the planned study, please indicate so on the reply postcard.

Please return the completed postcard at your earliest convenience. Thank you for your valuable assistance.

Sincerely,

Doyle Pittman
Assistant Professor

All expenses related to this project have been paid by private sources.
Will you do us a favor?

We are designing a study to assess the attitudes of educators about the problems facing the public schools in Texas during the next decade. Would you be willing to participate in such a study by answering a short questionnaire (about 20 minutes) which will be sent to you later?

Your name appeared in a systematic sample. Your answers are very important to the accuracy of our research and will be kept confidential and used only in combination with others to get a composite picture.

We enclose a stamped, self-addressed postcard for your convenience. Will you please take a moment now to answer the few short questions on it? If you are willing to participate in the planned study, please indicate so on the reply postcard. A $50 U.S. Savings Bond will be awarded to a randomly selected participant in the study.* This is just a token of our appreciation for your time and effort involved in making this commitment.

Please return the completed postcard at your earliest convenience. Thank you for your valuable assistance.

Sincerely,

Doyle Pittman
Assistant Professor

*You have one chance out of fifty of being the winner. All expenses related to this project have been paid by private sources.
Will you do us a favor?

We are designing a study to assess the attitudes of educators about the problems facing the public schools in Texas during the next decade. Would you be willing to participate in such a study by answering a short questionnaire (about 20 minutes) which will be sent to you later?

Your name appeared in a systematic sample. Your answers are very important to the accuracy of our research and will be kept confidential and used only in combination with others to get a composite picture.

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Please return the completed postcard at your earliest convenience. Thank you for your valuable assistance.

Sincerely,

Doyle Pittman
Assistant Professor

*You have one chance out of two hundred of being the winner. All expenses related to this project have been paid by private sources.
PLEASE ANSWER THE FOLLOWING QUESTIONS.

* I am willing to participate in this study.
  YES    NO

* I have been in the educational field for ___ years (including the present year).

* Teaching Assignment OR Administrative Assignment
  ___ ELEMENTARY     ___ ELEMENTARY
  ___ SECONDARY      ___ SECONDARY
  ___ CENTRAL OFFICE

* Circle the highest degree which you hold:
  B.S.  B.A.  M.S.  M.A.  M.Ed.  M.A.T.
  Ed.D.  Ph.D.  OTHER (SPECIFY) ___
APPENDIX B

Interview Guide

Hello! I am Doyle Pittman of East Texas State University.

1. Are you _______________? YES NO
   Name of subject
   (If response is NO, extend regrets and terminate the interview.)

I recently mailed you a packet requesting that you help me by agreeing to participate in a descriptive research study which will assess the attitudes of educators about the problems facing the public schools in Texas during the next decade.

2. Did you receive the packet? YES NO
   (If the answer is NO, go to number 13.)

3. I have not received a reply at this time. Have you returned the enclosed postcard? YES NO
   (If the answer is YES, go to number 13.)

4. Am I correct in assuming that you are not willing to participate in the study? YES NO
   (If NO, ask them to return postcard as soon as possible and go to 13.)

5. Did the incentive influence your decision in any way? YES NO

6. Would you share with me the reason for your choosing not to participate in the study? YES NO
   (If NO, record the reason as no response and go to number 13.)

7. What was the reason for your decision?

8. Would you give me some more information about yourself? YES NO
   (If NO, record the answers to the following questions as no response and go to number 13.)
9. How many years have you been in the educational field?

10. What is your present position? ___ TEACHER
    ___ ADMINISTRATOR

11. What is the level of your assignment?
    Teaching assignment OR Administrative assignment
    ___ ELEMENTARY
    ___ ELEMENTARY
    ___ SECONDARY
    ___ SECONDARY
    ___ CENTRAL OFFICE

12. What is the highest earned degree which you hold?
    OTHER (Specify) ___________

13. It has been a pleasure talking with you. Thank you for your time and assistance. Good-by.
Books


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ERIC Documents


Unpublished Materials


