MAIL QUESTIONNAIRE RESPONSE BEHAVIOR AS A FUNCTION OF MOTIVATIONAL TREATMENT

by

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Abstract

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This investigation was designed to reveal (1) whether systematic manipulation of basic motivational treatments affects the response rates to mail questionnaires and (2) whether people respond selectively to different motivational stimuli in mail questionnaires as a function of the psychological values they hold. To test these hypotheses, a sample of 1100 plant management executives was randomly assigned to four experimental groups. Each group was sent a similar mailing consisting of a cover letter, a questionnaire which included three standardized personality scales, and a stamped, preaddressed return envelope. Four different motivational treatments were operationalized within the postscripts of the cover letters and directed, respectively, to each of the subsamples. The postscripts were the only differential treatment accorded the experimental groups. The response rates achieved were significant at the $p < .001$ level and supported the hypothesis

that response rates differ as a function of motivational treatment. No significant relationships were found among the socioeconomic, demographic or personality variables measured by the questionnaire. A tentative model based on obligation theory was developed to explain why the inclusion of a trivial monetary reward induced a larger proportion of middle and top management executives to respond to an hour-long questionnaire than would reasonably be expected by chance alone.

Other theoretical implications are explored in an attempt to develop an underlying theory and a conceptual framework which would explain how isolated empirical techniques serve to influence mail questionnaire response behavior.

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CHAPTER I

THE MAIL QUESTIONNAIRE SURVEY

INTRODUCTION

Data gathering by mail has many advantages for social science researchers. Its major disadvantage is a low response rate, with the attendant problems of response bias and nonresponse bias. Many efforts to increase the response rate to mail questionnaires are found in the literature; however, they deal with specific techniques. There is little underlying theory and no systematic body of knowledge which explains why these techniques work. No studies have been located which relate specific techniques to underlying human motives except in an intuitive sense. Few findings are related to scientific theory. The development of a theoretical framework based on psychological theory which explains why individuals respond to mail questionnaires would make a great contribution to survey methodology because it would enable researchers to selectively choose those techniques which are most effective in stimulating response from the population under study.

PURPOSE OF THE RESEARCH

This study was designed to reveal (1) whether systematic manipulation of basic motivational treatments affects the response rate to mail questionnaires, and (2) whether

people respond selectively to different motivational stimuli as a function of their individual personality characteristics.

If changes in motivational treatment are found to selectively appeal to respondents with different psychological values, then researchers may have been inadvertently biasing the results of mail surveys by the type of motivational technique employed to increase the response rate. As a result, survey findings may have provided inaccurate information to research users, thus limiting the validity and more predictive utility of the mail survey technique.

It is hoped that this study will help shed new light on the variables affecting mail questionnaire response, thus enabling researchers to gain deeper insight into their findings and provide research users with more reliable and valid predictive information.

SCOPE AND LIMITATIONS OF THE STUDY

This research proposed to operationalize four basic motivational constructs (which are implicit in many mail questionnaires) within the letters of transmittal mailed with questionnaires to four matched experimental groups of 275 subjects each. Response rates to each experimental treatment and scores attained by respondents in each subsample on three personality scales contained in the questionnaire were analyzed to determine whether significant relationships exist between motivational treatment and relevant psychological values of the respondents.

The results of this study should be interpreted in

light of the population which was sampled: business executives engaged in plant management. Findings may differ for other populations and for the same population in a different economic or social climate, a different season, or even a different location (i.e. at their homes rather than at their places of business.) The accuracy of the sample is dependent upon the reliability of the commercial list broker in fulfilling specific criteria set forth by the researcher. Accuracy of measurement of the personality constructs is limited to the reliability and validity of the personality tests adopted for the study.

THE MAIL QUESTIONNAIRE AS A DATA COLLECTION DEVICE

ADVANTAGES OF MAIL QUESTIONNAIRES

Mail questionnaires are a valuable tool for social science researchers. They are relatively low in cost, geographically flexible, and can reach a widely dispersed sample simultaneously without the attendant problems of interviewer access or the possible distortions of time lag. Difficult to reach respondents, such as farmers, soldiers or busy executives, can be surveyed with relative ease (Watson, 1965.) Social scientists favor mail surveys for reasons of expediency, since cases can be procured more quickly, more abundantly and more cheaply than when personal interview is employed (Kephart and Bressler, 1958.) Mail questionnaires are free from the costs and time con-

sumption of interviewer recruiting, training and supervision, and from the problems of interviewer bias or variability (Hochstim, 1967; Jahoda, Deutsch and Cook, 1951; Franzen and Lazarsfeld, 1945; Deming, 1953; Boyd and Westfall, 1965; Schyberger, 1967; Case, 1971.) Their relative or promised anonymity encourages respondents to freely divulge private or embarrassing or socially undesirable information (Wiseman, 1972; McDonagh and Rosenblum, 1965; O'Dell, 1962; Knudson, Pope and Irish, 1967.)

Finally, mail questionnaires tend to be more valid than either telephone or personal interviews because they enable respondents to check information by verifying their records or consulting with other members of the family (Nuckols, 1964), and because they permit leisurely and thoughtful reply (Franzen and Lazarsfeld, 1945; O'Dell, 1962.)

DISADVANTAGES OF MAIL QUESTIONNAIRES

Despite the many advantages of mail questionnaire surveys,researchers point out several potential disadvantages. These can be categorized as nonresponse bias, response bias, item nonresponse, and poor questionnaire construction.

Nonresponse Bias

Mail questionnaires tend to receive a lower response rate than either telephone or personal interview; thus, they are more prone to distortion by nonresponse bias. Hochstim and Athanasopoulos (1970) pointed out that even

though the problem of nonresponse affects all surveys, it tends to be more critical in mail studies because response rates tend to be lower than in personal interview studies with repeated callbacks.

Deutscher (1956) warned that "...Whenever it is necessary to use mailed questionnaires, a sizeable proportion of non-returns may be expected. These may introduce a distinct bias into research findings."

The principle of statistical inference which underlies sampling theory is based on the assumption of findings from a representative (i.e. random) sample of the population. If the nonrespondents differ in significant ways from the respondents, then research findings are not representative, and should not be generalized to the total population (Deming, 1953; Wallace, 1954.)

At the 1954 conference of the American Association for Public Opinion Research, a round-table discussion entitled "Better Results from Mail Surveys" reached no agreement as to what constitutes a high rate of return. It was agreed, however, that a high rate of response in itself provides only partial reassurance of accuracy in the result, since a 50 per cent or 60 percent return can provide misinformation if those responding have characteristics which differ markedly from those of the nonrespondents.

Response Bias

The problem of response bias may arise when question-

naires are answered by people with an inordinate amount of interest in the topic or when respondents are self-selected on the basis of certain characteristics. In either case, mail survey findings would not be representative and could not validly be generalized to the total population. It should be noted that response bias and nonresponse bias are not two sides of the same coin. Response bias indicates a certain homogeneity among respondents of opinion, of interest, of characteristic, while nonresponse bias indicates that not all of the various segments of the population under study are represented in the findings.

A response bias in favor of the subject of inquiry has been reported by a number of researchers (Franzen and Lazarsfeld, 1945; Suchman and McCandless, 1940; Donald, 1960; Schwirian and Blaine, 1966.) Wallace (1954) said:

> It is perhaps the greatest weakness of the mail questionnaire method that it invites, and is content with, the reply of whomever will offer it, without regulation of any kind. In consequence, the mail questionnaire obtains its fullest response from those most eager to accept its wide-open invitation. In some respects, these repliers may have the same attributes as the universe being sampled. But in other respects, possibly crucial to the study, they may be quite different.

Item Nonresponse

A third problem in the use of mail questionnaires -- one which has received very little attention in the literature -- is the bias of item nonresponse. Respondents often do not answer every question in the questionnaire;

thus they limit the usefulness of some questions and the generalizability of some findings. Unfortunately, it is classification questions -- usually so essential to the analysis -- which are the ones most often omitted by the respondent.

Ferber (1966) found from results of a study that not much more than one-third of its questions were completely filled out. He declared that item nonresponse was badly in need of systematic investigation. Ferber noted that the frequency of item nonresponse varied with the type of question and with the socioeconomic characteristics of the respondents, such as age, sex, occupation and education. Item nonresponse was found to increase for questions requiring some thought or effort on the part of the respondent.

Nuckols (1964) found that the average number of responses per respondent was as high if not higher in mail panels as in personal interview samples. Thus, he inferred that the bias of item nonresponse may be somewhat less severe in mail questionnaire surveys than in interview surveys.

Poor Questionnaire Construction

Still another factor with great potential for distorting mail survey findings is the questionnaire itself. Are questions universally understood to mean the same things? Are they so phrased as to bias response? Is the value of question sequence destroyed by prior reading? These questions have been addressed by a number of researchers (Adams, 1956; Lindzey and Guest, 1959; Cantril, 1940; Wells, 1961);

however, systematic research on the design of questionnaires has been notably sparse (Terris, 1949; Payne, 1951.)

Noelle-Neumann (1970) pointed out the critical need for a joint effort among researchers to work out a set of empirically tested rules for questionnaire wording, since survey results are so clearly dependent upon how well a question defines the object of inquiry.

In practice, the construction of questionnaires appears to be guided more by judgment, hunches, intuition and organizational folklore than by any hard knowledge or empirical testing.

In 1951 Stanley Payne wrote a comprehensive book on questionnaire construction entitled The Art of Asking Questions. In reviewing it, Julian Woodward (1952), former president of the American Association for Public Opinion Research, said: "It is to be hoped that the book will be as badly out of date in 1962 as 1942 questionnaires are today." Yet in 1972, Boyd and Westfall wrote that Payne's book remained "...the best single effort to systematize the problem of questionnaire construction." They added:

> Questionnaire construction is still much more of an art than a science. No procedures have been established which will automatically lead to a good questionnaire. Most of what is known about making questionnaires is the result of general experience. No basic theory has been developed, nor even a fully systematized approach to the problem.

For a brief period following publication of Payne's book (from July, 1951 through April, 1954), the Journal of Marketing included a category in its table of contents called

"Questionnaires and Interviewing." One can only assume that its elimination from later issues was caused by a general lack of interest and dearth of articles concerning questionnaire design. It is precisely because of this lack of interest over the years that the need for a catalog of empirically tested rules of questionnaire construction has remained largely unfulfilled.

SCOPE OF PREVIOUS RESEARCH

Because of the many worthwhile advantages of mail surveys for information gathering, research efforts have been turned to reducing or disarming the attendant disadvantages (see, for example, Baur, 1947; Blair, 1964; Clausen and Ford, 1947.)

Studies have been made to identify the salient differences between responders and nonresponders, so that the degree of nonresponse bias and/or response bias can be estimated (Vincent, 1964; Hochstim and Athanasopoulos, 1970.) These studies have focused on demographic and socioeconomic differences (Franzen and Lazarsfeld, 1945; Suchman, 1962; Roeher, 1963; Clausen and Ford, 1947; Gannon, Nothern and Carroll, 1971; Wallace, 1954; Reuss, 1943; Robins, 1963; Vincent, 1964; O'Dell, 1962; Nuckols, 1964.) Several studies have tried to assess personality differences between responders and nonresponders (Ognibene, 1970; Vincent, 1964; Lubin, Levitt and Zuckerman, 1962; Rosenau, 1964; Frank, Massy and Lodahl, 1969.)

Researchers have tried to estimate the direction of nonresponse bias through studies of early and late responders, on the assumption that late responders are more similar to nonresponders than to early responders (Donald, 1960; Newman, 1962; Shuttleworth, 1940; Stanton, 1939; Baur, 1947; Ferber, 1948, 1950; Ford and Zeisel, 1949; Campbell, 1949; Robins, 1963.)

The literature abounds with efforts to increase the response rate. These efforts have variously been classified by timing (i.e. preliminary, concurrent and followup efforts) and by technique (i.e. questionnaire length, size, survey sponsorship, return envelope and stamp, personalization of letter, method of reproduction, format, layout, color, anonymity, premiums or rewards, and deadline date.) However, no theory has been offered which explains why many of these techniques work well in some instances and not in others, while none (with the exception of the followup) works well in all instances.

ORGANIZATION OF THIS STUDY

The following chapter reviews previous research concerned with improving the response rate and the validity of mail questionnaire surveys. It examines the literature by both timing and technique (see above.) Chapter III develops a new taxonomy for empirical techniques used to improve response rates; it then reexamines the literature within the perspectives of the new organizing framework.

Chapter IV presents hypotheses designed to test the proposed theoretical framework. Chapter V describes the experimental design and the methodology used to test the hypotheses. Chapter VI examines the results of the study, first through the presentation of descriptive data based on frequency distributions; then through an examination of the statistical analyses performed to test the hypotheses.

Chapter VII discusses the findings and their implications for future research, and Chapter VIII summarizes and concludes the study and presents recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter reviews previous research undertaken in the field of mail questionnaire surveys. The reader should note that most of the research focuses on the manipulation of one or two variables, with little attempt to develop an underlying theory for the results achieved. Some of the material covered in this chapter is reexamined in Chapter III, in the light of a new organizing framework.

INTRODUCTION

The purpose of questionnaire surveys is to provide valid information for decision-making. The mail questionnaire is used as a tool to collect such data. Findings are generally considered valid if they are representative of the entire population under study. For this reason, research efforts have been directed to (1) increasing the response rate, and (2) reducing biases caused by nonresponse or special interest response. The reasons for this two-pronged effort are obvious. The greater the response, the more accurately it will estimate parameters in the population sampled. However, findings are representative of the population only if those people who do not respond to a questionnaire do not differ in significant ways from those who do respond. If they do differ, the kind and degree of such differences must be carefully estimated so that the findings

may be properly adjusted to more accurately reflect the population under study.

INCREASING THE RESPONSE RATE

Efforts to increase the response rate of mail questionnaires have been classified by Ford (1968) as those that take place before the initial questionnaire mailing, those that accompany it, and those that are sent out after the initial questionnaire mailing. Research in each of these classifications -- preliminary, concurrent and followup -- is examined below.

PRELIMINARY NOTIFICATION

A number of researchers have tested the effectiveness of using advance notification to increase the response rate, with somewhat inconsistent results. Wiseman (1972) sent a preliminary letter to 75 of a sample of 320 residents of a suburban Boston community and reported a 20 per cent increase in response rate for the test group.

Parsons and Medford (1972) found that advance notice to 105 male MBA alumni in a mail survey (total n=236) did not improve the response rate; however, it did serve to accelerate the daily rate of return.

Myers and Haug (1969), in a preliminary study for a small bank in Los Angeles, used a split ballot technique to measure the effects of a preliminary letter sent to 350 households selected from a street-order directory in metropolitan Los Angeles. An increase of 8.1 per cent in response

was accompanied by an increase in cost of 22 per cent (8¢ per return) which the researchers did not think the additional information warranted.

Stafford (1966) reported a cross-sectional study of 1,247 students from three major universities in Houston where preliminary contact by telephone to a subsample of 214 students and by mail to a subsample of 391 students increased the response rate from 20.5 per cent for the control group to 68.2 per cent and 43.7 per cent respectively. The difference was significant at the .001 level.

Kephart and Bressler (1958) reported using prior notification in a survey of 300 randomly selected young women in the nursing profession with little effect; however, they provided no empirical data with which to evaluate their findings.

In a split ballot test of 150 television and 150 non-television households in Iowa, Waisanen (1954) used a telephone contact prior to the questionnaire mailing which resulted in 47.8 per cent replies within ten days, versus 28 per cent without the telephone calls.

While a number of other studies (i.e. Heaton, 1965; Robins, 1963; Levine and Gordon, 1958) reported the successful use of preliminary notification to increase the response rate, it is difficult to assess the contribution of this technique in such studies because control groups were not used.

For example, Bachrach and Scoble (1967), in a survey

of 624 contributors to the National Committee for an Effective Congress, airmailed a preliminary letter to the entire sample. They sent an additional preliminary letter to "high status" recipients, signed by the Executive Director and the Chairman of the Board of Advisors to the organization, endorsing the project and repeating the request for participation. However, the contribution of preliminary notification to the overall response rate cannot be estimated because they failed to control for the effects of the two letters.

FOLLOWUP TECHNIQUES

Followups, or reminders, have been widely used with great success. Scott (1961) called the use of followups the most potent technique available to researchers for increasing response rates. Followups have been used in most mail surveys reported in the literature, the most usual number being one or two. The evidence that followups increase the response rate is almost too extensive to detail.

Bachrach and Scoble (1967), in their study of 624 contributors to a national political organization, achieved a 63.5 per cent response after two followups; a third and fourth followup (with a shorter replacement questionnaire) contributed an additional 19.5 per cent, and a fifth followup (a double postcard with 13 census-type questions) added another 2 per cent, for a total response rate of 85 per cent.

Eckland (1965) used telephone and certified mail follow-

ups after three waves had resulted in a 67 per cent response; thus increasing response by an additional 28 per cent for a total of 95 per cent.

Watson (1965), in a split ballot test of 10,500 randomly selected subscribers to Business Week, sent a two day followup to a subsample of 500 and achieved a 46 per cent response versus 30 per cent for the control group.

Scott (1961) reported that two followups in a survey of 1,050 British telephone subscribers resulted in an increase of 20 per cent over a pilot survey of 278 subscribers with no followup (final response rates of 95.6 per cent versus 74.8 per cent.) In a survey of 1,556 British home dwellers regarding the home raising of poultry and pigs, Scott tested using no followup (n=771) against the use of two followups (n=785.) Response rates were 85.9 per cent versus 93.2 per cent -- a significant difference.

Donald (1960), in a study of 2,768 members of the League of Women Voters, reported the following response rates to her original mailing and three followups: the first wave received 46.2 per cent; the second wave received 12.2 per cent, the third wave 8.8 per cent, and the fourth wave 10.1 per cent, for a total response rate of 77.3 per cent.

Kephart and Bressler (1958), investigating the effects of ten different types of inducements, tested the use of a prior letter against a followup letter and against both a prior and a followup letter among experimental groups of

100 nurses each, with the following results: the prior letter was very ineffective, the followup very effective, and the combined techniques no more effective than the followup used alone.

Levine and Gordon (1958), in a study of 170 enrollment directors and executive directors of 85 Blue Cross Plans across the nation, achieved a response rate of 90 per cent within three to four weeks after the second wave went out. (They sent an advance letter as well.) The remaining 10 per cent responded after receiving telegrams and telephone calls urging their response, leading to a 100 per cent response.

Robinson and Agisim (1951), in a study of 5,960 subscribers to Colliers magazine, reported sending first followups within three or four days to the entire sample. The reminders were said to "...have pulled as high as 10 to 12 per cent additional returns", though details were not given.

Suchman and McCandless (1940), in a survey of 600 telephone subscribers selected at random from an Iowan telephone directory, reported a first wave response rate of 16.8 per cent, a second wave response of 34.1 per cent of the nonrespondents to the first mailing, and a third (telephone) wave of 97.2 per cent of the remaining nonrespondents. In a second study of telephone subscribers, they reported a response rate of 44.3 per cent on the first wave, 46.4 per cent of nonrespondents on the second wave, 50.3 per cent of

nonrespondents on the third wave, and 66.5 per cent of non-respondents on the fourth wave, bringing the total response rate to 95.1 per cent for a population of 820 people.

Sletto (1940), in a pretest of a study of university graduates, tested a letter versus a postcard for the follow-up on subsamples of 100 each, and found no significant difference in response rate. Ferris (1951) found a postcard reminder to a sample of 241 college university teachers ineffective, while Watson (1965) found a postcard followup to 500 subscribers to Business Week increased returns from 30 per cent to 37 per cent.

CONCURRENT TECHNIQUES

All of the techniques embodied in or peripheral to the first wave questionnaire are considered to be concurrent techniques. These include not only the length, size, paper, color, format and method of reproduction of the questionnaire itself, but also the survey sponsorship, the type or appeal embodied in the cover letter, the quality of the stationery and the method of reproduction, the use of a titled signature, the method of signing, the method of addressing used on the envelope, the postage on both the outgoing and return envelopes, and so forth. Also included are such factors as the degree of anonymity promised or implied, the promise or inclusion of premiums or rewards, and the use of deadline dates. A number of studies have focused on the effectiveness of these techniques with varied results.

Questionnaire Length

Common sense suggests that shorter questionnaires should receive higher response rates than longer ones because of the limited demand they make on the respondent's time; however, the evidence gives very little support to this view.

Brown (1965), in a mailing to doctors, tested a two page questionnaire against a postcard and found no significant difference in response rate, despite the fact that the longer questionnaire required more work on the part of the respondent.

Scott (1961) credits the unusually high response rates received by the British Social Survey to the fact that its questionnaires rarely exceeded two sides of one sheet. In a survey of 4,536 randomly assigned British home dwellers concerning their radio and television usage, Scott tested one long questionnaire against two short questionnaires. (The long questionnaire consisted of the two shorter ones strung together.) The response rates were 89.6 per cent for the long questionnaire versus a mean response rate for the short versions of 90.5 per cent. The difference was not significant. However, these results were not conclusive because of the possibility of interaction between particular questions and questionnaire length.

Mason, Dressel and Bain (1961) tested the effect on the response rate of a six page (62 item) questionnaire versus an eight page (92 item) questionnaire sent to be-

ginning teachers, and found no significant difference in response rate.

Clausen and Ford (1947) reported an increase in response rate when additional "interesting" questions were added to an uninteresting questionnaire sent to World War II veterans. They also reported several experiments where one or two pages or questions were added for selected subsamples to a questionnaire already three to six pages in length. In no instance was the rate of return appreciably less for the subsample receiving the longer questionnaire.

Sletto (1940) reported a pilot test for a university followup study of its graduates. Three groups of 100 graduates each were sent, respectively, questionnaires of ten pages, 25 pages and 35 pages. (The long questionnaire consisted of the two shorter ones put together.) The response rates were 68 per cent for the ten page questionnaire, 60 per cent for the 25 page questionnaire, and 63 per cent for the 35 page questionnaire. Differences were not significant.

Stanton (1939), in a split ballot test of 11,169 school teachers, reported a response rate of 28.3 per cent to a three page questionnaire, as compared to 50.2 per cent for a double postcard containing a single question which could be answered with a checkmark.

Nuckols (1964) concluded, in a comparative study of mail panels with personal interviews, that the necessity of using short questionnaires with mail panels was more

"folklore than fact." His study showed a high response rate (71 per cent) to a relatively long and complex questionnaire sent to 1,200 National Family Opinion Inc. mail panel members.

Survey Sponsorship

Many writers on mail surveys recommend the use of official support of some kind, wherever possible, particularly in surveys sent to commercial firms or professional people, but there is little experimental evidence on the effects of sponsorship.

Brunner and Carroll (1969) tested the effect of sponsorship on the refusal rate of personal interviews preceded by a preliminary letter sent to 156 randomly selected residents of Hyattsville, Maryland. Of the 80 people who received a preliminary letter on university letterhead, 72.5 per cent agreed to cooperate in the survey, versus 46.1 per cent of the 76 people who received a letter from a small new consulting firm.

On the other hand, Baur (1947) concluded from a survey of 6000 World War II veterans who had expressed interest in education and training programs that Veterans Administration sponsorship of his reported study, identified in the questionnaire, tended to bias the response.

Scott (1961) speculated that the high response rates achieved in many of the British Social Survey mail surveys might have been due to government sponsorship. He tested

this hypothesis in a survey of radio and television usage among 3,024 British home dwellers by using a split ballot technique to send out identical questionnaires and cover letters on three different letterheads: that of a government agency, a respected university, and a commercial research firm. Each sample size was 1,008; response rates, respectively, were 93.3 per cent, 88.7 per cent and 90.1 per cent, showing a small but definite advantage from government sponsorship.

Return Envelopes

The inclusion of a stamped return envelope seems to be a generally accepted practice in mail surveys. The only experiment located which measured the effectiveness of including a stamped, addressed return envelope versus not including a return envelope was reported by Ferris (1951.) A survey of 241 University teachers in 11 Southern states who tought introductory sociology resulted in a response rate of 62 per cent from the group sent a return envelope versus 26 per cent with no return envelope.

Postage -- Outgoing and Return

There has been a great deal of experimentation in both the type of mailing and the type of postage utilized, both for the outgoing mailing and for the return envelope.

Kernan (1971) found that neither personalized addressing nor first class postage significantly improved response rates in a test of 400 randomly selected telephone sub-

scribers in Greater Cincinnati.

Watson (1965) conducted several investigations concerning stamps in a split ballot test of 10,500 subscribers to Business Week. First, he sent a commemorative stamp on the return envelope to a subsample of 500 and an ordinary first class stamp on the return envelope to a control group of 1000, and received response rates of 29 per cent versus 30 per cent respectively. In a test of first class postage versus third class on the outgoing envelope, he received a 33 per cent response rate versus 30 per cent for the control group. Using five one cent stamps as opposed to one five cent stamp on the return envelope to subsamples of 500, he received a 35 per cent response versus 30 per cent.

Heaton (1965) reported that he used colorful commemorative stamps in both outgoing and return mailings in a pretest to 82 new 1959 Chevrolet buyers. "...to add a further informal or personal touch", but he did not test their effectiveness.

Gullahorn and Gullahorn (1963), in a survey of Fulbright and Smith-Mundt grantees, used a split half technique to test the effectiveness of first class mail versus special delivery (with a prominent red special delivery label on the envelope) and obtained response rates of 35 per cent versus 62 per cent. They concluded that special delivery followups are worth the added expense because of their effectiveness in eliciting responses from individuals who had not acknowledged any previous correspondence.

Scott (1961) tested the use of a franked preaddressed return label attached to the flap of the return envelope against a stamped but not preaddressed return envelope in a study of 480 telephone subscribers concerning their overseas social communication. The latter group received a small, though significant improvement in response over the frank with address (93.3 per cent versus 89.2 per cent.) The two experimental groups were not parallel, however, because of the presence of two variables. Nevertheless, Scott concluded that once respondents have gone to the trouble of completing a questionnaire, they are not likely to balk at addressing an envelope. He thought it unlikely that they would use the envelope for private matters because of the return address of the sponsor imprinted on the upper left-hand corner.

Kephart and Bressler (1958) tested first class postage versus airmail postage versus special delivery for the outgoing initial mailing. The experimental groups each consisted of 100 randomly selected young women who had passed nursing board examinations in Pennsylvania in 1950. Response rates were, respectively, 52 per cent versus 60 per cent versus 66 per cent -- significant for the first and last figures only.

Goldstein and Kroll (1957), in a study of 4,716 general hospitals for the United States Department of Health, received a very high return on a fourth wave mailing (72.8 per cent) by using airmail on both outgoing

and return envelopes to nonrespondents west of the Mississippi River, and special delivery to nonrespondents east of the Mississippi River.

Longworth (1953), in a pretest of 50 randomly selected telephone subscribers, tested the effects of using one six cent first class stamp against using three stamps of varying denominations (one cent, two cents and three cents) but found no significant difference in response rates.

Robinson and Agisim (1951) reported a study of 5,960 male subscribers to Colliers magazine in which a first class stamp on the return envelope brought a 74 per cent response, while a frank brought a 66 per cent response -- a significant difference.

Clausen and Ford (1947), in a study of World War II veterans, obtained a response of 61 per cent using airmail and special delivery together, versus 36 per cent using first class -- a significant difference.

Wallace (1954), in a study of 2,787 subjects (998 Time subscribers and 1,789 male adults from the general population), found that airmail return envelopes sent to a subsample of 387 increased response by 43 per cent.

Other studies report the use of airmail, special delivery and certified mail, but the effectiveness of these techniques cannot be evaluated because they did not use control groups (see, for example, Dillman, 1972 and Bachrach and Scoble, 1967.)

Personalization

The effects of personalizing the mailing have been explored by many researchers. These efforts have focused on the method of address for the outgoing envelope, the salutation, the signature, the form of address of the cover letter (i.e. second person versus third person) and the method of reproduction.

Kawash and Aleamoni (1971) sent questionnaires to 3,091 faculty members of the University of Illinois and found that a personal signature on the cover letter was no greater an inducement to respond than a cover letter bearing a mimeographed facsimile signature.

Simon (1967), in two separate studies sent to the general public (sample sizes, respectively, of 500 and 200), found that a personally typed letter tended to increase response rates by 7 per cent and 8 per cent over a form letter. However, in these same two studies, personally typed letters to employees yielded mixed results. In one case, the response rate improved slightly and in the other it declined. In a study of 974 subscribers to a hospital insurance plan, Simon achieved a 15 per cent greater response from a personally typed letter. He concluded that "... personally typed cover letters have no clear-cut advantage over mimeographed form letters in terms of responses in surveys using mail questionnaires."

Stafford (1966) used a personally signed multilithed letterhead from the University of Houston Center for Re-

search in a test of the effectiveness of preliminary notification among 1248 students in Houston universities and achieved a high response rate. However, he did not control for the effects of the personalization; therefore it is difficult to evaluate its contribution to the response rate.

Heaton (1965), in his study of 82 new 1959 Chevrolet buyers, increased the personalization of each communication by a handwritten salutation and signature and hand-addressed outgoing and return envelopes (the letter itself was mimeographed.) However, he did not control for the effects of this personalization.

Roeher (1963), in a study of 400 contributors to a fund for disabled persons, reported that a titled signature on the cover letter received an 81 per cent response versus 55 per cent for a "plain" signature -- a significant difference.

Plog (1963) reported a 92 per cent response rate to a mail questionnaire using personally typed letters to 162 readers of the Boston Herald who had written letters to the editor during two time periods in 1959. However, he used a specialized sample and no control; therefore the effectiveness of the personalization cannot be evaluated.

Kimball (1961), in a study of 3,000 randomly selected technical personnel of electronic manufacturers, tested the use of a personal inside address versus an impersonal "Dear Sir" among subsamples of 500, and found no signifi-

cant difference in response rates.

Frazier and Bird (1958), in a study directed to the residents of two counties in Idaho (n=1,561), obtained a significant increase in response rate -- from 25 per cent to 31 per cent -- by means of a handwritten postscript urging reply.

Longworth (1953), in a pretest of 50 randomly selected telephone subscribers, found that a personally typed cover letter increased returns by only 5 per cent.

Weilbacher and Walsh (1952) found no significant difference in response to a personalized cover letter (the addressee's name and the sender's signature written by hand) and a non-personalized letter sent to two matched groups of a professional fraternity.

Clausen and Ford (1947), in a study of World War II veterans, found no evidence that a personalized salutation or personal signature caused a significant increase over the response to non-personalized letters. (They tested "Dear Mr. Smith" against "Dear Veteran" and a handwritten signature against a facsimile signature.)

Cover Letter

The content and style of covering letters have also been investigated.

Scott (1961) reported that, despite the very high response rates he has achieved, the covering letters sent out by the British Social Survey are relatively impersonal.

Letters are generally sent undated, with impersonal salutations (i.e. Dear Sir or Madam, Dear Householder, and so forth) and facsimile-signed. Letters usually included a general statement of the purpose of the survey on the theory that a recipient would find it easier to disagree with a more specific one, and then to withhold his cooperation on the grounds that he did not support the aims of the survey.

Scott reported one experiment among 4,032 British householders in the wording of the cover letter -- a split ballot procedure in which one group was sent an impersonal letter and the other a relatively personal letter. Both letters were designed to mean the same, though the former had twelve personal pronouns in the letter and the latter had twenty-two. Response rates were 91.4 per cent versus 89.6 per cent for the personal letter. The difference was not significant.

In a study of British motorcyclists, Scott tested putting the questionnaire on the back of the letter versus putting it on one side of a separate sheet. The difference, 95.8 per cent versus 93.6 per cent, was significant. In the same study, he also tested two methods of reproduction -- letter press printing versus duplicating (i.e. mimeographing.) For printing, the response was 95.2 per cent, and for duplicating, 94.4 per cent. The difference was not significant, despite a very large sample (n=10,221.)

Clausen and Ford (1947), in a survey of United States

veterans, reported a 23 per cent initial response to a short "punchy" letter signed "General Bradley" versus a 36 per cent response signed by the Director of Research Services on a followup mailing. The two letters are not strictly comparable because of the fact that the latter was a followup to the former.

Size, Reproduction and Color

Ford (1968) tested the hypotheses that (1) a two page printed folder will bring a higher response than a two page mimeographed and stapled questionnaire on legal size paper, (2) that item nonresponse would be less, and (3) that the nature of the response would be different. A survey of 1,556 randomly selected households in Beardstown, Illinois resulted in response rates which were not significantly different.

Gullahorn and Gullahorn (1963) tested the use of green paper for the questionnaire versus white paper, and found green paper to be slightly more effective (51 per cent versus 49 per cent), though the difference was not significant.

Anonymity

It has generally been assumed that offering safeguards of anonymity encourages a high level of voluntary response; where response is mandatory, assurances of anonymity minimize invalid responses. In each case the assumption is made that there are questions which, if answered

candidly, would place respondents in a position of fear. For this reason, most cover letters promise respondents anonymity, or at least that their replies will be "confidential."

Andreason (1970) in his study of 538 New York State lottery winners, tested the hypothesis that the greater the impersonality of the correspondence accompanying mail questionnaires, the greater the response. While there was some evidence supporting his hypothesis, differences were not statistically significant. He concluded that effects of personalization on response rates are not always positive. When respondents desire anonymity, personalization -- by implying decreased anonymity -- may decrease response rates.

Pearlin (1961) investigated the characteristics of employee signers and non-signers through internal questions in an industrial study where anonymity was optional. He found that those who held positive opinions on presumably fear-arousing issues were no more likely to sign than those who held negative opinions. He reported that non-signers, however, were more likely to display feelings of incompetence, a cautious approach to people and things, and lack of enthusiasm for work.

Mason, Dressel and Bain (1961), in their study of beginning teachers, tested the use of a name, address and code number against the use of a code number alone, and found no significant difference in response rates.

(Complete anonymity was not tested.)

Scott (1961), in a survey of 3,024 British householders concerning radio and television usage, asked respondents to sign their questionnaires and only 3.1 per cent failed to do so. On three other surveys (Poultry and Pigs Survey - n=1,556; Telephone Service Survey - n=12,000; Motorcyclists Survey - n=10,221), the questionnaire was sent out bearing the name and address, telephone number or motorcycle registration number of the respondent. They all resulted in a high rate of response. Scott concluded that respondents were indifferent to the issue of anonymity.

Rosen (1960) found no significant difference between the anonymous and identified respondents on one scale and very small differences on another. He concluded that identification of respondents to attitude questionnaire surveys conducted under less than highly threatening circumstances is not likely to result in serious statistical or practical distortion.

Various devices have been reported for preserving anonymity without sacrificing knowledge of which addressees have responded. The use of invisible ink to blind-code questionnaires is not unusual; one major firm specializing in mail surveys blind-codes every survey as a matter of course.

Cahalan (1951), Bradt (1955), Larson and Catton (1959) and Boek and Lade (1963) reported studies in which they assured respondents of anonymity by asking the res-

pondent to return a separate postcard bearing his name and address to indicate that he had mailed the questionnaire under separate cover. (Bradt noted that this technique also permits a rapid check on the representativeness of respondents.) In explaining the postcard device to the recipient, researchers usually say that it is necessary to know who has replied so that reminders can be sent to the nonrespondents. However, the relatively high response rates reported (Boek and Lade, 1963; reported almost a 100 per cent return from 178 Health Department employees) may be due to the threat of reminders rather than to the assurance of anonymity.

In a similar vein, Scott (1961), in his Poultry and Pigs Survey, experimented with a sticker (3½" x 1½" printed in red on white) which read: "To save our troubling you again with reminder letters, please reply promptly." This brought a response of 95.8 per cent versus 94.9 per cent for the control group -- an insignificant difference. However, as Scott pointed out, the response rates were so high already that there was little room for improvement. Analysis of the first week's returns showed that the sticker did help to expedite returns, since the first week's rate was 61.1 per cent versus 52.4 per cent for the control -- a significant difference.

Premiums and Rewards

A special device for stimulating response is the offer of a premium or a reward. Many different kinds of incen-

tives have been used. Among them are trading stamps, unused postage stamps, packets of stamps for collectors, tie clips, pennies (both United States and foreign), books, pencils and pens. In general, money seems to be the most effective and least biasing incentive, the easiest to obtain and mail, and the most useful to all recipients.

Money Incentives: Money seems to cause little bias. One might think that poor people would respond more readily to money incentives than would wealthy people, but this does not seem to be the case.

Erdos (1970) reported a split ballot procedure sent to three matched samples of top executives of United States firms having a net worth of $1 million or over. He tested no incentive versus a dime versus a quarter, with the following response rates: 40 per cent for the control, 54 per cent for the dime and 63 per cent for the quarter.

Erdos summarized the response rates to first wave mailings of 330 separate surveys which utilized a quarter as an incentive with the following results:

> 70% and over received at least a 17% response rate;
> 60% to 69% received 24% response rate;
> 50% to 59% received 33% response rate;
> Less than 50% received 26% response rate.

The median response rate to the 330 surveys was 57 per cent.

In a pretest sent to three randomly assigned groups of 150 urban household residents, Wotruba (1966) found that a 25¢ premium sent with the questionnaire increased the response rate from 18 per cent to 40 per cent. (The

promise of a 50¢ reward upon receipt of the completed response only increased response from 18 per cent to 20 per cent.) Wotruba reported that the use of the 25¢ concurrent incentive not only resulted in higher responses, but also in more completely filled out questionnaires.

Watson (1965), in a study of subscribers to Business Week, sent a 25¢ incentive to a subsample of 500 and received a 48 per cent response versus 30 per cent for the control group. A dime incentive sent to a subsample of 500 subscribers yielded 40 per cent versus 30 per cent for the control group.

Newman (1962) in pretests of randomly assigned groups of Esquire magazine subscribers (each n=75), used a two page questionnaire to test no premium against a 25¢ premium against a $1 premium, with the following results: 29.3 per cent versus 46.7 per cent versus 53.3 per cent. A four page questionnaire test measuring the effectiveness of a 25¢ premium against $1 received 37.3 per cent response versus 61.3 per cent. Newman also studied the effects of increasing the amount of the premium in a follow-up mailing sent to 1400 Esquire subscribers. He sent $1 on the first wave, $2 on the second wave, and no premium on the third wave. Response rates were, respectively, 60.3 per cent, 15.2 per cent and 3.2 per cent, for a total effective response rate of 78.7 per cent.

Kimball (1961) tested a dime versus no incentive in two mailings to subsamples of 500 randomly selected tech-

nical personnel in the electronics industry and found the dime received a significantly better response rate (47 per cent versus 28 per cent, respectively.)

Frankel (1960) tested the effects of increasing financial incentives over repeated mailings to 9,466 systematically selected subscribers to Sports Illustrated. Because of budget limitations, he sent increased incentives to subsamples of the nonrespondents. Twenty-five cents was sent with the first mailing, $1 was sent to one half the nonrespondents on the second wave, and $5 was sent to one half the nonrespondents on the third wave. He reported an 81 per cent weighted effective response rate (the weights, respectively, were 100 per cent of the first wave response, twice the response to the second wave, and four times the response to the third wave.)

Brennan (1958) reported that results of three experiments indicated that small incentives did not increase the response rate significantly, though the evidence he presented was somewhat ambiguous. However, his promise of 25¢ in one test and ten trading stamps in another test to be sent <u>after</u> receipt of the questionnaire may have dampened their incentive value.

Kephart and Bressler (1958) tested the effectiveness of a penny, nickel, dime and quarter in increasing response rates on a sample of 1,000 nurses. Respective response rates were 55 per cent, 54 per cent, 57 per cent and 70 per cent, against a control group of 52 per cent.

Robinson and Agisim (1951), in their study of 5,960 male subscribers to Colliers magazine, reported increasing response rates from a low of 5-10 per cent to as much as 70-80 per cent through the use of premiums, though they cited no empirical evidence. They reported that 25¢ was more effective than either a $1 premium or a lesser amount, and stated that "... it is not the value of the premium, but the psychology of it" that counts. They warned that any premium which attracts a special class of respondents tends to select a distorted sample.

Hancock (1940), in a study of 2,083 taxpayers randomly selected from the county assessor's tax rolls, experimented with 25¢ enclosed initially as against 25¢ promised in return for a response. The former drew a 47 per cent response, the latter 18 per cent, and the control group (no reward) 10 per cent.

In summary, there is some evidence that a 25¢ incentive sent with the questionnaire yields a substantial increase in response, while larger sums -- though they result in a somewhat greater response -- are often not worth the increase in cost.

Non-Monetary Premiums: Watson (1965) in his study of Business Week subscribers, received a 41 per cent response using a packet of stamps as an incentive to a subsample of 500 versus 30 per cent for the control group.

Knox (1951) used a "chance" in a lottery for a turkey as the incentive to encourage response from 173 unemployed

railroad firemen, but did not control for its effects.

Parten (1950) suggested that chances at prizes be used as mail incentives, but did not report any study in which this technique was used.

Robinson and Agisim (1951) suggested that other forms of premiums which could be used with a mail sample are letter openers, mechanical pens and pencils, diaries, memo books, photo holders and tie clasps.

Deadline Dates

Another special device for stimulating response to mail questionnaires is the use of a deadline date.

Bachrach and Scoble (1967) used a deadline date of twenty days with the initial mailing, and fifteen days on followups in their study of contributors to a national political organization, but used no control so it is difficult to assess the results.

Scott (1961) reported attaching a sticker to his Poultry and Pigs questionnaire with the word "Immediate" printed in black on red paper. While it did not improve the response rate, it did encourage early reply.

Goldstein and Kroll (1957) attributed the high response (98.6 per cent) achieved in their study of 4,716 general hospitals in part to the deadline date quoted in the first mailing and in each of the followups, but did not control for this effect.

Ferris (1951) reported an immediate heavy response to the inclusion of a deadline date on the mail questionnaire.

REDUCING AND CORRECTING RESPONSE AND NONRESPONSE BIAS

The twin problems of response bias and nonresponse bias have received considerable attention from researchers. Efforts have been made to reduce such biases where possible; where not possible, to estimate the degree of bias so that a correction factor may be applied to survey findings.

Blair (1964) reported that a questionnaire limited to one subject produced a disproportionate response from the people most interested in the subject. Clausen and Ford (1947) claimed that the addition to their questionnaire of questions of broader interest reduced the response bias.

Baur (1947) reported that, of five factors he studied in a survey of veterans' plans for education and training (n=6,000), the greatest bias was introduced by the difference in interest in the subject of inquiry. Baur concluded that the smaller the proportion of returns in a mail questionnaire on a subject of limited interest, the greater the bias attributable to differential interest in the subject. He suggested that this type of bias might be reduced by disguising the subject of the questionnaire and broadening its appeal through the addition of questions on other subjects.

Efforts have been made to identify the salient differences between responders and nonresponders so that the degree of bias can be estimated and a correction

factor determined which would make findings more representative of the populations under study.

Hochstim and Athanasopoulos (1970) suggested that when parameters of the population are not known from previous enumeration, careful evaluation should be made of differences in response to substantive data by various socioeconomic and other relevant groups to see whether a bias in the total return would exist if such groups were over or under reported.

Vincent (1964) called for a typology to differentiate among the various methods and research designs on respondent/nonrespondent differences, claiming that such a typology would eventually make it possible to "...correct for predictable amounts and kinds of bias when reporting mail data."

Many researchers have attempted to measure nonresponse bias against known information from the sampling frame. Others have tried to interview, either in person or by telephone, a sample of nonrespondents to determine how they differed from respondents. These studies have focused on demographic and socioeconomic differences, though several studies have tried to assess personality differences.

Studies of Demographic and Socioeconomic Differences

Gannon, Nothern and Carroll (1971) found that females and those with higher education levels have high response rates. Surveys of workers seemed to be biased toward

more stable, older and more effective employees.

Nuckols (1964), in his survey of National Family Opinion Inc. mail panel members, noted that mail panels seriously underrepresent low educational groups. He questioned whether mail panels could ever include a representative segment of the very low educational levels.

Vincent (1964) reported that a mail study elicited a disproportionately high response from subjects whose self-reported backgrounds in "normal" lower middle class families skewed family data in the direction of the textbook model of a "nice, happy, stable middle class family". However, he did not speculate as to whether this was due to response bias or to a social desirability response set.

Robins (1963) used childhood and adult records which identified social and personality variables to compare refusers and "stallers" with cooperative subjects in a personal interview long term followup study. Refusers (i.e. nonrespondents) were found more often among those with routine white collar jobs, low education, and foreign-born parents, and among local subjects. No significant differences in social or personality variables were found to distinguish refusers who could be persuaded (i.e. "stallers") from those who could not.

Roeher (1963) and Clausen and Ford(1947) found that education correlated strongly with response rate. Suchman (1962) cited a panel study of voting behavior

of 1,015 individuals during a presidential campaign to support his contention that individuals with higher education and greater interest in the topic are most likely to respond.

Wallace (1954) reported evidence that in universes of great heterogeneity, persons with higher education and greater writing facility tend to return mail questionnaires in disproportionately large numbers. However, in his study of Time subscribers and the general public, he found that respondents and nonrespondents were virtually the same on the following socioeconomic characteristics: occupation, position level, home ownership, possession of a telephone, and average rental value of home. Reuss (1943) reported a better response from students from rural homes.

Franzen and Lazarsfeld (1945) interviewed nonrespondents of a sample frame of Time magazine subscribers and concluded that questionnaires are more frequently answered by people who, because of education and occupational background, more easily express themselves in writing; also, by those more interested in the topic, and by those with great confidence and eagerness to advance an opinion.

O'Dell (1962) noted that mail panels are not probability samples but quota samples, therefore, they are not representative of the total population in many ways. The willingness of certain housewives to become

panel members may be a point of diffentiation. He stated:

> Panel members are probably more interested in the outside world, have greater brand awareness, are willing to experiment with new products. Such assumptions are not easily measured. Thus the mail panel is not appropriate for estimating population parameters.

Studies of Personality Differences

Ognibene (1970) tested for pertinent socioeconomic and personality differences between respondents and nonrespondents in a study of 176 women selected at random from telephone directories in the New York metropolitan area. He found that education, income and occupation were lower for nonrespondents, while leadership, gregariousness and reading habits were higher for respondents. Thus, his hypothesis that respondents have different personal traits than nonrespondents was supported. Ognibene stated that the assumption that people with the identified traits generally respond better to surveys would help to predict the kinds of people who will respond. However, he noted that differences in personal traits would have little effect if they did not relate to the parameters being tested.

Frank, Massy and Lodahl (1969) administered the Edwards Personality Preference Schedule (EPPS) to 5,000 members of the J.Walter Thompson mail panel for which socioeconomic characterics were known in an attempt to find personality correlates of purchase behavior. They found the degree of association between socioeconomic,

demographic and personality variables to be extremely small.

Vincent (1964) compared characteristics of respondents and nonrespondents with the California Psychological Inventory, and found the typical respondent to be a "cooperative conformist" who exhibits more "responsible", "tolerant", and "intellectual" personality characteristics than nonrespondents.

Lubin, Levitt and Zuckerman (1962) administered the EPPS to a college class, and one month later mailed a questionnaire to each member of the class. They found that respondents scored higher on order and on dependency; and nonrespondents scored higher on aggression, dominance, autonomy and intraception. They concluded that personality factors are an additional class of variables which operate to influence the act of responding.

Rosenau (1964) suggested, on the basis of a small followup study of White House conferees, that nonrespondents may simply not be "filler-outers."

Even if reliable differences are found to exist between respondents and nonrespondents, the problem remains of estimating the effect of those differences on questions which are the object of the survey.

Ferber (1948) said: The problem of response bias must be considered with specific reference to a particular question or characteristic. The presence of bias in one question does not mean <u>a priori</u> that the replies to other

questions on the same questionnaire are also biased." The problem is to determine whether the sample is biased with respect to characteristics most relevant to the subject of study.

Differences Between Early and Late Respondents

Many researchers have examined early versus late response bias. There are two types of late responses: those that arrive later within any one wave, and those that arrive in later waves (a wave being defined as the responses elicited by a single mailing, whether it be the initial mailing or a followup.) Researchers report a tendency towards earlier response (both within waves and in earlier waves) by persons with an interest in the subject under inquiry.

Newman (1962), in his study of 1,400 Esquire magazine subscribers, found no significant differences between early and late respondents in terms of age, sex, income or dwelling place, but did find a significant difference in occupational patterns.

Donald (1960), in her study of 2,768 members of the League of Women Voters, pointed out that speed of response correlated very closely with involvement in the organization. Further, she found that respondents in earlier waves were more likely to have low family incomes (below $7,000), children under twelve years old, to be under fifty themselves, and to have completed college.

Shuttleworth (1940) reported an occupational survey conducted among 327 technical and chemistry majors who were graduated from the City College of New York in 1936. He found significant differences in the employment and occupational variables between early and late respondents. There were .5 per cent unemployed among early responders versus 5.8 per cent unemployed among late responders; 15.4 per cent of the early responders were employed outside of the field for which they trained versus 29.6 per cent of the late responders.

Stanton (1939) sent a three page questionnaire to a list of 11,169 school teachers inquiring, among other things, about their possession and use of classroom radio facilities. The 28 per cent who responded to the first mailing tended to have and use such facilities in their classrooms. Followups to nonrespondents revealed that the late responders tended not to have such facilities in their classrooms.

Estimating Nonresponse Bias from Speed of Response

Efforts have been made to extrapolate trends from within and between waves to predict nonresponse bias. The basic assumption behind such efforts is that subjects who respond less readily are more like those who do not respond than those who do respond readily (i.e. those who answer sooner and those who need less prodding to answer.) People who respond in later waves are assumed to have responded due to the increased stimulus, and they are expected

to look more like the nonrespondents than those in earlier waves.

Thus, if researchers assume that the last wave or a combination of the last waves are representative of all the nonrespondents to the first mailing, they weight the final nonresponse by replies to the followup mailings.

A second method of weighting the nonresponse bias is to establish trends from the results of several waves and weight the nonresponse by continuing these trends. However, the problem with this technique is that there may be a point where the direction of the curve changes. For example, Baur (1947), in his study of 6,000 World War II veterans, found that the slowest respondents more closely resembled the earliest respondents in terms of marital status than they did the intermediate respondents -- thus illustrating the danger in the assumption of linearity of trend.

A third way to weight nonresponse bias is to analyze a sample of nonrespondents and weight all the nonrespondents according to the results of this analysis.

The extrapolation hypothesis was the subject of a heated controversy in the pages of the Public Opinion Quarterly, Vols. 12, 13 and 14, between Ferber, Ford and Zeisel, and Campbell.

Ferber (1948) proposed the theory that later respondents are "almost nonrespondents"; hence, he concluded that -- using only one mailing -- bias can be detected by

applying a suitable random order test according to when returns are received.

Ford and Zeisel (1949) maintained that without successive waves to compare with the first, "... Ferber's statistical test is not sensitive enough to assure the analyst that no bias actually exists." They declared that Ferber's hypothesis was in error; that it could only be tested by using three waves of response as the criterion for the first.

Campbell (1949) pointed out that Ferber's theory was offered without empirical support. He also noted that there are two types of nonrespondents: those who are well intentioned procrastinators who never get things done, and those who are decisive rejectors.

Ferber (1950) stated that the order of response should reproduce respondent/nonrespondent differences and that one could gain additional information about the nonrespondent by "exploiting the time pattern of response."

Robins (1963) found that "stallers" (i.e. late respondents) differed from respondents only in that they tended to be local inhabitants.

DISCUSSION

Research efforts to determine the differences between respondents and nonrespondents have focused on demographic, socioeconomic and, to a lesser extent, on personality variables. The only widespread finding is that respondents tend to be better educated and thus have a greater facility in writing.

Despite the large number of research studies reporting techniques designed to improve the response rate, there is no strong empirical evidence favoring any technique other than the followup. With response rates ranging from below 20 per cent to nearly 100 per cent, there is still no reliable evidence identifying the factors which are responsible for this enormous variation. A number of researchers report using several techniques in combination to encourage response (i.e. Dillman, 1972; Bachrach and Scoble, 1967; Watson, 1965; Roeher, 1963; Kimball, 1961; and Goldstein and Kroll, 1957.) Kimball suggested that each additional stimulus has a lower incremental advantage when used in combination with other stimuli than it would have by itself. This hypothesis should be tested.

It has been suggested that to achieve a high response rate it is essential to arouse the recipient's interest in the subject matter. Scott (1961) suggested that a successful survey must also convince the recipient that his response is really needed: "This conviction may be

induced by the survey subject itself if it is of obvious importance; otherwise it must be created by the covering letter or the reminders."

No research has been located which attempts to offer an underlying explanation as to why many of the techniques to stimulate response work some of the time, but none (with the exception of the followup) seem to work all of the time. A frequently heard rationalization is that since samples and subjects constantly change, there can be no general theory which applies to all surveys. One of the purposes of the study reported herein is to attempt to separate out some constants that may operate across questionnaires despite variation in content and population.

CHAPTER III

RESPONSE RATE AS A FUNCTION OF MOTIVATION

INTRODUCTION

Efforts to increase the response rate can be viewed as attempts to motivate the voluntary respondent (more correctly, the recipient) to answer. Rate or response is not a problem with "captive" samples.

Motivation, in this context, is defined as the driving force within an individual which impels him to act in a certain manner. Motivation theory contends that people act to satisfy their individual needs, wants and desires; that all human activity is directed towards goal fulfillment; i.e. towards satisfying personal needs (Krech, Crutchfield and Ballachey, 1962; Costello and Zalkind, 1963; Maier, 1973, etc.)

Books and articles on personal interviewing often take explicit cognizance of the need to motivate the prospective respondent. For example, Kahn and Cannell (1957) suggested that the interviewer try to relate the purposes of the study to the assumed goals of the subject (see also Boyd and Westfall, 1965.)

The literature on mail surveys, however, makes no such explicit recognition. The presumed purpose of the cover letter is to motivate, but very little discussion of the cover letter or its function appears in the literature, despite the fact that the cover letter is an integral part of the questionnaire mailing (Sigband, 1953; Blair 1964).

The implicit purpose behind the pre and post follow-ups and the various other techniques described in the literature to increase response rate is to motivate the respondent, but rarely is correspondence made between the technique itself and the needs, wants and goals of the recipient, except in an intuitive way.

Donald (1960) said "... It can be argued that the role of follow-up procedures is to initiate or sharpen a respondent's perception that returning his questionnaire may help him fulfill a personal goal ...." However, she equates respondent goal fulfillment with high involvement of the respondent in the subject matter: "... To the degree that such motivation (i.e., involvement) is provided, fewer stimuli are required to elicit a response."

Cannell and Fowler (1963) stressed the need for developing special motivational techniques in self administered questionnaires. However, they related motivation to accuracy in reporting. They said:

> The clearest and most significant finding is the importance of motivation as a variable in reporting. We do not know why some people are motivated and others are not nor are we certain what steps should be taken to increase the level of motivation.

Mayer and Pratt (1966), in a discussion of nonresponse bias, said:

> If the nature of an individual's involvement in the subject matter of the survey underlies his motivation to respond, motivation, in turn, provides a useful approach to explaining or predicting the distribution of the characteristics of those who refuse.

Empirical studies indicate that many of the techniques used to increase response rate are effective, but they give no indication as to why or how such techniques help to fulfill respondents' needs.

Bachrack and Scoble (1967) detailed the very many combinations of stimuli they employed to encourage a high response rate among 624 contributors to a national political organization, but did not relate them to respondents' needs. They said:

> No matter how intellectually entertaining or intriguing it has been made, the mail questionnaire is an imposition. To justify an imposition, to convince a potential respondent he should volunteer his time and energy to an unknown researcher, requires persuasion, persistence and attention to procedural techniques and details calculated to overcome his resistance.

CLASSIFICATION OF QUESTIONNAIRE RESPONSE TECHNIQUES BY HUMAN NEEDS

An examination of the implicit assumptions underlying recommended techniques to increase response rate suggests that a new taxonomy based on motivational theory may provide the basis for a new conceptual framework. A person's basic motivational patterns (i.e., the values that he holds) may determine to a large degree what he does or how well he

performs. His immediate decisions and his life goals are influenced, consciously or unconsciously, by his value system. His personal satisfactions are dependent to a large extent upon the degree to which his value system can find expression in his everyday life. It is likely, therefore, that an individual's willingness to respond to a specific questionnaire may be based upon the degree to which the questionnaire satisfies his basic needs or values.

A reexamination of the techniques cited in the literature to increase response rates reveals that they lend themselves to categorization as techniques designed to fulfill the human needs for recognition, responsibility, and reward, or to reduce the negative motivations (i.e., the "burden") implicit in questionnaire response. The following section will examine each of the techniques cited in the literature as a function of the human needs they are presumed to fulfill.

After each category is described, citations are given of selected studies and/or statements made by various researchers which reveal the implicit assumptions which underlay their investigations or conclusions regarding specific techniques to increase response rates.

Discussion of the four categories of (1) recognition, (2) responsibility, (3) reward and (4) reduction of negative motivation will be followed by discussion of a fifth category, benevolence, which has been used as a motivating appeal in recent direct mail campaigns.

1. Ego or Recognition (The need to be looked up to and admired, to feel important, attract favorable notice, achieve recognition.)

All of the techniques designed to personalize the covering letter and the questionnaire mailing can be assumed to appeal to the ego or recognition need. These techniques include the use of an inside address, salutation, titled signature, handwritten postscript and signature, quality reproduction, first class postage, and the use of a stamp instead of a postal meter. Special delivery and certified mail may serve to intensify the presumed importance of the respondent's reply. A title on the questionnaire (i.e. Survey of Key Executives in the Automotive Industry) serves to flatter the respondent's ego; so does the sponsorship of a respected organization. Preliminary and followup letters which stress the importance of the respondent's reply also appeal to the ego need. If the topic is one in which an ego-involved respondent has some special interest, he may be highly motivated to have his opinion "heard" -- thus giving rise to response bias based on special interest.

Citations Stressing Ego Appeals

Greenberg (1956) addressed the question as to why survey respondents answer questions (i.e., questionnaires):

> Frequently, the major reason is that they are flattered that someone is interested in what they have to say. Their egos are enhanced and they become ego-involved in the interview. It is disirable to have ego-involved respondents, since a highly involved respondent feels that his answers to the interviewer's questions are important and reflect on his reputation. He is highly motivated, he wants to participate actively and to give the best answers he can in order to increase his self esteem and to gain the interviewer's approval.

Roeher (1963) noted that a critical factor in realizing a high response rate in his studies of 400 randomly selected contributors to the Easter Seals and March of Dimes was the personalized element in the communication with the subject. He reported a high correlation between the degree of response and the "subject's sense of receiving individual and personal attention." Personally typed letters told the subject that his name was chosen as "one of a select group whose opinions were sought" in connection with the research project. Roeher also noted that a titled signature on his cover letter resulted in an 81 per cent response, versus a 55 per cent response to an untitled signature.

Francel (1966), in reporting unusually high rates of return from 14 consumer surveys conducted among 3,948 consumer premium redeemers for Diamond Crystal Salt Company (ranging from 70 per cent to 90 per cent), attributed much of the high response to the "personal, friendly tone" of the cover letter, which was designed to "make the respondent feel his reply is really important."

Plog (1963) reported a study of 162 readers of the Boston Herald who wrote letters to the editor during two time periods in 1959. Personally typed and signed letters were sent to these readers on the day their letter was received, assuring them that " ... the letters we get are very important to the editorial direction of The Herald ... Many bring new points of view or are so ably written as to contribute greatly to

the editorial page ... All are read and all help to guide our thinking." Then, the questionnaire was broached thus:

> To get a better appreciation of our correspondents we are collaborating with a group of social scientists at Harvard University in a survey. Could we ask you ... ?

The letter was signed by the Chief Editorial Writer. Two different studies resulted in 92 per cent and 98 per cent returns respectively.

Erdos (1970), in discussing the cover letter, pointed out that " ... Everybody likes to feel important, to know that he is a member of an important group, to feel he is participating in an important project." He suggested a sentence such as " ... We are sending this questionnaire to executives, managers and professional men." He also suggested the use of a title on the questionnaire which would appeal to the respondent's ego (i.e., Survey Among Top Executives) and serve as a bridge between the cover letter and the questionnaire.

Bachrack and Scoble (1967) airmailed a preliminary letter multilithed on university letterhead and signed with a title to the 624 contributors to the National Committee for an Effective Congress, stressing the theoretical importance of the research, explaining how the addressee's name had been obtained, and the importance of his participation in "a scientific study". A second (additional) preliminary letter was sent to "high status" recipients, signed by

both the Executive Director and Chairman of the Board of Advisors of the organization, in which they endorsed the project and repeated the request for participation.

Scott (1961) pointed out that the very factor of followup letters serves to indicate to respondents the importance of their replies.

Eckland (1965) used telephone and certified mail followups after three waves had achieved a 67 per cent rate of response, and increased the response by an additional 28 per cent to a total of 95 per cent.

Levine and Gordon (1958) used airmail special delivery postage on both the outgoing and return envelopes of their study of 85 Blue Cross plans, and stated that " ... To the extent that it was possible, a personal touch was maintained in communication between the research organization and the respondents."

Frazier and Bird (1958) in their study of 1,561 residents of two counties in Idaho, noted the importance of the personal touch in the letter of transmittal. They used a handwritten signature and postscripts which stated: "We need your help in this report. Could you please send it in promptly ?" The handwritten postscript increased responses from 25 per cent to 31 per cent -- a significant difference.

Stafford (1966) used a personally signed multilithed letterhead from the University of Houston Center for Research

in a study of 1,247 students from three universities in Houston and reported a high response rate. Dillman (1972) used a fill-in name and address on a multilithed letter with a handwritten signature and claimed that its use contributed to a high (75 per cent) return.

Parten (1950) stated:

> It has been found that a personal touch in the letter of transmittal is quite effective in bringing in returns. A postscript which looks as if it were written by hand, or a personal signature of the sender whose name appears on the stationery, has proved effective ....

2. Responsibility (i.e., to be aware of social and professional duty, to have the ability to stick to jobs assigned, to be persevering and determined, one who can be relied on).

Covering letters which stress the importance of the study to society, to the government, to the profession, to industry or to one's self, appeal to the responsibility motive. This may explain the high response rates achieved from samples of specialized subgroups or professional societies, and by government-sponsored studies and "official" letterheads. The use of a deadline date may also be assumed to appeal to a person's sense of duty. Offers of survey findings often appeal to professional or social concerns. Effective preliminary and followup letters may prevail upon the respondent's feelings of duty and/or obligation to society. It appears reasonable to suggest that questionnaires appealing to the responsibility motive need face validity to be effective.

Citations Regarding Responsibility Appeals

Payne (1946) reported that approval on two types of medical care in a national cross section study increased by 26 per cent and 32 per cent when the question was changed from the second person to the third person, "repressing the selfish point of view and encouraging a more socially responsible reply." He stated:

> On a broad social or economic issue, the degree of personalization of questions may have important influence on the answers. Thus, by changing from a second person 'Speak for yourself John' tone to a third person, one encourages respondents to answer more altruistically.

Sletto (1940) sent different appeals to three randomly assigned samples of 100 former university students each. The first letter called upon the recipients to help improve education for thousands of young people who would be entering the university during the following year. The second letter directed respondents' attention to the changes occurring in education and requested help to "guide these changes in the right direction." The third letter challenged the recipient to "help do something that people say can't be done" (i.e. get former students to cooperate with a lengthy questionnaire). The responsibility appeal of the first letter proved most effective, with a 67 per cent response rate.

Levine and Gordon (1958) reported that the strategy of sending preliminary letters to Blue Cross plans across the country was designed to impress upon the individual

plans that they were, in a sense, already committed to the study, and that their responses to the questionnaires were necessary to complete the study. The investigators stated:

> To obtain a respondent's involvement and co-operation, it is necessary to impress him with the seriousness and importance of the project. They must be assured that the results will justify the time and effort expended in filling out a questionnaire. The letters to Blue Cross administrators assured them that their assistance was vital and the results would be of great value. Finally, they were reminded of the substantial investment which the research organization had already made in the study ... The research staff was able to reward the respondent by assuring him that through the study he would make a valuable contribution to the field and by promising him a copy of the final report when it was completed.

Erdos (1970) suggested:

> It might interest the reader of your letter to participate in an important research project. Write about the importance of the research and how it can help the respondent, his company, industry or profession ... Importance of the project can be indicated by describing the nationwide or industry-wide scope of the project. Possibly the best method is to emphasize the benefits the research project may bring to a profession, an industry, or a group of people.

Tallent (1959) attributed the high rate of return from 1567 Veterans Administration psychiatrists, psychologists and social workers (ranging from 81.2 per cent to 97.7 per cent) to their professional interest in the topic, an area in which the respondents demonstrated much professional concern.

Boek and Lade (1963) sent a preliminary letter to 178 Health Department employees stressing the impor-

tance of the study and signed by the Commissioner of Health; the cover and followup letters reminded recipients of the Commissioner's letter. Returns were close to 100 per cent.

Pomeroy (1963), as Director of Field Research tor the Kinsey Institute for Sex Research, reported almost no difficulty in getting some 18,000 respondents across the entire spectrum of social, educational and intellectual levels in the United States to talk openly and completely about their sex lives by stressing how important, needed and usetul the research would be to others. Interviewers pointed out that psychiatrists, psychologists, social workers, ministers, lawyers, school teachers, and so forth, were very much in need of this type ot research.

Goldstein and Kroll (1957) concluded that the high (98.6 per cent) rate of response they received in their survey of 4,716 general hospitals was due in part to government sponsorship of their study. They said: "Certain groups of respondents felt an obligation to reply to the questionnaire merely because the request was from a government agency."

Scott (1961) attributed the extremely high response rates experienced by the British Social Survey in part to the tactor of governmental sponsorship. He also reported an accelerated response when he attached a slip with

"IMMEDIATE" to a questionnaire sent to British home dwellers concerning livestock. Ferris (1951) reported an immediate heavy response to the use of a deadline date in a study of 241 college sociology teachers.

Nickols and Meyer (1966) in their study of 1600 college students who had engaged in a similar study a year earlier, reported a high rate of response to a three day postcard followup appealing to the recipients' sense of duty to return the questionnaire "right away" if they had not done so already.

Heaton (1965) pointed out that the purpose of a preliminary letter was not only to identify the researcher, but to inform the recipient of the study's purpose and importance.

Donald (1960) reported a very high response from women most heavily involved in the organization under study, the League of Women Voters.

Kephart and Bressler (1958) reported that professional groups were less influenced by monetary inducements than were other populations.

3. Reward (i.e., the rational, economic need to be rewarded for a completed task).

All gifts, premiums, money incentives, lottery chances and other tangible rewards can be categorized as attempts to fulfill the need for reward for an accomplished task. Many mail panels, for example, rely on compensation of panel members to encourage response.

Citations Regarding Reward Incentives

Researchers report using various kinds of tangible incentives to increase the response rate. Erdos (1970) said that 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 response rate.

Robinson and Agisim (1951) claimed to have increased response rates from a low of 5 - 10 per cent to as much as 70 - 80 per cent by using premiums, though they cited no empirical evidence. They noted that " ... It's not the value of the premium but the psychology of it" that counts. They warned, however, that any premium which attracts a special class of respondents tends to select a distorted sample.

Knox (1951) used a chance in a lottery for a turkey as the incentive to encourage response from 173 unemployed railroad firemen.

Parten (1950) suggested that:

> It might be worthwhile to experiment with really large inducements. For example, if a prize of $100 were to be given by the survey agency and the lucky winner was to be drawn by lot from among the respondents, it is quite likely that the response would be good.

Jahoda, Deutsch and Cook (1951) stated that, for most mail panels, an incentive of some sort is needed to obtain the respondent's cooperation and participation:

> Consumer panel members are generally given some sort of tangible reward, such as points redeemable for premiums, as an incentive to remain in the panel. Opinion panels usually offer no tangible rewards, since prestige may be an effective incentive for opinion panels.

Sudman (1964) reported that households keeping National Consumer Panel diaries receive points redeemable in merchandise:

> It is still not clear ... exactly how or why compensation influences recording. The Panel contains households with annual incomes over $50,000. Economic theory would suggest that the prizes received for keeping diary records are of greatest value to lower income households. Yet, upper and middle income households also respond to this compensation as a tangible expression ... of their efforts ,.. Recent indications, although still inconclusive, suggest that long-run willingness to remain in a panel is influenced by the level of compensation.

Nickols and Meyer (1966) reported that in order to induce wives to have their spouses complete a questionnaire for a mail panel, the wife was promised "a very nice thank you gift" in appreciation of her cooperation.

4. Reduction of Negative Motivation

This category includes all techniques designed to minimize the effort (or apparent effort) and/or personal risk which questionnaire response entails. Examples of the kinds of variables included in this category are questionnaire size, questionnaire length, question numbering schemes, format, type size, color of questionnaire, stamped return envelope, and so forth. Included, too, are assurances of anonymity, which serve to dispel the fears of self disclosure and encourage valid response.

Citations Regarding the Reduction of Negative Motivation

Erdos (1970) stated that the primary purpose of such variables as small size, few pages, no illustrations, white paper, good printing, proper layout, etc. is to " ... ease the respondent into starting to answer, or at least not to deter him from answering."

Ford (1968) said that common sense dictates that the questionnaire should be attractive, easy to fill out, have adequate space for response, be neat, well organized and attractive. Cannell and Fowler (1963) noted the importance of simplifying the task of the respondent by making the form self-explanatory and short.

Keane (1963) in his study of 3,000 National Family Opinion Inc. panel households, reported using a double postcard "designed to minimize respondent effort" by design, arrangement, wording and question flow. Levine and Gordon (1958)

reported designing the questionnaire they sent to 85 Blue Cross Plans across the country to look shorter than it really was through printing.

Ferris (1951) tested the provision of a stamped return envelope to 241 university teachers against no return envelope and received a response of 62 per cent versus 26 per cent -- pointing up the importance of simplifying the task of the respondent by providing an envelope in which to return the questionnaire.

Andreason (1970) studied 515 New York State lottery winners and found that personalization (i.e., the ego appeal) is not always effective in increasing the response rate when anonymity is desired. In such instances, promises of anonymity are more effective in reducing negative motivation.

Manniche and Hayes (1957) said that a person is less likely to be entirely honest in an identifiable questionnaire than he would be in an anonymous document.

5. Benevolence (i.e., good will, charitableness, to do good to others).

A recent mailing by the American Express Company utilized a Benevolence appeal in soliciting new credit card customers by offering to send $1,000 to the American Cancer Society for the first 1,000 responses (i.e., new applications) it received. The results of this appeal were not available as of this writing.

DISCUSSION

The empirical investigations reported in the literature have been primarily concerned with adding or eliminating a specific variable or with varying the intensity of a variable. For example, studies have measured the effectiveness of third class postage versus first class postage (Gullahorn and Gullahorn, 1963; Watson, 1965), first class versus special delivery (Kephart and Bressler, 1958), stamps versus postal metering (Kimball, 1961; Dillman, 1972; Gullahorn and Gullahorn, 1963), facsimile signatures versus handwritten signatures (Kawash and Aleamoni, 1971; Kimball, 1961), no incentives versus coin incentives (Newman, 1962; Kimball, 1961), nickel incentives versus dime and quarter incentives (Kephart and Bressler, 1958), and so forth.

No studies have been located which attempted to measure the relative effectiveness of different motivational treatments on response rate. However, motivational theory suggests that people respond selectively to questionnaire inducements based on their psychological value systems. If this hypothesis is true, then differing motivational treatments utilized in a mail questionnaire survey should result in self-selected response based on the specific value systems of the respondents. The people who respond to a specific motivational treatment can be expected to hold strong personal values related to the human need embodied in or operationalized by the motivational treatment in question. Thus, one should

expect to find that the individuals who respond to a specific motivational treatment are similar to each other in terms of the relevant psychological value. Furthermore, these individuals would differ in respect to this value from respondents to a motivational treatment which embodied a different psychological value. In sum, one would find that individuals respond selectively to mail questionnaires as a function of their own psychological value systems.

CHAPTER IV

HYPOTHESES

This study was designed to investigate the hypothesis that people selectively respond to the motivational stimuli of mail questionnaires as a function of their own psychological values. The specific hypotheses to be tested are:

Hypothesis 1

> Response rates of randomly assigned experimental groups to a mail questionnaire will differ as a function of the respective motivational treatment accorded each group to encourage response.

The literature is replete with empirical evidence demonstrating that different questionnaire stimuli very often result in significantly different response rates between randomly assigned groups (Scott, 1961; Ferriss, 1951; Kephart and Bressler, 1958; Gullahorn and Gullahorn, 1963; Robinson and Agisim, 1951; Clausen and Ford, 1947; Wallace, 1954; Roeher, 1963; Frazier and Bird, 1958; Wotruba, 1966; and others.) It seems reasonable to suggest that different psychological stimuli embodied in or accompanying a questionnaire will also result in differing rates of response between randomly assigned groups. Thus, if individuals respond to mail questionnaires as a function of their psychological needs or values, then the rate of response to a questionnaire utilizing a specific motivational treatment would depend on the proportion of people in the population who pos-

sessed that need. If given personality needs (i.e. benevolence, responsibility, ego) are differentially represented in a specific population, then mail questionnaires which respectively appeal to such needs in randomly assigned experimental groups should result in differential response rates reflecting the presence of these personality needs in the population.

Hypothesis 2

> The demographic and socioeconomic characteristics of mail questionnaire respondents in randomly assigned experimental groups will differ as a function of the motivational treatment to which they have responded.

A number of studies have reported differences in the demographic/socioeconomic characteristics of respondents and nonrespondents (Franzen and Lazarsfeld, 1945; Suchman, 1962; Roeher, 1963; Clausen and Ford, 1947; Gannon, Nothern and Carroll, 1971; Wallace, 1954; Reuss, 1943; and others.) Psychological characteristics may or may not be independent of demographic and socioeconomic characteristics. There is no manifest reason why individuals who respond to a stimulus based on a specific personality construct will not differ in any systematic way in terms of their demographic/socioeconomic characteristics from those who respond to a different psychological stimulus.

Hypothesis 3

> The relevant personality characteristics of mail questionnaire respondents in randomly assigned experimental groups will differ as a function of the motivational treatment to which they have responded. Thus, individ-

The following specific hypotheses derive from Hypothesis 3:

a. Individuals who respond to a benevolence stimulus in a mail questionnaire will differ in terms of their benevolence scores from individuals who respond to other motivational stimuli.

b. Individuals who respond to a responsibility stimulus in a mail questionnaire will differ in terms of their responsibility scores from individuals who respond to other motivational stimuli.

c. Individuals who respond to an ego-enhancing stimulus in a mail questionnaire will differ in terms of their ego scores from individuals who respond to other motivational stimuli.

If, as motivational theory suggests, people respond to mail questionnaires as a way of fulfilling their own psychological needs, then individuals with a specific psychological need will respond to a mail questionnaire which serves to satisfy that need and will not respond to a mail questionnaire which does not satisfy that need (i.e. one designed to satisfy a different psychological need.) Thus, mail questionnaires which satisfy a specific psychological value will tend to be answered by individuals who are homogeneous in respect to their strong common need for the relevant psychological value; these individuals will differ in respect to the relevant psychological value from individuals who respond to a questionnaire which satisfies a different psychological value.

Hypothesis 4

> Individuals who receive high responsibility scores on a psychological test which measures responsibility will respond in greater numbers to mail questionnaires utilizing responsibility motivational treatments than will individuals who receive low responsibility scores.

Individuals who are persevering and determined, who can be relied on, who stick to any job assigned them, tend to score high on the responsibility scale (Gordon, 1963.) It would appear reasonable to suggest that individuals who score high on responsibility will respond to a responsibility appeal in a mail questionnaire more readily than individuals who earn low responsibility scores.

Furthermore, businessmen who respond to a responsibility appeal in a mail questionnaire may be more likely to belong to business or professional societies than businessmen who respond to other motivational appeals.

Hypothesis 5

> Individuals who receive high ego or recognition scores on psychological tests which measure ego will respond in greater numbers to mail questionnaires utilizing ego-enjancing motivational stimuli than individuals who receive low ego scores.

Individuals with strong ego needs enjoy being looked up to and admired, being considered important, attracting favorable notice, achieving recognition (Gordon, 1960.) It would appear reasonable to suggest that people with high ego needs may respond more readily to a mail questionnaire utilizing an ego-enhancing stimulus than would individuals with low ego needs. Furthermore, one might expect

that individuals who respond to an ego-enhancing stimulus in a mail questionnaire would be more likely to recount their personal achievements in a mail questionnaire which invited them to do so than would individuals who responded to other motivational stimuli.

Hypothesis 6

> Individuals who receive high benevolence scores on psychological tests which measure benevolence will respond in greater numbers to mail questionnaires utilizing benevolence motivational stimuli than individuals who receive low benevolence scores.

Benevolent individuals enjoy doing things for other people, sharing with others, helping the unfortunate, being generous (Gordon, 1960.) One would expect that individuals with high benevolence scores would respond to a mail questionnaire utilizing a benevolence stimulus in greater numbers than would individuals with low benevolence scores. Furthermore, individuals who respond to a benevolence stimulus may be more likely to engage in some kind of philanthropic activity -- such as hospital work, charity work, working with youth, and so forth -- than individuals who respond to other motivational stimuli.

IMPORTANCE OF INVESTIGATION

Information gathering by mail may be one of the least understood techniques of data collection. Yet mail surveys undeniably offer substantial advantages to market and opinion researchers, to the business and government decision makers who use research, and to academic researchers and scholars concerned with understanding human behavior. The objective of the research described herein is to discover some of the reasons underlying an individual's willingness to respond to a mail questionnaire. This information will enable researchers to increase both the usefulness and the efficiency of the mail survey as a predictive tool capable of providing a sound foundation for strategic management and marketing decisions. Increased efficiency will result in greater cost savings for researchers and for those who underwrite research. Knowledge of why individuals respond to mail questionnaires will help social scientists to better understand their samples and give them greater insight into the meaning of their research findings.

Some of the implications of the research are:

1. Support of the major hypothesis would enable market researchers to segment their samples psychographically in line with present market segmentation strategies.

2. Support of the major hypotheses would make it possible to reach specific personality types by mail for a variety of reasons. For example, direct mail advertisers would be able to target their efforts to specific psycho-

graphic market segments. Market researchers would be able to study the attitudes and opinions of various psychographic segments as a basis for marketing strategy. They will be able to identify (in order to influence) those individuals who are high on the relevant personality measure, and thus deepen their dominance in this segment, as well as those individuals who are low on the relevant personality measure in order to "take them away" from a competitor.

Politicians would be able to better direct their campaign mailing efforts. Current political segmentation practices are based on economic, geographic and ethnic stratification; however, psychographic segmentation may prove to be even more useful.

Public opinion researchers would gain deeper insight into the attitudes and opinions of the public. Military recruiters would be able to attract and influence desirable personality types for a volunteer service.

3. Support of the major hypotheses would enable social scientists and other academic researchers to gain a deeper understanding of the populations they study and thus design their research efforts to yield increasingly valid information.

THEORETICAL IMPLICATIONS

In the field of mail surveys, there is an urgent need for a systematic body of empirical knowledge based on underlying theory related to other studies or scientific theories. Support of the major hypotheses would provide the basis for

a unified body of knowledge linked to the fields of business and the social sciences. Further, it would provide a conceptual framework which could integrate and order the bits and pieces of empirical knowledge which already exist. By providing a framework for relating specific findings to broader explanations, this study could make a substantial contribution to survey research methodology.

CHAPTER V

METHODOLOGY

EXPERIMENTAL DESIGN

The basic experimental design called for sending a questionnaire mailing -- identical in every respect but the motivational appeal embodied in the postscript of the cover letter -- to four randomly assigned experimental groups. In an effort to concurrently validate the respondents' need or value systems as expressed by their self-selected response to the experimental treatment group, the questionnaire was designed to measure three relevant personality constructs: benevolence, responsibility and ego. In addition, the questionnaire contained demographic and socioeconomic questions for classification purposes and three questions designed to internally validate the personality acores achieved.

The four experimental groups were obtained through random assignment of a sample of eleven hundred middle and upper management employees into four equal groups. This design, called split ballot testing, corresponds to the conditions maintained in a controlled experiment. In this experiment, the major criterion variable is the self selection of respondents as measured by response rate and the personality scores measured by the questionnaire. The predictor variable is motivational treatment.

EXPERIMENTAL GROUPS

The four experimental groups were each sent the identical questionnaire, a stamped, pre-addressed return envelope, and a cover letter. The cover letters were identical in all respects but the postscripts, through which the motivational appeals (i.e. the predictor variables) were operationalized. (The cover letters appear as Figures 1 through 4 in Appendix A.)

The Benevolence (B) Group was offered the opportunity to contribute to the welfare of others by completing and returning the questionnaire. Specifically, the postscript said:

> In an effort to match your generosity in completing this questionnaire, the writer pledges to donate one dollar to the American Cancer Society for every completed questionnaire returned.

The Responsibility (R) Group was appealed to on the basis of professional/social responsibility. Specifically, the postscript said:

> The careful selection of applicants for an MBA degree will result in an improvement in the caliber of new managerial trainees in industry. By contributing just a few minutes of your time, you can make an important contribution to the selection and training of the future business leaders of America.

The Ego (E) Group was given an ego enhancement stimulus to respond. Specifically, the postscript said:

> This questionnaire is being sent to a select list of successful industry leaders throughout the nation; therefore your reply is extremely important to us. May we count on your response?

The Reward (T) Group was given a tangible reward stimulus to respond. A quarter was affixed to the lower left hand corner of the letter, next to the postscript, which read:

> The enclosed coin is just a token of our appreciation for your help. It may brighten the day for some youngster you know.

METHODOLOGY

Cover Letter

The cover letter was carefully worded to give face validity to the inclusion of a personality test within the questionnaire. The need for such face validity was especially important for the R group, for which responsibility was the motivating appeal. For this reason, it was decided that the questionnaire survey should be described as a validation study for a selection test. Inasmuch as it had to be a widely applicable selection test, it seemed reasonable to call it a selection test for entrance into a Master of Business Administration program. An additional factor in favor of this choice was the opportunity to use Baruch Graduate Center stationery for the mailing.

The following factors were held constant across all groups: the letter was multilithed on Baruch Graduate

Center stationery and signed by hand in blue ink by a fictitious "Alan Rand, Director of Selection Research." (The name was deliberately chosen to be free of any ethnic connotation.) The Benevolence, Responsibility and Reward (B, R and T) cover letters were not dated and their inside salutations read simply "Dear Sir". In an effort to intensify the ego enhancement stimuli for the Ego (E) group, however, the cover letter for this group contained a one-line fill-in salutation (i.e., Dear Mr. Jones) and a typed date at the top, both carefully matched in type to the body of the letter. The final form of the letter was decided upon after preliminary testing (see below.)

Outgoing Envelopes

All outgoing envelopes were size #11, which is slightly larger than the conventional #10 business envelope (i.e., 4½"x 10 3/8" versus 4 1/8" x 9½"), and thus able to accommodate the three mailing enclosures with ease. It was believed that the larger size would also make the envelope stand out slightly from the other business mail with which it would be delivered, and thus call attention to itself and to its contents.

All envelopes bore a Baruch Graduate Center return address; they were addressed individually by typewriter to a specific individual at his business address. The letters were sent via first class mail with colorful commemorative stamps affixed for added attention value.

Return Envelopes

A #10 Baruch Graduate Center envelope, stamped with a colorful commemorative stamp and pre-addressed to Dr. Alan Rand, Baruch Graduate Center, 257 Park Avenue South, New York, New York 10010, was enclosed with each questionnaire.

The inside flap of each return envelope was blind-coded in invisible ink with a serial number which identified the specific person to which each questionnaire was sent as well as the experimental group to which he was assigned. The number was placed inside the return envelope rather than on the questionnaire itself to avoid detection by alert recipients. Blind-coding permitted careful tabulation of responses and provided the opportunity for future research efforts directed at either respondents or nonrespondents of the same sample.

Questionnaire

The questionnaire consisted of a four page, 8½" x 11" booklet (17" x 11" with centerfold) in black ink on white paper (see Figure 5 in Appendix A.) The first page, labeled "MBA Selection Validation Study", reiterated the purported purpose of the study and included directions for self administration. The second and third pages contained the psychological test (see below.) The fourth page contained six classification questions and three questions designed to validate the personality scores.

Psychological Test

In order to determine whether people selectively respond to the motivational stimuli of mail questionnaires as a function of their own psychological needs, the questionnaire included relevant scales taken from two validated personality tests which measured several personality constructs.

Chapter III stated that a reexamination of the techniques cited in the literature to increase response rates indicated that these techniques could be categorized as incentives designed to fulfill the human needs for recognition (ego), responsibility and reward, or to minimize the negative motivation (i.e. "burden") evoked by the prospect of completing a questionnaire. Thus every effort was made to locate a short, validated test that could be self-administered which would measure the psychological needs for recognition, responsibility and reward. Entries in the Seventh Mental Measurements Handbook (Buros, 1972) and the Personality Tests and Reviews (Buros, 1970) were carefully examined in search of an appropriate test; however, it was difficult to locate a test which met the above criteria. The most appropriate tests appeared to be the Survey of Interpersonal Values (Leonard Gordon, Science Research Associates, Chicago, Illinois, 1960) which measures Recognition (among other constructs) and the Gordon Personal Profile (coincidentally also by

Leonard Gordon, Harcourt, Brace & World, New York, 1963) which measures Responsibility (among other constructs.) No test could be located which measured the need for Reward. One construct -- Practical Mindedness -- was considered and then discarded as inappropriate. Despite the fact that no test could be located which would concurrently validate the Reward motive, research evidence as to its effectiveness in stimulating response was so strong as to merit the inclusion of Reward as the third experimental treatment.

Consideration was given to the fact that if the major hypothesis to be tested was supported, then it would follow that any psychological appeal which could be operationalized in a cover letter and which would help fulfill an individual's needs or values would serve to stimulate response. One of the constructs measured by the Survey of Interpersonal Values (SIV) was Benevolence, a construct which was operationalized as a motivating appeal in a recent direct mail campaign by the American Express Company. Because it met the criteria of relevance and operationalization, and because it could be tested with the SIV, Benevolence was chosen for the fourth experimental treatment.

Tests Descriptions: The Gordon Personal Profile (GPP) is a forced choice, 18-item test arranged in tetrads of two favorably worded and two unfavorably worded items. The Survey of Interpersonal Values is a forced choice,

30-item test arranged in triads. (However, only the twenty-two items containing the Benevolence and Recognition scales were used.) In each test, the respondent is asked to select one most descriptive and one least descriptive statement from each set. The test manuals indicated that the items contained in the scales had been determined by factor analytic methods. The items within each set had been equated for social desirability, thus, according to Gordon (1963, 1960), reducing the likelihood of an individual responding to the favorableness of the statement rather than to its degree of importance to him.

The final selection of these tests for inclusion in the questionnaire was based on the fact that they most closely measured the constructs which were to be operationalized within three of the four experimental groups, they were relatively short, and capable of self-administration. The test scales were modified slightly to fit the four page format and reproduced within the questionnaire with no identifying title.

Sample

Because of the nature of the psychological test and the explanation for it carried in the cover letter, it was believed desirable to have a fairly literate sample frame, preferably businessmen who would appreciate the practical value of an MBA degree. Accordingly, a random list of eleven hundred names was ordered from a commercial list broker. The sample size was tentatively chosen as

large enough to yield a sufficient number of responses for statistical treatment. Pretesting would determine the actual sample size to be used. The frame consisted of a national list of 107,000 names of executives in charge of plant management in firms which employ twenty or more employees.

Systematic sampling resulted in a geographically disbursed sample of eleven hundred names which represented every state in the nation except Alaska, Missouri and Wyoming.

After random assignment of the sample to the four experimental groups, each name on the list was numbered with the prefix of the experimental group plus a four-digit identification number (i.e. B0243.) These identification numbers were used to blind-code the return envelopes.

PROCEDURE

PRELIMINARY EXPERIMENTAL VALIDATION

In order to verify that each cover letter would be seen as distinctly different from each other despite the fact that they differed only in their respective postscripts, thirty copies of each of the four letters were distributed to graduate students at the Baruch College, along with a twelve-item semantic differential scale (see Figure 1, Appendix B.) It would have been preferable to conduct the experimental validation study on a subsample of the sample frame to be used for the major study; however, since the test was in effect a feasibility study of a research design which was

essentially independent of a requisite population, and since it would be followed up by a pretest of the actual mailing with a subsample of the population to be studied, it was decided to let time and financial constraints operate in favor of a convenience sample. Subjects were asked to read the attached cover letter carefully, then to check those statements on the seven point scale which best described "the type of person who is most likely to respond to its appeal." (An earlier version of the scale, in which subjects were asked to "describe the type of person this questionnaire is being directed to", proved somewhat ambiguous in a pretest inasmuch as subjects reported uncertainty as to what was expected of them; thus it was modified.) The semantic differential scale contained three sets of bipolar statements for each motivational appeal. The mean profiles obtained from the semantic differential scales (Table 1 and Figure 2 in Appendix B) indicated that the four letters appeared to be sufficiently distinctive from each other to warrant their use as the predictor variables in the experiment.

PRETEST

A pretest of the study was conducted prior to the major mailing in an effort to determine the rate of response to be expected and the completeness of the replies to be received.

The rate of response to the pretest was an important determinant of the ultimate size of the sample, since it was necessary to have a sufficient number of replies to

the first wave mailing to permit appropriate statistical analyses. It was believed that the appeals invoked by followup mailings could contaminate the initial experimental treatments; therefore, it was decided that no followup mailings would be used.

A total of one hundred names (twenty five from each experimental group) was systematically selected from the sample of eleven hundred for the pretest. A criterion rate of 15 per cent for each experimental group was established for purposes of statistical reliability. If this response rate was not met within a three week period from date of mailing, the sample size would be increased. If indicated, the letters and/or questionnaire would also be revised.

The pretest mailing was posted on Monday, May 14, 1973. (Monday was chosen as the mailing date to assure delivery of the questionnaire to the recipient in the midweek, thus avoiding the conventional Monday business overload and the Friday weekend-anticipation slowdown.) By the following Monday, May 21 (seven days after the pretest mailing), the response rate had reached a total of 22 per cent broken down as follows for the respective experimental groups:
B group - 16 per cent (n=4); R group - 24 per cent (n=6);
E group - 16 per cent (n=4); T group - 32 per cent (n=8).
Inasmuch as the *a priori* criterion rate of 15 per cent had already been exceeded, the major mailing of one thousand pieces was posted on Monday, May 21, Since only seven days

had elapsed between the date of the pilot mailing and the date of the major mailing, it was decided to include the 22 responses from the pretest into the results of the major mailing. A six-week cutoff point was established to maximize the number of responses to be included in the study.

DATA PREPARATION AND PROCESSING

A codebook was developed to assure coding consistency (see Appendix C.) Each questionnaire, as it was received, was dated and labeled with the identification number which appeared in invisible ink on the inside of the return envelope. (It was necessary to use a black-light to decode these numbers.) The date of receipt was also noted on the master list, as were non-deliverable questionnaires. A surprising number of return envelopes came back with uncancelled stamps; in addition, a number of the commemorative stamps had been removed (either at the post office or in the University mailroom,) thus prohibiting the recording of responses by the postmarked date.

The returned questionnaires were grouped by experimental treatment and coded by the writer on standard 80 column IBM coding sheets for keypunching. All keypunched cards were proofread.

Pages two and three of the questionnaire, which contained the psychological tests, were first scored manually by means of a scoring template derived from the templates furnished by the publishers of the tests to fit the

type size and layout of the questionnaire. To assure accuracy, the individual responses to the questions were also keypunched on cards two and three and scored by means of a fortran program. The resulting scores were keypunched on card four.

The operational rules which were adopted for the coding process appear in the codebook. It should be noted that returned questionnaires were considered useable if the classification questions had been omitted (which occurred in three cases) but the test items completed (i.e. Category 6 in Column 8 Return Classification.) The two questionnaires in which respondents omitted the Responsibility scale (page 3 of the questionnaire) but completed the rest of the questionnaire were also considered useable responses (Category 7 in Column 8 Return Classification.) The processing of the collected data was undertaken at the Baruch College Educational Computer Center.

SUMMARY OF THE RESEARCH DESIGN

A sample of eleven hundred plant management executives was randomly assigned to four experimental groups. Each group was sent a similar mailing consisting of a cover letter, a questionnaire which included three personality scales, and a stamped preaddressed return envelope. Four different motivational treatments -- benevolence, responsibility, ego and tangible reward -- were operationalized within the postscripts of the cover letters and directed

respectively to each of the four subsamples (the B, R, E and T experimental groups). Response rates, demographic/socio-economic data and personality scores for each experimental group were processed in preparation for statistical analyses to test the a priori hypotheses set forth in Chapter IV.

CHAPTER VI

RESULTS

This chapter presents the results of the mail questionnaire survey undertaken to test the overall hypothesis that individuals respond to mail questionnaires as a function of their psychological value systems. The first part of this chapter describes the data collected and presents the frequency distributions by experimental group (see Tables 1 through 14.) The measure of central tendency cited for nominal data is the mode, which is used to develop a profile of the respondents in each experimental treatment condition (see Table 15.) Other parameters are presented where applicable.

The second part of this chapter is concerned with testing the hypotheses. Each hypothesis is presented with a summary of the statistical analyses performed to test it. The findings are displayed in tables and summarized in the text.

RESPONSE RATE

Rate of Response

Of the eleven hundred questionnaires which were mailed, ten were returned as undeliverable, reducing the sample size to 1090. The undelivered questionnaires were distributed across all groups and amounted to less than 1 per cent of the total. Eleven questionnaires were returned either

incorrectly or incompletely filled out, including five from the T group which were returned together with the quarters still attached. These unuseable responses amounted to 1 per cent of the sample. Because the undeliverable and unuseable questionnaires amounted to less than 2 per cent and were spread across all groups, there appeared to be no meaningful bias related to their return; therefore group sample sizes were considered as equal. Using the 1100 gross sample base, the overall response rate was 23.63 per cent. Using the adjusted 1079 sample base, overall response rate amounted to 24.1 per cent. The response rates by experimental group (base of 1079) are as follows:

B group:	23.79%	(n=64)
R group:	16.54%	(n=45)
E group:	21.90%	(n=60)
T group:	34.47%	(n=91)

Table 1 summarizes the sample and subsample mailings and response rates.

Speed of Response

Of the 260 useable replies received in the six week period of the study, 69.6 per cent were received within eight days, 91.5 per cent were received by the sixteenth day, and 97.7 per cent were received by the thirtieth day. Table 2 summarizes the weekly rates; Table 3 presents the rate of return by day of receipt after mailing. Figure 1 shows the cumulative responses by group. Additional replies received after the six week cutoff date were not included in the analysis. All of the R group responses

were received within three weeks of the date of mailing; responses from the other three groups continued to come in at a reduced rate over the following three weeks. The relatively high R group pretest response rate appears to have been due to a tendency of the R group respondents to reply promptly.

Table 1

Adjusted Sample Size
and Response Rate
by Experimental Group

	Total	B	R	E	T
Mailed	1100	275	275	275	275
Non-deliverable	10	4	1		5
Net Sample Size	1090	271	274	275	270
Not Useable	11	2	2	1	6
Adjusted Sample	1079	269	272	274	264
Responses	260	64	45	60	91
Response Rate*	24.10%	23.79%	16.54%	21.90%	34.47%

* base = 1079

Table 2

Weekly Summary of Responses Received by Experimental Group

	Total		B		R		E		T	
Days	n	cum %	n	cum %	n	cum %	n	cum %	n	cum %
2-8	181	69.6	41	64.1	32	71.1	42	70.0	66	72.5
9-15	50	88.8	15	87.5	9	91.1	9	85.0	17	91.2
16-22	19	96.2	5	95.3	4	100.0	4	91.7	6	97.8
23-29	3	97.3	1	96.9			1	93.3	1	98.9
30-36	4	98.8		96.9			3	98.3	1	100.0
37-42	3	100.0	2	100.0			1	100.0		
	260	100.0	64	100.0	45	100.0	60	100.0	91	100.0

Table 3

Number of Days Received After Mailing
By Experimental Group

Days	Total n	Total cum. %	B n	B cum.%	R n	R cum.%	E n	E cum.%	T n	T cum.%
2	18	6.9	3	4.7	1	2.2	5	8.3	9	9.9
3	31	18.8	5	12.5	10	24.4	6	18.3	10	20.9
4	47	36.9	12	31.3	6	37.8	13	40.0	16	38.5
6	2	37.7		31.3		37.8	2	43.3		38.5
7	8	40.8	1	32.8	1	40.0	2	46.7	4	42.9
8	75	69.6	20	64.1	14	71.1	14	70.0	27	72.5
9	4	71.2	2	67.2	1	73.3	1	71.7		72.5
10	30	82.7	10	82.8	5	84.4	6	81.7	9	82.4
11	6	85.0	1	84.4		84.4	2	85.0	3	85.7
12	1	85.4		84.4		84.4		85.0	1	86.8
14	9	88.8	2	87.5	3	91.1		85.0	4	91.2
16	7	91.5	1	89.1	2	95.6		85.0	4	95.6
17	5	93.5		89.1	1	97.8	3	90.0	1	96.7
18	1	93.8		89.1		97.8		90.0	1	97.8
21	6	96.2	4	95.3	1	100.0	1	91.7		97.8
24	2	96.9	1	96.9				91.7	1	98.9

continued ...

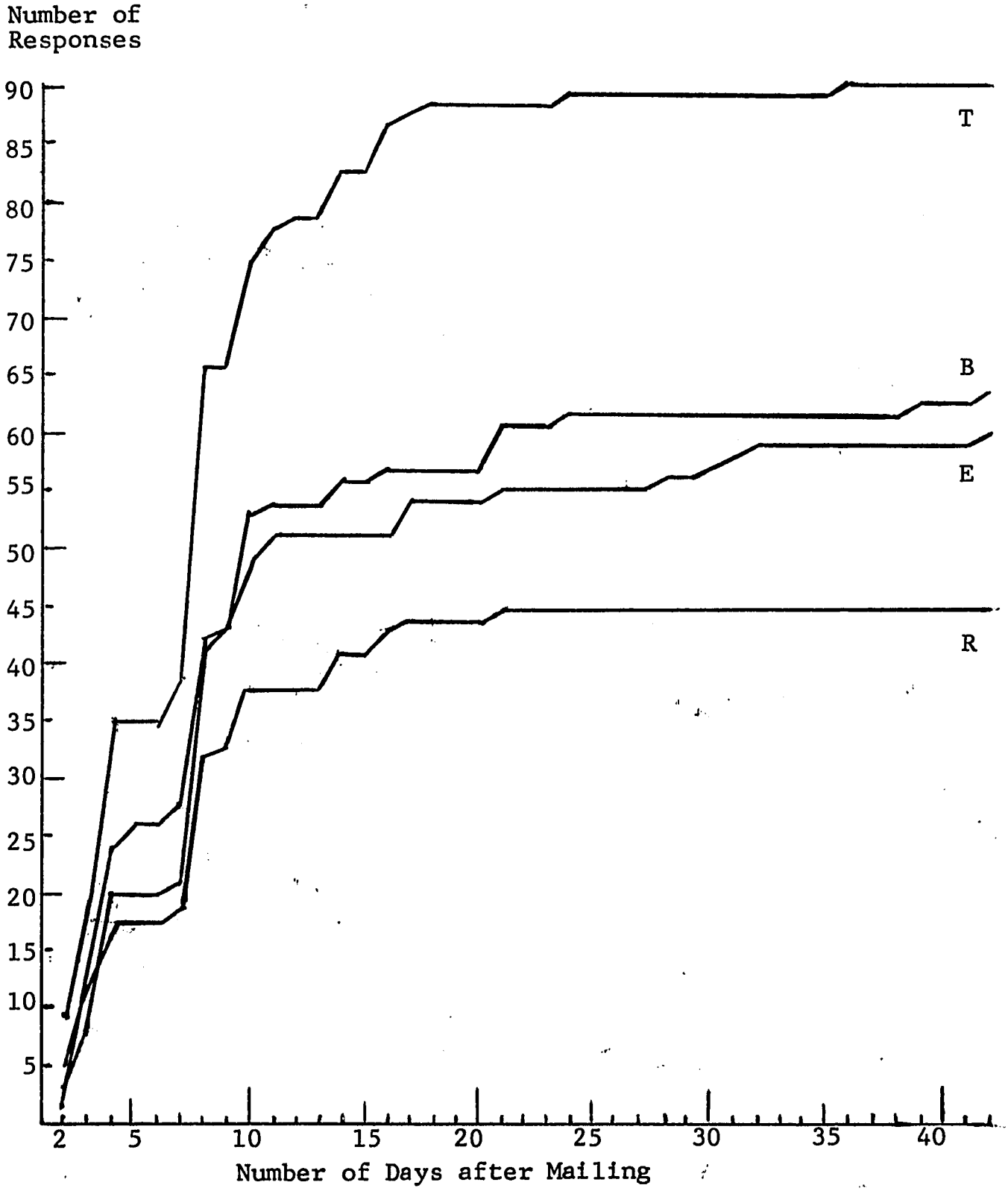
Table 3 (continued)

Number of Days Received After Mailing
By Experimental Group

Days	Total		B		R		E		T	
	n	cum.%	n	cum.%	n	cum.%	n	cum.%	n	cum.%
Forward		96.9		96.9		100.0		91.7		98.9
28	1	97.3		96.9			1	93.3		98.9
30	1	97.7		96.9			1	95.0		98.9
31	1	98.1		96.9			1	96.7		98.9
32	1	98.5		96.9			1	98.3		98.9
36	1	98.8		96.9				98.3	1	100.0
39	1	99.2	1	98.4				98.3		
42	2	100.0	1	100.0		100.0	1	100.0		100.0
	260		64		45		60		91	
Mean		8.438		9.344		7.689		9.067		7.758
Median		7.820		8.050		7.821		7.643		7.861
Mode		8.0		8.0		8.0		8.0		8.0
S.Dev.		6.571		7.503		4.486		8.316		5.301

Figure 1

Cumulative Responses by Day of Receipt
By Experimental Group



SOCIOECONOMIC AND DEMOGRAPHIC DESCRIPTION

Geographic Distribution

Useable responses were received from thirty-eight states and the District of Columbia. Table 4 shows the geographic distribution of the sample by state for each experimental group, and the geographic distribution of the responses received by experimental group.

Industrial Classification

Respondents are employed in thirteen of the twenty-one manufacturing categories listed in the Standard Industrial Classification (SIC) Code and in four non-manufacturing categories listed in the SIC Code. Table 5 presents the industrial classification of respondents by experimental group; Table 6 lists the relevant SIC code. Despite the wide industrial representation, a relatively large proportion of the sample (26.2 per cent) are engaged in fabricated metal manufacturing (SIC Code #34.) This industrial classification was the mode for the B, E and T groups. The R group tended to be engaged in a wider variety of miscellaneous manufacturing activities.

Table 4

Geographic Distribution
of Sample and Respondents

	Sample					Useable Responses				
	B	R	E	T	Total	B	R	E	T	Total
Alabama	2	3	3	3	11		1		2	3
Alaska										
Arizona	2	1	1	1	5	1				1
Arkansas	1	2	2	1	6			1		1
California	26	25	25	26	102	8	4	4	7	23
Colorado	1	2	2	2	7				1	1
Connecticut	8	8	7	7	30	3	1	3	4	11
Delaware			1	1	2					
Florida	4	5	5	4	18	3	2			5
Georgia	3	3	3	4	13	1		1	1	3
Hawaii	1				1					
Idaho		1	1		2					
Illinois	21	21	21	21	84	4	2	2	5	13
Indiana	9	9	8	9	35	1	1	1	4	7
Iowa	3	2	3	3	11	1	1	2		4
Kansas	2	3	2	2	9	1	1		2	4
Kentucky	2	2	3	3	10			1		1
Louisiana	2	2	2	1	7	1			1	2
Maine	15	14	15	17	61	1	1	5	4	11
Maryland	2	3	3	2	10	1	1		1	3
Massachusetts	11	10	10	11	42	2		3	6	11
Michigan	17	18	18	18	71	3	3	6	7	19
Minnesota	6	5	5	4	20	2			1	3
Mississippi	1	2	2	1	6		1		1	2
Missouri										
Montana	5	5	5	5	20	1				1
Nebraska	1	1	1	2	5			1		1
Nevada	1				1					
New Hampshire	1	1	1	1	4	1	1	1		3
New Jersey	24	25	23	23	95	3	2	8	5	18
New Mexico		1			1		1			1
New York	23	22	23	23	91	6	9	4	5	24
No. Carolina	3	4	4	3	14	3	2	1	3	9
No. Dakota				1	1					
Ohio	22	21	21	21	85	5	4	4	8	21
Oklahoma	1	2	2	2	7	1	1		2	4
Oregon	2	2	2	2	8			1	1	2
Pennsylvania	19	18	19	18	74	7	2	6	8	23
Rhode Island	3	3	3	3	12					
So. Carolina	2	1	1	2	6	1			2	3
So. Dakota		1			1					
Tennessee	3	3	4	4	14	1		1		2
Texas	10	10	10	10	40	2	2	1	1	6
Utah	1	1	1		3					

continued . . .

Table 4 (continued)

Geographic Distribution
of Sample and Respondents

	Sample					Useable Responses				
	B	R	E	T	Total	B	R	E	T	Total
Vermont	1			1	2				1	1
Virginia	2	3	2	2	9			1		1
Washington	2	2	3	2	9				2	2
Dist. of Columbia	1				1					
West Virginia	1	1	1	1	4			1	1	2
Wisconsin	8	7	7	8	30		2	1	5	8
Wyoming										
TOTAL					1100					260
Number of States Represented (including District of Columbia)					48	26	22	24	28	39

Table 5

Industrial Classification
by Experimental Group

SIC # *	Total		B		R		E		T	
	n	%	n	%	n	%	n	%	n	%
15	3	1.2			1	2.2	1	1.7	1	1.1
19	3	1.2	1	1.6			2	3.3		
20	3	1.2	1	1.6			1	1.7	1	1.1
25	2	0.8	1	1.6	1	2.2				
28	2	0.8			1	2.2			1	1.1
29	1	0.4					1	1.7		
30	6	2.3			2	4.4	3	5.0	1	1.1
33	17	6.5	2	3.1	2	4.4	5	8.3	8	8.8
34	68	26.2	20	31.3	8	17.8	13	21.7	27	29.7
35	29	11.2	7	10.9	6	13.3	5	8.3	11	12.1
36	31	11.9	12	18.8	6	13.3	3	5.0	10	11.0
37	23	8.8	4	6.3	5	11.1	4	6.7	10	11.0
38	22	8.5	4	6.3	2	4.4	10	16.7	6	6.6
39	35	13.5	5	7.8	10	22.2	9	15.0	11	12.1
42	2	0.8					1	1.7	1	1.1

* Table 6 lists the industries by SIC Code number.

Table 5 (continued)

Industrial Classification
by Experimental Group

SIC #	Total n	Total %	B n	B %	R n	R %	E n	E %	T n	T %
50	4	1.5	1	1.6			2	3.3	1	1.1
52	6	2.3	5	7.8	1	2.2				
	257	98.8	63	98.7	45	99.7	60	100.1	89	97.9
Item non-response	3	1.2	1	1.6					2	2.2
	260	100.0	64	100.0	45	100.0*	60	100.0*	91	100.0
mode		34		34		39		34		34

*rounding error

Table 6

Standard Industrial Classification Code

*15	Building Construction-General Contractors
19	Ordnance & Accessories
20	Food & Kindred Products
25	Furniture & Fixtures
28	Chemicals & Allied Products
29	Petroleum Refining & Related Industries
30	Rubber & Miscellaneous Plastics Products
33	Primary Metal Industries
34	Fabricated Metal Products, Except Ordnance Machinery & Transportation Equipment
35	Machinery Except Electrical
36	Electrical Machinery, Equipment & Supplies
37	Transportation Equipment
38	Professional, Scientific & Controlling Instruments, Photographic & Optical Goods, Watches, & Clocks
39	Miscellaneous Manufacturing Industries
*42	Motor Freight Transportation & Warehousing
*50	Wholesale Trade
*52	Building Materials, Hardware, & Farm Equipment Dealers

*Non-manufacturing Classifications

Job Title

The sample to which the study was addressed was categorized by the commercial list broker from whom it was obtained as executives engaged in plant management. Yet only 8.5 per cent of the respondents bore the title of Plant Manager; almost 80 per cent had higher titles, such as Division Manager, General Manager, Vice President, Division President, President, Partner or Owner (see Table 7.) The greatest number of respondents (39.2 per cent) were Presidents, Partners or Owners.

This is understandable when one considers that the majority of the companies are small companies (see below.) In such companies the chief executive officer is often very much involved in the day-to-day operations of the plant.

The modal job title for all groups was President. However, a larger percentage of the R group respondents were presidents than the B, E and T groups.

Table 7

Job Title
by Experimental Group

	Total		B		R		E		T	
	n	%	n	%	n	%	n	%	n	%
President, Partner, Owner	102	39.2	22	34.4	21	46.7	21	35.0	38	41.8
VP, Divis. Pres.	50	19.2	9	14.1	11	24.4	14	23.3	16	17.6
General Mgr.	37	14.2	9	14.1	2	4.4	9	15.0	17	18.7
Plant Mgr.	22	8.5	6	9.4	2	4.4	5	8.3	9	9.9
Corp. Officer	8	3.1	1	1.6	3	6.7	4	6.7		
Division Mgr.	10	3.8	3	4.7	4	8.9	1	1.7	2	2.2
Misc. Middle Mgt.	20	7.7	12	18.8	1	2.2	2	3.3	5	5.5
Misc. Lower Mgt.	8	3.1	1	1.6	1	2.2	4	6.7	2	2.2
	257	98.8	63	98.7	45	99.9	60	100.0	89	97.9
Item Nonresponse	3	1.2	1	1.6					2	2.2
	260	100.0	64	100.0*	45	100.0*	60	100.0	91	100.0*
mode	President		President		President		President		President	

*rounding error

Size of Company

The size of the respondent's company was judged in terms of the total number of employees which it employed in all of its plants. Table 8 presents this data by experimental group. Of the 256 replies to this question, 10.93 per cent worked for companies with 10,000 or more employees, 16 per cent worked for companies with 5,000 or more employees, 28.5 per cent for companies with 1,000 or more employees, and 36 per cent for companies with 500 or more employees. Sixty four per cent of the companies had less than 500 employees. Table 9 lists the size of the companies by their number of employees as a percentage of the 256 replies to this question. The mode for the B, E and T groups was less than 100; the mode for the R group was between 100 to 499 employees.

Number of Subordinates

In an effort to judge one measure of the on-the-job responsibility of respondents, they were asked to list the number of subordinates both directly and indirectly under their supervision. Of the 253 respondents who replied to this question, almost 56 per cent had fewer than 100 subordinates, 30 per cent had between 100 and 499 subordinates, and 12 per cent had between 500 and 4,999. Table 10 shows the complete breakdown of number of subordinates by experimental group. The mode for the B and E groups was less than 25, for the T group it was 50 to 99, and for the R group

Table 8

Number of Employees in Company
by Experimental Group

	Total		B		R		E		T	
	n	cum.%	n	cum.%	n	cum.%	n	cum.%	n	cum.%
Less than 100	99	38.1	20	31.3	16	35.6	22	36.7	41	45.1
100-499	65	63.1	15	54.7	16	71.2	18	66.7	16	62.7
500-999	19	70.4	5	62.5		71.2	6	76.7	8	71.5
1000-4999	32	82.7	10	78.1	6	84.5	7	88.3	9	81.4
5000-9999	13	87.7	4	84.4	3	91.1	2	91.7	4	85.8
10,000 or more	28	98.5	9	98.5	4	100.0	5	100.0	10	96.8
	256	98.5	633	98.5	45	100.0	60	100.0	88	96.8
Item non-response	4	1.6	1	1.6					3	3.3
	260	100.0*	64	100.0*	45	100.0	60	100.0	91	100.0*
mode	less than 100		less than 100		100-499		less than 100		less than 100	

*rounding error

Table 9

Size of Companies
measured by
Number of Employees

	n	%	cum n	cum.%
Companies over 10,000	28	10.93	28	10.93
5000 to 10,000	13	5.07	41	16.01
1000 to 4,999	32	12.50	73	28.51
500 to 999	19	7.42	92	35.94
100 to 499	65	25.39	157	61.32
20 to 99	99	38.67	256	100.00
	256	100.0%	256	100.0%

Table 10

Number of Subordinates
by Experimental Group

Number of Subords.	Total		B		R		E		T	
	n	cum.%	n	cum.%	n	cum.%	n	cum.%	n	cum.%
0-24	49	18.8	16	25.0	7	15.6	16	26.7	10	11.0
25-49	45	36.1	10	40.6	11	40.0	10	43.4	14	26.4
50-99	50	55.3	11	57.8	6	53.3	9	58.4	24	52.8
100-249	43	71.8	7	68.7	12	80.0	10	75.1	14	68.2
250-499	35	85.3	9	82.8	4	88.9	9	90.1	13	82.5
500-999	21	93.4	6	92.2	4	97.8	2	93.4	9	92.4
1000-4999	10	97.2	3	96.9	1	100.0	3	98.4	3	95.7
	253	97.2	62	96.9	45	100.0	59	98.4	87	95.7
Item non-response	7	2.7	2	3.1			1	1.7	4	4.4
	260	100.0*	64	100.0	45	100.0	60	100.0*	91	100.0*
mode		50-99		0-24		100-249		0-24		50-99

*rounding error

it was 100 to 249. It appears that respondents to the R appeal have more on-the-job responsibility in terms of supervision of subordinates than do respondents to the other motivational appeals.

Age of Respondent

The respondents ranged in age from 24 to 75 (see Tables 11 and 12.) Over two thirds of the respondents were in the 40 to 60 year old category, one fifth were under forty, and 8 percent were over 60. The greatest number of respondents (37.3 per cent) were in their forties; the modes, by group, were B, 43; E, 42; R and T, 47. The means, by group, were very close: B, 45.3; R 46.9, E, 48.1; and T, 47.1.

Education

Respondents appeared to be a very literate group. Of the 257 respondents who answered this question, over 60 per cent had attended college. while an additional 24 per cent attended graduate school. Only 15 per cent did not go beyond high school.

Almost two thirds of the respondents to this question were graduated from a four year college; of this number, over 21 per cent also held graduate degrees. Table 13 presents the highest level of school attended, by experimental group; Table 14 presents the highest level of school graduated, by experimental group. In both instances, across every group,

Table 11

Age of Respondent
by Experimental Group

Age	Total n	Total cum %	B n	B cum %	R n	R cum %	E n	E cum %	T n	T cum %
24-29	10	3.8	5	7.8	1	2.2	2	3.3	2	2.2
30-39	43	20.3	13	28.2	6	15.5	7	15.0	17	20.9
40-49	97	57.6	22	62.7	25	70.9	23	53.3	27	50.6
50-59	77	87.3	18	91.0	9	90.7	18	83.3	32	85.8
60-69	25	96.9	3	95.7	4	99.5	4	98.3	9	95.7
70-79	5	98.8	2	98.9			1	100.0	2	97.9
	257		63		45		60		89	
Item non-response	3		1						2	
	260	100.0	64	100.0*	45	100.0*	60	100.0	91	100.0*

* rounding error

Table 12

Age of Respondent
by Experimental Group

Age	Total n	Total %	B n	B %	R n	R %	E n	E %	T n	T %
24	1	.4					1	1.7		
28	5	1.9	2	3.1	1	2.2	1	1.7	1	1.1
29	4	1.5	3	4.7					1	1.1
30	4	1.5					1	1.7	3	3.3
31	2	.8					2	3.3		
32	4	1.5	1	1.6			1	1.7	2	2.2
33	4	1.5	1	1.6	1	2.2			2	2.2
34	2	.8	1	1.6			1	1.7		
35	6	2.3	2	3.1	1	2.2	1	1.7	2	2.2
36	3	1.2			1	2.2	1	1.7	1	1.1
37	5	1.9	3	4.7					2	2.2
38	4	1.5	3	4.7					1	1.1
39	9	3.5	2	3.1	3	6.7			4	4.4
40	12	4.6	2	3.1	2	4.4	4	6.7	4	4.4
41	5	1.9	1	1.6	1	2.2	1	1.7	2	2.2
42	10	3.8	1	1.6	3	6.7	5	8.3	1	1.1
43	9	3.5	4	6.3	2	4.4	3	5.0		
44	10	3.8	3	4.7	3	6.7	2	3.3	2	2.2
45	7	2.7	2	3.1	2	4.4	1	1.7	2	2.2
46	9	3.5	1	1.6	2	4.4	3	5.0	3	3.3
47	16	6.2	3	4.7	5	11.1	2	3.3	6	6.6
48	10	3.8	3	4.7	2	4.4	2	3.3	3	3.3
49	9	3.5	2	3.1	3	6.7			4	4.4
50	6	2.3	3	4.7	1	2.2			2	2.2
51	11	4.2	2	3.1	1	2.2	3	5.0	5	5.5
52	13	5.0	3	4.7	1	2.2	4	6.7	5	5.5
53	7	2.7			2	4.4	1	1.7	4	4.4
54	13	5.0	3	4.7	1	2.2	3	5.0	6	6.6
55	7	2.7	1	1.6	1	2.2	2	3.3	3	3.3
56	5	1.9	1	1.6	1	2.2	1	1.7	2	2.2
57	5	1.9	3	4.7	1	2.2	1	1.7		
58	5	1.9	1	1.6			1	1.7	3	3.3
59	5	1.9	1	1.6			2	3.3	2	2.2
60	9	3.5	3	4.7	1	2.2	2	3.3	3	3.3
61	6	2.3					3	5.0	3	3.3
62	3	1.2					1	1.7	2	2.2
63	4	1.5			1	2.2	2	3.3	1	1.1
64	1	0.4			1	2.2				
68	2	0.8			1	2.2	1	1.7		
70	1	0.4							1	1.1
71	1	0.4					1	1.7		
73	1	0.4	1	1.6						
74	1	0.4							1	1.1
75	1	0.4	1	1.6						
	257		63		45		60		89	

continued ...

Table 12 (continued)

AGE OF RESPONDENTS
By Experimental Group

	Total		B		R		E		T	
	N	%	n	%	n	%	n	%	n	%
	257		63		45		60		89	
Item NR	3	1.2	1	1.6					2	2.2
	260	100.0	64	100.0	45	100.0	60	100.0	91	100.0
Mean	46.854		45.281		46.889		48.117		47.110	
Med.	47.25		45.5		46.6		47.5		48.875	
Mode	47		43		47		42		47	
S.D.	10.92		11.609		8.085		10.445		11.937	

Table 13

Highest Level of School Attended
by Experimental Group

	Total		B		R		E		T	
	n	% cum.	n	% cum.	n	% cum.	n	% cum.	n	%cum.
High School	39	15.0	8	12.5	7	15.6	9	15.0	15	16.5
2 yr. College	31	26.9	4	18.8	5	26.7	11	33.3	11	28.6
4 yr. College	125	75.0	31	67.2	22	75.6	28	80.0	44	77.0
Masters	57	96.9	18	95.4	11	100.0	10	96.7	18	96.8
PhD	5	98.8	2	98.5			2	100.0	1	97.9
	257	98.8	63	98.5	45	100.0	60	100.0	89	97.9
Item non-response	3	1.2	1	1.6					2	2.2
	260	100.0	64	100.0*	45	100.0	60	100.0	91	100.0*
mode	4 yr. college		4 yr. college		4 yr. college		4 yr. college		4 yr. college	

*rounding error

Table 14

Highest Level of School Graduated
by Experimental Group

	Total		B		R		E		T	
	n	% cum.	n	% cum.	n	% cum.	n	% cum.	n	% cum.
Graduate School	7	2.7	1	1.6	2	4.4	3	5.0	1	1.1
High School	69	29.2	10	17.2	11	28.9	20	38.3	28	31.9
2 yr. College	19	36.5	7	28.1	4	37.8	3	43.3	5	37.4
4 yr. College	127	85.3	30	75.0	24	91.1	27	88.3	46	87.9
Masters	33	98.0	15	98.5	4	100.0	6	98.3	8	96.7
Ph D	2	98.8		98.5			1	100.0	1	97.8
Total	257	98.8	63	98.5	45	100.0	60	100.0	89	97.8
Item non-response	3	1.2	1	1.6	45	100.0	60	100.0	2	2.2
	260	100.0	64	100.0 *	45	100.0	60	100.0	91	100.0
mode	4 yr. college		4 yr. college		4 yr. college		4 yr. college		4 yr. college	

* rounding error

the mode is four year college.

Respondents were also given the opportunity to note attendance and graduation from protessional school. In every instance where this category was checked, it was done so in addition to other school attendance. Examination of the replies, in conjunction with "highest degree earned", indicated that the term "professional school" was variously interpreted as vocational school, technical school and professional (i.e. law) school. Because of the ambiguity of this question, the 26 acknowledgments of attendance and the 15 reports of graduation from professional school cannot be meaningfully interpreted.

Respondent Protile

An examination of the demographic/socioeconomic characteristics of the respondents, by experimental group (see Table 15), reveals that the respondents are essentially a homogeneous group, despite the several differences noted for the R group. Specifically, the R respondent tended to work for somewhat larger companies, have a higher company title, have a greater number of subordinates, and be employed in a wider variety of manufacturing activites. If he was going to answer the questionnaire at all, he did so within the tirst three weeks of its receipt. In all, the differences noted seem to be consistent with the image of a "responsible" person.

Table 15

Respondent Profile
by Experimental Group

MODES	B	R	E	T
SIC CODE	34	39	34	34
Job Title	President	President	President	President
Size of Company (No. of Employ.)	less than 100	100-499	less than 100	less than 100
Number of Subordinates	0-24	100-249	0-24	50-99
Age	43	47	42	47
Mean Age	45.2	46.8	48.1	47.1
Highest Degree Earned	4 yr. college	4 yr. college	4 yr. college	4 yr. college

In summary, however, it does not appear that the self-selected responses to the four experimental treatments can be explained by the demographic/socioeconomic variables included in the questionnaire, at least from a comparison of the measures of central tendency. The following section will subject the data to more rigorous statistical analyses.

RESULTS: TESTS OF HYPOTHESES

Appropriate statistical analyses were performed upon the data in an effort to obtain empirical confirmation or rejection of the hypotheses set forth in Chapter IV. The criterion for rejection of the null hypotheses was set at $p = .05$; however, values greater than $p = .05$ were examined to see if the data suggested any meaningful trends.

The following section describes the analyses performed to test each hypothesis. The textual description of the analyses for each hypothesis is followed by the relevant statistical tables.

Hypothesis 1

> Response rates of randomly assigned experimental groups to a mail questionnaire will differ as a function of the respective motivational treatment accorded each group to encourage response.

The corresponding null hypothesis that no differences exist in the response rates of randomly assigned experimental groups which have been accorded different motivational treatments was tested. The overall response rates achieved by the four experimental groups were: Benevolence, 64 returns; Responsibility, 45 returns; Ego, 60 returns; Tangible Reward, 91 returns. These results were subjected to simple chi square analysis. The resulting chi square value ($X^2 = 16.9538$, df=3) is significant at the $p < .001$ level. Therefore, the alternative hypothesis is supported. Inspection of the four F_o values indicates that T contributes most to the overall chi square value, followed by R. There appears

to be a positive association between the tangible reward treatment and response rate and a negative association between the responsibility treatment and response rate (see Table 16.)

Table 16

Chi Square Analysis
RESPONSE RATE
by Experimental Group

	B	R	E	T	
F_e	65	65	65	65	
F_o	64	45	60	91	260

Number of Respondents

$X^2 = 16.9538$

3 df

$p < .001$**

Hypothesis 2

> The demographic and socioeconomic characteristics of mail questionnaire respondents in randomly assigned experimental groups will differ as a function of the motivational treatment to which they have responded.

The corresponding null hypothesis that no differences exist in the demographic and socioeconomic characteristics of individuals who have responded to different motivational treatments was tested. In order to determine whether a relationship exists between any of the socioeconomic/demographic variables examined in the data and response to experimental treatment, contingency chi square analyses were applied to the data, as follows:

Job Title: Five categories of the variable Job Title were examined against the four experimental groups. The chi square value (X^2 = 16.8313, df=12, p=.1561) proved to be not significant (see Table 17.) The large number of degrees of freedom appeared adequate to offset the small number (i.e. 4) of expected frequencies in the R-Plant Manager cell; therefore no special attention appeared warranted.

Size of Company: Three categories of Company Size (as measured by number of employees) were tested against the four experimental groups. The chi square value attained (X^2 = 6.5904, df=6, p=.3604) was not significant (see Table 18.)

Number of Subordinates: Four categories of the variable Number of Subordinates were examined against the experimental groups. The resulting chi square value (X^2 =6.1391, df=9,

p=.7259) was not significant (see Table 19.)

Age: In order to determine whether a relationship exists between age and response to motivational treatment, a one-way analysis of variance was performed which was not significant (F = .7685, df=3/253.) These data are displayed in Table 20. The age data were then grouped into four categories (under 40, 40-49, 50-59, and over 59) and tested against motivational treatment in a contingency chi square analysis (see Table 21.) The chi square value obtained (X^2 = 13.6158, df=9, p=.1367) was not significant.

Education: Respondents were asked to note the highest level of school they attended and the highest degree earned. Contingency chi square analysis of the former resulted in a chi square value which was not significant (X^2 = 2.4535, df=6, p=.8736.) This data is shown in Table 22.

In an effort to determine whether a relationship exists between the highest degree earned and experimental treatment, contingency chi square analysis was performed. The resulting chi square value (X^2 = 11.0435, df=6, p=.0870), though not significant at the p = .05 level, was subjected to further analysis to determine the magnitude of any relationship. The result of this analysis was a contingency coefficient of C=.203, which indicated a low relationship (see Table 23.) Mathematical examination of the data revealed that the variables contributing most to the overall chi square value were T-High School and Below

Fe=26.3, F_o=39); B-Graduate School (F_e=8.6, F_o=15); and B-High School and Below (F_e=18.6, F_o=11,) suggesting an inverse relationship between acceptance of tangible rewards and education, and a positive relationship between response to benevolence appeals and education.

The categories Highest Degree Earned and Highest Level of School Attended were converted into Years of Education (see Codebook Addendum, Card 4 in Appendix C.) Analysis of variance performed on the data (see Table 24) was not statistically significant (F=1.3291, df=3/253, $p > .05$.)

Summary

Statistical analyses revealed that no significant relationships exist between the socioeconomic/demographic variables examined in this study and response to motivational treatment. One variable, Degree Earned, though not highly reliable (p=.08), suggested a relationship between education and the benevolence and tangible reward motivational appeals; however, the contingency coefficient was low (C=.203.)

These analyses serve to confirm the null hypothesis that no differences exist in the demographic and socioeconomic characteristics of respondents to a mail questionnaire using different motivational treatments. The failure to find any relationship will be further explored in Chapter VII.

Table 17

Contingency Chi Square Analysis
Response Rate by Job Title
by Experimental Group

		B	R	E	T	
President	*F_e	25	18	24	35	
	F_o	22	21	21	38	102
VP & Other Officers	F_e	14	10	14	20	
	F_o	10	14	18	16	58
General Mgr. & Div. Mgrs.	F_e	12	8	11	16	
	F_o	12	6	10	19	47
Plant Manager	F_e	5	4	5	8	
	F_o	6	2	5	9	22
Misc. Middle Mgt.	F_e	7	5	6	10	
	F_o	13	2	6	7	28
		63	45	60	89	257

$X^2 = 16.83133$

12df p=.1561 N.S.

*Expected frequencies (F_e) have been rounded to the nearest whole number for tabular display only.

Table 18

Contingency Chi Square Analysis
Size of Company (number of employees)
by Experimental Group

		B	R	E	T	
less than 100	* F_e	24	17	24	34	
	F_o	20	16	22	41	99
100-1000	F_e	21	15	19	29	
	F_o	20	16	24	24	84
1000+	F_e	18	13	17	25	
	F_o	23	13	14	23	73
		63	45	60	88	256

$X^2 = 6.59043$

6df p=.3604 N.S.

*Expected frequencies have been rounded to the nearest whole number for tabular display only.

Table 19

Contingency Chi Square Analysis
Number of Subordinates
by Experimental Group

		B	R	E	T	
less than 100	*F_e	35	26	34	49	
	F_o	37	24	35	48	144
100-249	F_e	10	8	10	15	
	F_o	7	12	10	14	43
250-499	F_e	9	6	8	12	
	F_o	9	4	9	13	35
500+	F_e	8	5	7	11	
	F_o	9	5	5	12	31
		62	45	59	87	253

$X^2 = 6.13916$

9 df p=.7259 N.S.

* Expected frequencies have been rounded to the nearest whole number for tabular display only.

Table 20

Analysis of Variance
Age
by Experimental Group

	B	R	E	T	Total
Mean	46.0	46.889	48.117	48.169	47.401
Std. Dev.	10.166	8.085	10.445	9.703	9.728
Variance	103.355	65.375	109.090	94.143	94.625
n	63	45	60	89	257

ANOVA TABLE

	SS	DF	Mean Squares
Between Groups	218.7500	3	72.9167
Within Groups	24,005.1875	253	94.8822
Total	24,223.9375	256	

F=.7685 df=3/253 $p > .05$

Table 21

Contingency Chi Square Analysis
Response Rate by Age Group
by Experimental Group

		B	R	E	T	
Under 40	*F_e	13	10	12	18	
	F_o	18	7	9	19	53
40-49	F_e	24	17	23	33	
	F_o	22	25	23	27	97
50-59	F_e	19	13	18	27	
	F_o	18	9	18	32	77
60+	F_e	7	5	7	11	
	F_o	5	4	10	11	30
		63	45	60	89	257

$X^2 = 13.61586$

9df p=.1367 N.S.

*Expected frequencies have been rounded to the nearest whole number for tabular display only.

Table 22

Contingency Chi Square Analysis
Highest Level of School Attended
by Experimental Group

		B	R	E	T	
	*F_e	10	7	9	13	
Grade & High School	F_o	8	7	9	15	39
	F_e	38	27	37	54	
College	F_o	35	27	39	55	156
	F_e	15	11	14	22	
Graduate School	F_o	20	11	12	19	62
		63	45	60	89	257

$X^2 = 2.45355$

6df p=.8736 N.S.

* Expected frequencies have been rounded to the nearest whole number for tabular display only.

Table 23

Contingency Chi Square Analysis
Highest Degree Earned
by Experimental Group

		B	R	E	T	
H. S. and Below	* F_e	19	13	18	26	
	F_o	11	13	23	39	76
2 yr. and 4 yr. college	F_e	35	26	34	51	
	F_o	37	28	30	51	146
Graduate School	F_e	9	6	8	12	
	F_o	15	4	7	9	35
		63	45	60	89	255

$X^2 = 11.0435$

6df p=.0870 NS

C=.203

* Expected frequencies have been rounded to the nearest whole number for tabular display only.

Table 24

Analysis of Variance
YEARS OF EDUCATION
by Experimental Group

	B	R	E	T	Total
Mean	15.906	15.289	15.217	15.385	15.457
Std. Dev.	2.083	1.938	2.278	2.159	2.137
Variance	4.340	3.756	5.190	4.662	4.566
n	63	45	60	89	257

ANOVA TABLE

	SS	DF	MEAN SQUARES
Between Groups	18.1367	3	6.0456
Within Groups	1164.4063	253	4.5485
Total	1182.5430	256	

F = 1.3291 dt = 3/253 P>.05

Hypothesis 3

> The relevant personality characteristics of mail questionnaire respondents in randomly assigned experimental groups will differ as a function of the motivational treatment to which they have responded.

The following specific hypotheses derive from hypothesis 3:

> a. Individuals who respond to a benevolence stimulus in a mail questionnaire will differ in terms of their benevolence scores from individuals who respond to other motivational stimuli.

The null hypothesis that there are no differences in benevolence scores among respondents in randomly assigned experimental groups as a function of the motivational treatment to which they responded was tested. Analysis of variance of the benevolence scores achieved by the respondents in the four experimental groups resulted in an F value of .89 (df= 3/256, $p > .05$.) Thus the null hypothesis could not be rejected. (Table 25 displays the ANOVA table.)

> b. Individuals who respond to a responsibility stimulus in a mail questionnaire will differ in terms of their responsibility scores from individuals who respond to other motivational stimuli.

The null hypothesis that there are no differences in responsibility scores among respondents in randomly assigned experimental groups as a function of the motivational treatment to which they responded was tested. Analysis of variance of the responsibility scores achieved by the respondents in the four experimental groups was computed, with the following results: $F= .94$, df=3/254, $p > .05$. Thus the null hypothesis could not be rejected. (Table 26 contains the complete ANOVA table.)

c. Individuals who respond to an ego-enhancing stimulus in a mail questionnaire will differ in terms of their ego scores from individuals who respond to other motivational stimuli.

The null hypothesis that there are no differences in ego scores among respondents in randomly assigned experimental groups as a function of the motivational treatment to which they responded was tested. Analysis of variance of the ego scores achieved by the respondents in the four experimental groups was computed, with the following results: $F=.86$, $df=3/256$, $p>.05$. Thus the null hypothesis could not be rejected. (Table 27 displays the complete ANOVA table.)

Table 25

Analysis of Variance
BENEVOLENCE SCORE
By Experimental Group

	B	R	E	T	Total
Mean	12.188	11.956	13.167	13.330	12.773
Std. Dev.	6.021	5.962	5.998	5.931	5.968
Variance	36.250	35.543	35.972	35.179	35.620
n	64	45	60	91	260

ANOVA TABLE

	SS	DF	Mean Squares
Between Groups	95.3594	3	31.7865
Within Groups	9,107.3906	256	35.7153
Total	9,202.7500	259	

F = .89 df=3/256 $p > .05$

Table 26

Analysis of Variance
RESPONSIBILITY SCORE
By Experimental Group

	B	R	E	T	Total
Mean	27.079	27.756	26.250	27.2777	27.073
Std. Dev.	5.5527	4.227	3.882	4.9028	4.742
Variance	30.8324	17.871	15.072	24.0374	22.488
n	63	45	60	90	258

ANOVA TABLE

	SS	DF	Mean Squares
Between Groups	62.5625	3	20.8542
Within Groups	5674.0000	254	22.1641
Total	5736.5625	257	

F = .94 df = 3/254 $p > .05$

Table 27

Analysis of Variance
EGO SCORE
By Experimental Group

	B	R	E	T	Total
Mean	11.703	11.067	10.717	10.2965	10.873
Std. Dev.	5.172	4.793	5.453	4.8016	5.043
Variance	26.752	22.973	29.732	23.0553	25.434
n	64	45	60	91	260

ANOVA TABLE

	SS	DF	Mean Squares
Between Groups	66.0078	3	22.0026
Within Groups	6,548.1328	256	25.6789
Total	6,614.1406	259	

F = .8568 df = 3/256 p=>.05

Hypothesis 4

> Individuals who receive high responsibility scores on a psychological test which measures responsibility will respond in greater numbers to mail questionnaires utilizing responsibility motivational treatments than will individuals who receive low responsibility scores.

The corresponding null hypothesis which was tested was that responses to the responsibility motivational treatment are independent of responsibility score. Using the total mean responsibility score (i.e. 27) as the cutting point -- a decision made a priori to viewing the data -- respondents in each experimental group were dichotomized into high and low responsibility score categories, and chi square analysis performed. This analysis revealed a significant relationship between the responsibility score and experimental treatment (X^2=8.2161, df=3, $p < .05$.) In an effort to determine the magnitude of the relationship between the two variables, a contingency coefficient was computed (C=.1799) which indicated a very low correlation. These data are displayed in Table 28. Mathematical analysis of the data showed that the variables which contributed most to the overall chi square value were E-Low (F_o=35, F_e=26) and E-High (F_o=25, F_e=34.) Thus, even though a low association does exist between the variables, this association is due to the E group influence, and not the R group. Hence it was felt that the null hypothesis could not be rejected.

Visual examination of the data, however, revealed that 69 per cent of the respondents to the R group were high R scorers, as opposed to 60 per cent each of the B group and

the T group and only 42 per cent of the E group. Thus, there is some indication of support for the alternative hypothesis.

The data were then examined to see if individuals who respond to a responsibility appeal are more likely to belong to a business or professional society than individuals who respond to other motivational appeals. Chi square analysis revealed that the relationship between membership in a business or professional society and response to a specific motivational appeal is not significant (X^2=3.1416, df=3, $p > .30$.) This data is shown in Table 29. Visual examination of the data indicated that a greater percentage of E group respondents (78 per cent) belonged to business or professional societies than respondents to the other groups (R group-73 per cent; B group-67 per cent; and T group-66 per cent,) suggesting that membership in such societies may fulfill an ego need even more than a responsibility need.

Table 28

Chi Square Analysis of
High/Low Responsibility Scores
by Experimental Group

Responsibility		B	R	E	T	
high scorers (27 and over)	** F_e	36	26	34	56	
		38	31	25	54	148
low scorers (26 and under)	F_e	27	19	26	38	
		25	14	35	36	110
		63	45	60	90	258

$X^2 = 8.2161$

3df $p<.05$* C=.17991

*=.05

**Expected frequencies have been rounded to the nearest whole number for tabular display only.

Table 29

Contingency Chi Square Analysis of Membership in Business or Professional Society by Experimental Group

		B	R	E	T	
member	* F_e	44	32	42	63	
	F_o	42	33	47	59	181
non-member	F_e	19	13	18	26	
	F_o	21	12	13	30	76
		63	45	60	99	257

$X^2 = 3.1416$

3df $p > .30$ N.S.

* Expected Frequencies have been rounded to the nearest whole number for tabular display only.

Hypothesis 5

> Individuals who receive high Recognition or Ego scores on psychological tests which measure ego will respond in greater numbers to mail questionnaires utilizing ego-enhancing motivational stimuli than individuals who receive low ego scores.

The corresponding null hypothesis which was tested was that mail questionnaire responses to an ego stimulus are independent of ego scores. Using the total mean Ego score (i.e. 11) as the cutting point, respondents in each experimental group were dichotomized into high and low ego score categories. Chi square analysis resulted in values which were not significant (X^2=3.0349, df=3, p=.4). The null hypothesis could not be rejected. Table 30 displays this data.

The data were then examined to see if individuals who respond to an ego motivational appeal are more likely to respond to a question asking them to cite achievements of which they are proud than are individuals who respond to other motivational appeals (see Question 9 of the questionnaire.) Chi square analysis resulted in a chi square value which was not significant (X^2=.4072, df=3, p> .80.) This data is contained in Table 31.

Table 30

Chi Square Analysis of
High/Low Ego Scores
by Experimental Group

Ego Scores		B	R	E	T	
High (11 and over)	*F_e	32	22	30	45	
	F_o	37	22	27	43	129
Low (10 and under)	F_e	32	23	30	46	
	F_o	27	23	33	48	131
		64	45	60	91	260

$X^2 = 3.0349$

3df p=.40 N.S.

* Expected Frequencies have been rounded to the nearest whole number for tabular display only.

Table 31

Chi Square Analysis of Achievement Citations by Experimental Group

		B	R	E	T	
Cited Achievement	**F_e	39	28	37	56	
	F_o	38	27	39	56	160
Did not cite Achievement	F_e	24	17	23	33	
	F_o	25	18	21	33	97
		63	45	60	89	257

$X^2 = .4072$

3df $p > .80$ N.S.

** Expected frequencies have been rounded to the nearest whole number for tabular display only.

Hypothesis 6

> Individuals who receive high benevolence scores on psychological tests which measure benevolence will respond in greater numbers to mail questionnaires utilizing benevolence motivational stimuli than individuals who receive low benevolence scores.

The corresponding null hypothesis which was tested was that responses to a benevolence stimulus are independent of benevolence scores. Using the total mean Benevolence score (i.e. 13) as the cutting point, respondents in each experimental group were dichotomized into high and low benevolence score categories. Chi square analysis (see Table 32) yielded a chi square value which was not statistically significant (X^2=5.9340, df=3, p=.1149.) The null hypothesis was not rejected. Visual inspection of the data revealed that 62 per cent of the respondents in the T group scored high on benevolence, as opposed to only 53 per cent of the B group, 50 per cent of the E group and 40 per cent of the R group.

Chi square analysis was then performed to determine whether individuals who respond to a benevolence appeal are more likely to engage in philanthropic or community activity than individuals who respond to other motivational appeals (see Question 8 of the questionnaire.) The results of this analysis showed that there is independence between the variables (X^2=.2363, df=3, p> .80. These data are displayed in Table 33.

Table 32

Chi Square Analysis of
High/Low Benevolence Scores
by Experimental Group

Benevolence		B	R	E	T	
High (13 and over)	*F_e	34	24	32	48	
	F_o	34	18	30	56	138
Low (12 and under)	F_e	30	21	28	43	
	F_o	30	27	30	35	122
		64	45	60	91	260

$X^2 = 5.9340$

3df p=.1149 N.S.

*Expected frequencies have been rounded to the nearest whole number for tabular display only.

Table 33

Contingency Chi Square Analysis of
Philanthropic or Community Activity
by Experimental Activity

		B	R	E	T	
	*F_e	39	28	37	56	
Engage in Philanthropic Activity	F_o	40	29	37	54	160
	F_e	24	17	23	33	
Do not engage in	F_o	23	16	23	35	97
		63	45	60	89	257

$X^2 = .2363$

3df $p > .80$ N.S.

*Expected frequencies have been rounded to the nearest whole number for tabular display only.

Intercorrelation of Personality Scores

Spearman correlation coefficients were computed for the three personality scores in an effort to determine the degree to which they were intercorrelated. The results, displayed in Table 34, revealed an inverse correlation between the Benevolence scores and the Ego scores. This correlation ranged from low for the R group (r=-.3716) and the T group (r=-.3848), to moderate for the B group (r=-.5406) and high for the E group (r=-.6087.)

Table 34

Intercorrelation of Benevolence, Responsibility and Ego Scores By Experimental Group

	B	R	E
B	1.0000	-.1733 p=.085	-.5406 p=.001
R	.1733 p=.085	1.0000	-.3132 p=.006
E	-.5406 p=.001	-.3132 p=.006	1.0000

B Group (n=64)

	B	R	E
B	1.0000	-.1625 p=.143	-.3716 p=.006
R	-.1625 p=.143	1.0000	-.1853 p=.111
E	-.3716 p=.006	-.1853 p=.111	1.0000

R Group (n=45)

	B	R	E
B	1.0000	-.2719 p=.018	-.6087 p=.001
R	-.2719 p=.018	1.0000	.0897 p=.248
E	-.6087 p=.001	.0897 p=.248	1.0000

E Group (n=60)

	B	R	E
B	1.0000	-.1497 p=.078	-.3848 p=.001
R	.1497 p=.078	1.0000	-.1250 p=.119
E	-.3848 p=.001	-.1250 p=.119	1.0000

T Group (n=91)

SUMMARY OF RESULTS

Statistical analysis revealed a highly reliable relationship between response rate and motivational treatment ($p < .001$, df=3); thus Hypothesis 1 was supported.

No significant relationships were found between the specific socioeconomic/demographic variables measured in this study and motivational treatment. The socioeconomic and demographic variables tested, and their results, were: Job Title (p=.1561, df=12); size of Company (p=.3604, df=6); Number of Subordinates (p=.7259, df=9); Age (F=.7685, df=3/253; p=.1367, df=9); Education: Highest School Attended (p=.8736, df=6); Highest Degree Earned (p=.0870, df=6); Years of Education (F= 1.3291, df=3/ 253.)

The chi square value for degree earned by motivation treatment, though not highly significant (p=.08), is suggestive of a relationship between education and response to a benevolence appeal. However, the contingency coefficient was low (C=.203.) The null hypothesis that no differences exist in the demographic and socioeconomic characteristics of respondents to different motivational treatments could not be rejected. The fact that no significant relationships were found through the statistical analyses confirms the respondent profiles developed from the modes which portrayed the respondents across all treatment groups as essentially a homogeneous group. However, several modal differences between the Responsibility group and the other groups

suggest that the R construct may tend to tap a somewhat different population. For example, the R respondents tended to work for somewhat larger companies, have a greater number of subordinates, hold a higher occupational title and be employed in a wider variety of manufacturing occupations. If the R respondent was going to answer the questionnaire at all, he did so within the first three weeks of its receipt.

Analyses of variance applied to the respondents' personality scores revealed no significant relationships between scores and motivational treatment. Thus null Hypothesis 3 could not be rejected.

Chi square analysis of high/low scorers on the responsibility scale across experimental groups yielded a significant chi square value ($p < .05$.) However, further analysis revealed that the variable which contributed most to the overall chi square value was not the responsibility treatment as had been hypothesized, but the ego treatment. Thus null Hypothesis 4 could not be rejected. No relationship was found between experimental treatment and membership in a business or professional society.

Chi square analysis of high/low scorers on the ego scale across experimental groups showed no significant relationship between ego score and motivational treatment; thus null Hypothesis 5 could not be rejected. No relationship was found between experimental treatment and readiness to cite personal achievements.

Chi square analysis of high/low scorers on the benevolence scale across experimental groups yielded no significant differences; thus null Hypothesis 6 could not be rejected. No relationship was found between experimental treatment and participation in philanthropic/community affairs.

An intercorrelation of the three personality scores revealed an inverse correlation between the Benevolence and Ego scores which was moderate-to-high for the Benevolence and Ego treatment groups.

In summary, it appears that the most significant finding of the research was the influence of motivational treatment on rate of response ($p < .001$.) The following chapter will discuss the possible explanations for these findings and their implications for future research.

CHAPTER VII

DISCUSSION

INTRODUCTION

This chapter discusses the findings of the present investigation in light of the hypotheses and explores implications for future research. It is divided into four parts: Part A examines the overall rate and speed of response achieved; Part B discusses the results of the hypotheses tests; Part C presents a tentative model based on behavioral theory which may explain why small tangible rewards tend to increase mail questionnaire response rates; and Part D suggests several promising avenues for future research.

PART A - RATE AND SPEED OF RESPONSE

Rate of Response

Despite the fact that the questionnaire required, on the average, an hour to complete, the overall response rate, across the four groups, amounted to over 24 per cent. For this particular study, which consisted of a single mailing, with no prior notification or followup mailings, the response rate can be considered quite good. Inasmuch as the experimental design called for the comparison of internal response rates achieved by the four experimental conditions, the actual number of responses received by each experimental

group was more important than the overall rate of response. In this study, the number of returns received by each experimental group was more than sufficient to meet the criteria of the selected statistical techniques.

Speed of Response

Of the 260 useable replies received in the six week period of the study, 69.6 per cent were received within eight days, 91.5 per cent were received by the sixteenth day and 97.7 per cent were received by the thirtieth day. These figures compare favorably with the speed of return reported by other researchers (Lawson, 1949; Manfield, 1948; and Stanton, 1939.)

Erdos (1970) concluded from the results of fifty separate surveys that 90 per cent of all returns to a mail survey are received within two weeks after mailing. In the present study, 92.4 per cent were received within two weeks. The results Erdos achieved on the fifty surveys (a total of 44,645 returns) and the results of the present study -- each based on a three week cutoff point -- are compared in Table 35. Erdos reported that the additional response he received after three weeks was less than 3 per cent. In the present study, the additional response received over the succeeding three weeks amounted to 4 per cent. (Additional replies after the six week cutoff period are not included in this figure and were not included in the analysis.)

Table 35

Comparison of Daily Response Rates with Erdos'* Summary Table

Number of Days Received After Mailing Date	Erdos' Surveys[a] Cumulative %	Present Study Cumulative %
7	72.0	42.4
8	78.0	72.4
9	83.0	74.0
10	86.0	86.0
11	88.0	88.4
12	89.0	88.8
13	92.0	88.8
14	94.0	92.4
15	95.0	92.4
16	96.0	95.2
17	98.0	97.2
18	98.0	97.6
19	99.0	97.6
20	99.0	97.6
21	100.0	100.0

[a]Summary of daily counts of reply envelopes received on fifty separate surveys by Erdos & Morgan, inc. (n=44,645.)

*Paul L. Erdos, Professional Mail Surveys (New York: McGraw Hill Book Company, 1970, p. 262.)

In summary, the overall rate and speed of response of the present investigation compare favorably to studies reported by other researchers.

PART B - RESULTS OF HYPOTHESES TESTS

The major underlying thesis of the present investigation was that individuals tend to respond to mail questionnaires as a function of their psychological values. Thus, a person with a specific psychological need can be expected to respond to a questionnaire which employs this need as a motivating appeal to encourage response. From this proposition a number of specific hypotheses were derived. These will be discussed in turn.

HYPOTHESIS 1

First, on the broadest level of analysis, it was hypothesized that there would be a difference in response rates between experimental groups which utilized different motivational appeals. This hypothesis was supported at a highly reliable level of significance. Inspection of the data revealed a positive relationship between tangible reward and response rate and a negative relationship between responsibility treatment and response rate. Benevolence and ego treatment groups appeared to be statistically independent of the experimental condition (i.e. the number of responses for each group fell within the range which would be expected by chance.) Selective post hoc analysis of these data

indicates that the results would have been the same even if the benevolence experimental group had been omitted from the study, and the sample size reduced accordingly. Response rates of the three original treatment groups -- which had been derived on the basis of previous research (see Chapter III, p. 50) -- were: Responsibility group, 45 responses; Ego group, 60 responses; and Tangible Reward group, 91 responses. The resulting chi square value (X^2=16.153, df=2) would have produced the same level of significance as was achieved with the four treatment groups. Thus, the benevolence construct made little or no contribution, either positive or negative, to the study. However, it seemed logical, from the underlying hypothesis, to expect that a significant psychological value which could be operationalized in a mail questionnaire as a motivating appeal would be effective in inducing response from people who held that same value. Benevolence appeared to be a construct which could be operationalized and induced within a postscript -- just as the other constructs which were tested -- and measured with a psychological test. Thus, it appeared reasonable to include it in the study.

In summary, statistical analysis revealed that motivational appeals embodied in mail questionnaire letters of transmittal significantly affect the response rates.

HYPOTHESIS 2

Hypothesis 2 predicted that respondents to the four experimental conditions would differ in terms of their demographic and socioeconomic characteristics. Measured demo-

graphic and socioeconomic characteristics of the respondents appeared to be randomly distributed among the subsamples; thus the four groups appeared to retain the essential homogeneity which is implicit in the composition of randomly assigned subsamples. Thus the null hypothesis could not be rejected.

The demographic and socioeconomic variables which were included in the questionnaire were: (1) geographic location, (2) industrial classification, (3) job title, (4) size of company (by number of employees), (5) number of subordinates, (6) age, and (7) education. It is possible that some significant differences may have emerged if other demographic/socioeconomic variables were explored, such as birthplace, type of education, college attended, etc.

After determining that the four subsamples were homogeneous in terms of the measured demographic/socioeconomic variables, the data were further inspected to explore the possibility that a response bias might exist across groups. This analysis was applied to each of the demographic/socioeconomic variables included in the questionnaire.

Geographic Location

There appeared to be no response bias inherent in the geographic location of respondents. Visual inspection of Table 4, "Geographic Distribution or Sample and Respondents", indicated a fairly wide geographic distribution of respondents, somewhat representative of the distribution of the sample. As would be expected, a greater number of returns were received

from the more industrialized states, where the heaviest concentration of manufacturing companies are located and thus the greatest concentration of the sampled population.

Job Title

A disproportionately large number of respondents, across groups, were company presidents, partners or owners. This is not particularly surprising when one considers that the majority of the companies represented by the respondents -- indeed, the majority of all American companies -- are small businesses. In such companies, the chief executive officer is often very much involved in the day-to-day operations of the plant and thus would be classified as an executive "engaged in plant management", as per the list title.

As might be expected, those respondents who worked for larger companies (i.e. General Electric, Hewlett Packard, Chrysler Corp., etc.) tended to have lower job titles. For example, among the 41 respondent companies with 5000 and over employees, 30 per cent of the respondents were plant managers, as compared to 8.6 per cent of all companies in the study. Only 2.5 per cent of the respondents of the 41 largest companies reported being a president, partner or owner, compared to 39.7 per cent of all companies. Table 36 contrasts the job titles of the total group to job titles of the 41 respondents who work for companies with 5000 or more employees. These data do not suggest the existence of a response bias based on job title.

Table 36

Comparison of Job Titles
Between Companies with 5000+ Employees
and All Companies

	(n=257) 20-5000+ Employees	(n=41) 5000+ Employees
President, Partner Owner	39.7%	2.5%
VP, Division President	19.5%	20.0%
General Manager	14.4%	15.0%
Plant Manager	8.6%	30.0%
Corporate Officer	3.1%	-
Division Manager	3.9%	15.0%
Misc. Middle Management	7.8%	15.0%
Misc. Lower Management	3.1%	2.5%
	100.1%	100.0%

Since respondents were not asked to sign their returns, there is no way to ascertain whether the person to whom the questionnaire was addressed was in fact the respondent. However, it seems likely that if the questionnaire was passed by the recipient to another person for response, it would have been passed downward in the organizational hierarchy, to be completed by a subordinate. Since 39.2 per cent of the respondents reported themselves to be either a president, partner or owner, it is reasonable to believe that these individuals were indeed the persons to whom the questionnaires were addressed.

Size of Company

Almost 64 per cent of the companies for which the respondents worked employed fewer than 500 employees; 38 per cent had fewer than 100 employees. (All companies employed at least 20 people, as per the list specifications,) These figures seem to be consistent with the fact that the majority of business enterprises in this country are small companies which employ fewer than 500 employees. Thus, there is no reason to suspect a response bias based on size of company.

Number of Subordinates

A majority of the respondents (over 55 per cent) had fewer than 100 subordinates. Inasmuch as most of the companies represented by respondents were small companies (i.e. 38.1 per cent had fewer than 100 employees), it

would follow that the number of subordinates reported by the majority of respondents would also tend to be less than 100. No response bias appear to be indicated.

Age

The mean age of all respondents was 46.8, the median age was 47.2, and the mode 47 years. The clustering of the three measures of central tendency indicates that the largest number of respondents (37.3 per cent) were in their forties, often considered the prime of a man's working life. The smallest number of respondents were over age 60, which may suggest a bias toward nonresponse as one grows older. This finding runs counter to Gannon, Northern and Carroll (1971) who reported a response biased toward older employees. This matter bears further study. The present finding suggests that different types of motivational constructs may be required in order to induce response from older people.

Education

The respondents, across all experimental conditions, appear to be an exceedingly well educated group. Eighty-four per cent had at least some college education. Almost two-thirds were graduated from a four year college; of this number, over 20 per cent also held graduate degrees. This data may be indicative of a response bias which could have been induced by the purported reason for the questionnaire study, as explained in the cover letter. The Baruch College letterhead which was used for the mailing could also have

contributed to this bias. The letter attempted to set up a common value base (i.e. higher education in general, and an MBA degree in particular, as desirable achievements.) Thus the people who responded may have self-selected because they believed in, or identify with, higher education.

It should be noted that a fairly literate sample frame was deliberately sought for this study (see Methodology, p. 85); this factor was one of the considerations involved in the selection of a sample of business executives. However, it is reasonable to assume that a good number of business executives are not college trained, and these people may not have been encouraged to reply. A correlation between years of education and response has been reported by a number of other researchers (Franzen and Lazarsfeld, 1945; Suchman, 1962; Roeher, 1963; Clausen and Ford, 1947; Gannon, Nothern and Carroll, 1971; Wallace, 1954,) thus tending to support these findings.

Summary of Demographic/Socioeconomic Response Bias Indications

In summary, then, it appears that of the demographic and socioeconomic variables explored, respondents may have been self-selected on the basis of their identification with and interest in higher education. A followup study of a sample of nonrespondents might be able to determine whether an educational response bias does in fact exist; provided that nonrespondents with low educational attain-

ment could be induced to respond. It would be worthwhile to replicate this study with a similar population while varying the cover letter to state that the questionnaire is part of a validation study for vocational training or technical school admissions, rather than for MBA admissions. Future research should also test the impact of the letterhead on the results. For example, a university letterhead could be tested against a vocational school letterhead and the letterhead of a private research firm. Similarly, the letterhead of a prestigious private university could be tested against the letterhead of a public college or university.

Despite the fact that the respondents, across all groups, appeared in general to be homogeneous, the existence of a number of modal differences for the Responsibility group was noted. Not only did the R group produce the fewest number of questionnaire returns, but the R respondent tended to (a) work for somewhat larger companies, (b) have a greater number of subordinates, (c) hold a higher job title, (d) be employed in a wider variety of manufacturing activities and (e) return his questionnaire within three weeks of receipt. (All R responses were received within three weeks of the original mailing, while responses to the other experimental treatments continued to be received at a very reduced rate for an additional three weeks or

more.) Therefore, while no statistically reliable differences were found to exist between the R group and the other groups, there were some indications that the R group tended to deviate in some ways from the others. Further research, including refinement of the Responsibility construct as it was operationalized in this study, is needed to determine whether individuals who respond to this appeal are statistically different from individuals who respond to other appeals.

HYPOTHESIS 3

Hypothesis 3 predicted that relevant differences in personality characteristics exist between individuals who respond to different psychological stimuli. The respondents in each experimental group were scored on the following psychological constructs: Benevolence and Ego (as measured by the Survey of Interpersonal Values, Gordon, 1960) and Responsibility (as measured by the Gordon Personal Profile, Gordon, 1963). Scores for each scale, by experimental group, were subjected to analyses of variance. No statistically significant differences were found between experimental groups on their personality scores. Thus the null hypothesis could not be rejected.

Nevertheless, as indicated above in the test of Hypothesis 1, the experimental groups did achieve significantly different response rates. Two interrelated explanations are possible:

(1) The independent variables operationalized in the postscripts of the cover letters (i.e. the nominal stimuli) may not have adequately induced the basic motivational constructs (i.e. the functional stimuli) measured by the psychological tests employed.

(2) The psychological tests may not have adequately measured the motivational constructs which they purport to measure.

It is obvious that the postscripts of the cover letters did induce some kind of specific motivated response, as indicated by the statistically different response rates achieved by the experimental treatment groups, though this motivated response may not have been measured by the Responsibility, Benevolence or Ego scales which were incorporated into the questionnaire.

Perhaps other tests, validated on different populations and different dimensions of personality, may be more useful in measuring the relevant psychological values of respondents.

Future research should attempt to better operationalize the constructs under study. The effects of intensifying the motivational stimuli used to induce response should also be explored.

HYPOTHESES 4, 5 and 6

Hypothesis 4 predicted that individuals with strong responsibility needs would respond to the responsibility stimulus; Hypothesis 5 predicted that individuals with

strong ego needs would respond to the ego stimulus; and Hypothesis 6 predicted that individuals with strong benevolence needs would respond to the benevolence stimulus. None of these hypotheses could be supported, possibly because the psychological tests were unable to discriminate or the independent variables were not able to induce the relevant personality constructs.

An intercorrelation of the three personality scores revealed an inverse correlation between the benevolence and ego scores which was moderate to high for the B and E groups. This suggests that the benevolence stimulus and the ego stimulus did, in fact, serve to select out respondents with specific personality characteristics.

Three questions were included in the classification section of the questionnaire in an effort to internally validate the personality scores. First, it was predicted that business executives who respond to a responsibility appeal are more likely to belong to business or professional societies than business executives who respond to other motivational appeals. However, the data indicated that membership in a business or professional organization was independent of experimental conditions. The data were then examined to see if individuals with high responsibility scores, across all groups, were more likely to belong to business or professional societies than individuals with low responsibility scores. Membership in a business or professional society was found to be independent of responsibility score.

Second, it was predicted that individuals who respond to a benevolence appeal would tend to be more active in philanthropic and community activities than individuals who respond to other motivational appeals. However, the data indicated that participation in philanthropic or community activities is independent of experimental conditions. The data were then examined to see if individuals with high benevolence scores, across all groups, were more likely to participate in philanthropic or community activities than individuals with low benevolence scroes. Participation in philanthropic or community activities was found to be independent of benevolence score.

Third, it was predicted that individuals who respond to ego appeals would be more likely to accept an open-ended invitation to report their personal achievements than would individuals who respond to other motivational appeals. Accordingly, respondents were asked to "... Describe any service you have performed for your community, your company or your industry of which you are particularly proud, whether or not you have received any recognition for it whatsoever." Almost two-thirds of the respondents responded to this question -- a relatively high response rate for an open-ended question, situated as it was at the very end of an hour-long questionnaire. However, analysis of the data indicated that willingness to cite achievements was independent of experimental treatment. The data were then examined to see if individuals with high ego scores, across groups, were more

likely to cite their achievements than people with low ego scores. Willingness to cite one's achievements was found to be independent of ego score.

Attempts were made to classify the achievements cited as (1) benevolent in nature, (2) responsible in nature, (3) as ego gratifying or (4) as materialistic. Two independent judges in addition to the researcher classified the unstructured responses to this question according to the four categories listed above. The outside judges were given definitions of the constructs, but were not exposed to the coding schema developed by the researcher (see Appendix C) in order to avoid the possibility of biasing their independent judgments. However, an adequate level of interrater reliability could not be reached. One illustration of their inability to agree on the classification of responses was demonstrated in their classification of a statement by one respondent that he arranged to have a Japanese girl educated in this country. One judge classified this response as an example of benevolence, another as an example of responsibility, and the third judge classified this response as an ego-gratifying gesture. Thus it appears that the judges' own psychological values may have influenced their assessments of the achievements of others.

SUMMARY

In summary, the hypotheses tests found no statistically reliable differences between respondents to the four experimental conditions in terms of their measured demographic and socioeconomic variables nor in terms of their tested personality variables. Intercorrelation of the three personality scores revealed an inverse correlation between the benevolence score and the ego score which was moderate to high for the B and E groups. This suggests that the benevolence appeal and the ego appeal did in fact serve to select out respondents with specific personality characteristics.

Responses to the three questions designed for internal validation were found to be independent of experimental treatment and independent of the relevant personality scores.

Thus the highly reliable differences in response rates achieved by the four experimental conditions could not in fact be attributed to either socioeconomic, demographic or personality variables.

Part C - THE EFFECTS OF SMALL TANGIBLE REWARDS ON RESPONSE RATE: A TENTATIVE MODEL

INTRODUCTION

In this experiment, the independent variable was the motivational appeal embodied in the postscript of each group's cover letter. There were no other differential treatments between groups. Thus the highly reliable differences in the dependent variable (i.e. the response rates) can reasonably be attributed to the effects of the specific motivational appeals utilized in each experimental condition.

The most significant difference in response rate occurred in the T group, for which a 25 cent monetary incentive and a brief postscript expressing appreciation was the predictor variable. The T group responses were proportionately much greater than the responses to the three other experimental conditions. The relative percentage of responses received by the T group in comparison to the other groups was :

T/R = 202.2%; T/E = 151.7%; T/B = 142.2%

Conversely, the relative percentage of responses received by the other groups in relation to the T group was:

R/T = 49%; E/T = 66%; B/T = 70%

Thus, a serious question raised by this research is why a small reward such as 25 cents would result in such a

great increase in response.

One would not readily predict that a trivial monetary reward would induce top management respondents to voluntarily spend an average of one hour of their business time completing a questionnaire which was not immediately relevant to their business affairs. (Paradoxically, the one group for which the cover letter tried to make questionnaire completion entirely relevant to business -- the Responsibility group -- experienced the lowest number of responses.) The effectiveness of small tangible rewards in increasing response rates is by no means an isolated phenomenon (Erdos, 1970; Wotruba, 1966; Watson, 1965; Newman, 1962; Kimball, 1961; Frankel, 1960; Robinson and Agisim, 1951; Hancock, 1940.) Although researchers have documented the positive effects of tangible incentives on response rates, they have not developed a theoretical explanation as to why such incentives favorably influence the respondent to answer. A clear body of systematic research and theory does not presently exist which directly explains why small tangible rewards induce individuals to respond to mail questionnaires.

This section proposes a tentative model, derived from general psychological and sociological theory, which may explain why small tangible rewards serve to improve the rates of response to mail surveys. The model is still rudimentary and admittedly post hoc. Substantial research must be done to more clearly define and validate the model and to

integrate its parts into a cohesive working theory. Hopefully, the model does offer some basepoints for the building of a theoretical framework -- thus fulfilling one of the early stated objectives of this study.

A TENTATIVE MODEL OF QUESTIONNAIRE RESPONSE BEHAVIOR BASED ON OBLIGATION THEORY

This model of dissonance-induced questionnaire response behavior has six sequential steps which are outlined below and graphically portrayed in Figure 2.

(1) The tangible inducement enclosed with a mail questionnaire is a gift, a favor, provided by the researcher to the recipient.

(2) The recipient either accepts the gift or rejects it (by returning it or discarding it.)

(3) If the recipient accepts the gift, he incurs feelings of obligation toward the donor.

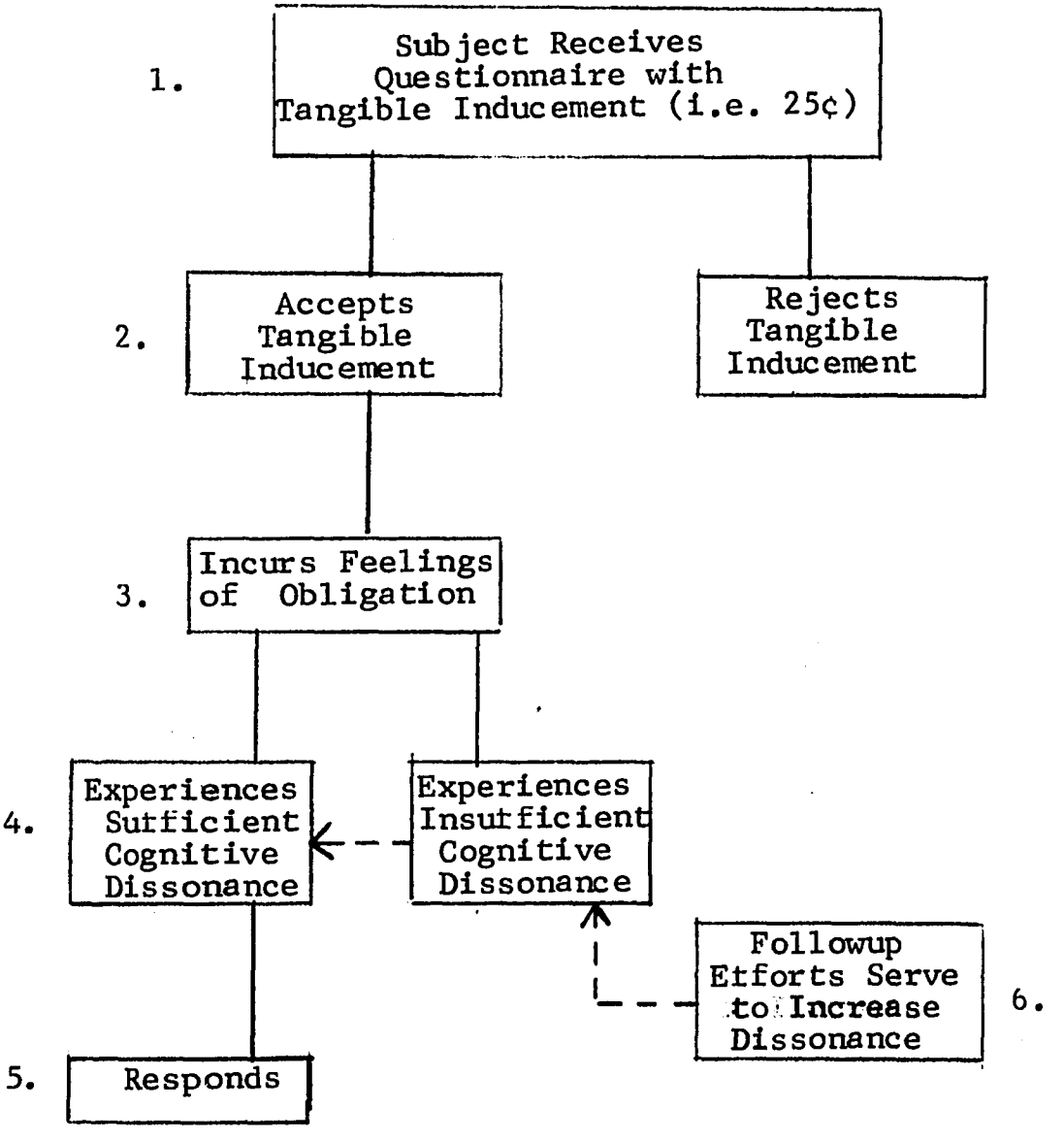
(4) An unfulfilled obligation creates cognitive dissonance. (A small gift tends to create maximal dissonance; a large gift tends to create minimal dissonance.)

(5) The recipient relives his cognitive dissonance by fulfilling his "obligation" (i.e. completing and returning the questionnaire.)

(6) Followup efforts directed at the nonrespondents serve to increase the level of cognitive dissonance. When (or if) the cognitive dissonance becomes great enough, the recipient completes and returns the questionnaire.

The rationale for each step is discussed in the following section.

Figure 2
A TENTATIVE MODEL OF
QUESTIONNAIRE RESPONSE BEHAVIOR
BASED ON OBLIGATION THEORY



RATIONALE

A tangible incentive (i.e. 25¢) enclosed with a mail questionnaire is, in effect, a gift -- a favor -- bestowed upon the recipient to induce him to complete and return the questionnaire. Research on the social psychology of gifts (Schwartz, 1967) suggests that received favors create an obligation on the part of the beneficiary to reciprocate. [Reciprocation has been defined as the provision of reward to another person who has previously provided reward to oneself. (Pruitt, 1968.)] The strength of this obligation is determined by a number of factors, including the recipient's need or use for the gift, his perception of the resources of the donor, and his perception of the motives underlying the donor's gift. (Gouldner, 1960.) In the present investigation, the letterhead and the explanation in the cover letter stated the "higher" purpose of the questionnaire, thus ennobling the donor's gesture. Money is generally regarded favorably by individuals in this country, regardless of their economic standing (Erdos, 1970.) Unlike other types of premiums, money does not presume a certain litestyle or interests for the recipient, as for example, a classical record or packet of foreign stamps would. Finally, it is assumed that recipients recognized the limited resources of a university research study. All of these factors would have served to reinforce an obligation on the part of the recipient.

Schwartz (1967) noted that when a gift is given voluntarily, with no assurance of reciprocity, it tends to have greater value for the recipient. The likelihood of reciprocity increases if the recipient has reason to believe that his obligation will not be exploited by the donor for self gain. In the present study, it is unlikely that recipients would believe that the donor would exploit their obligation for self gain.

The magnitude of the gift may also affect the recipient's perception of its purpose; a gift which appears to be uncommonly generous may invite suspicion and thus discourage reciprocity. This reinforces the notion that large gifts tend to create minimal dissonance (Festinger and Carlsmith, 1959) and hence are not effective in inducing attitude change. This matter will be discussed in greater detail below.

Gouldner (1960) suggested that a universal norm of reciprocity impels individuals to help those who have helped them. He said: "Generically, the norm of reciprocity may be conceived of as a dimension to be found in all value systems and, in particular, as one among a number of 'Principal Components' universally present in moral codes." Gouldner added that even though the norm of reciprocity is universal, it is not unconditional. "Unconditionality would be at variance with the basic character of the reciprocity norm, which imposes obligations only contingently, that is, in response to the benefits conferred by others."

Gift exchange is governed by the norm of reciprocity. Georg Simmel (1950) said: "To return a benefit we are obliged ethically; we operate under a coercion which, though neither social nor legal, but moral, is still a coercion."

A gift imposes an identity upon the giver as well as on the receiver, thus creating a role expectancy situation. Talcott Parsons (1951) noted that a role player requires of himself what his role partner requires of him. Values must be held in common by the actors if their expectations are to be compatible. Thus, in the present study, the creation of a common base of values between the researcher and the recipient (i.e. higher education is a desirable achievement for business success) helped to define the expected role of the recipient, which was to complete and return the questionnaire.

If the recipient accepted the gift, thus incurring an obligation, and did not complete the questionnaire, the theory of cognitive dissonance (Festinger, 1957) suggests that the resulting dissonance, being psychologically uncomfortable, would motivate him to reduce the dissonance by fulfilling his part of the exchange (i.e. completing and returning the questionnaire.) The ability of such a trivial sum to create sufficient dissonance to so motivate the recipient was illustrated in a study conducted by Festinger and Carlsmith (1959.) This study concluded that dissonance is maximal when the "external" forces which compel an in-

dividual to act contrary to his attitude are weak -- just barely strong enough to induce him to act. Conversely, dissonance is minimal when the external forces are overwhelmingly strong. Since the pressure to reduce dissonance is a function of the magnitude of the dissonance, attitude change tends to be greatest when the force used to induce the action is just minimally sufficient.

Festinger and Carlsmith drew this conclusion from an experiment in which they assigned a very boring task to three groups of undergraduate students (two experimental groups and a control group.) After completion of the task, each experimental subject was asked to convince another person that the task was enjoyable. Subjects in one group were paid $1 for so doing; subjects in the other group were paid $20. The researchers reported that the $1 subjects justified their lying for such a paltry sum by persuading themselves that the tasks were really interesting and enjoyable. However, the $20 subjects found the size of their reward justification enough for lying, and thus did not find it necessary to counter the threat to their self-image by changing their attitudes.

In the present study, if the respondent objected to the questionnaire, he could have returned the quarter (which five respondents did, in fact, do) or throw it away, which would have been unlikely. The size of the reward was simply not great enough to justify being even slightly dishonest (i.e. keeping the quarter and not responding.) Thus a state

of dissonance was created which might be resolved by fulfilling the obligation the quarter created -- completing and returning the questionnaire.

Followup efforts, when used, should serve to increase the level of dissonance of the nonrespondent to the point where he feels impelled to respond. Such followup efforts could include the provision of added monetary inducements, the use of special delivery postage on the outgoing and/or return envelopes, special pleas, etc. One problem in using dissonance to induce response is the fact that the stimulus value of the dissonance-inducer would tend to vary from person to person. Individuals apparently have different dissonance threshholds. Research would have to find some basis for determining the levels of such threshholds for different categories of individuals. This model would suggest that the followup efforts of the researcher should be focused on increasing the level of dissonance of the nonrespondent. Dissonance-inducers could conceivably be either tangible or psychological.

Dissonance theory seems to indicate that there may be a magnitude which produces the greatest feelings of obligation towards the donor. To the extent that dissonance may be aroused, it would seem that the magnitude of the incentive should be set at a level which just barely makes the recipient acccept the offer.

This model is a tentative explanation of why small tangible rewards serve to increase the response rates

of mail questionnaires. It does not attribute the effectiveness of the monetary reward to its ability to fulfill an individual's need for tangible rewards (as had been originally hypothesized), but rather to its ability to invoke feelings of obligation on the part of the recipient towards the researcher.

PART D - PROMISING AVENUES FOR FURTHER RESEARCH

QUESTIONNAIRE RESPONSE AS A FUNCTION OF CHILDHOOD TRAINING

As part of a systematic approach to the problem of understanding and predicting questionnaire response behavior, a totally new typology -- borrowed from the fields of psychology and anthropology -- seems to lend itself to future testing. This typology was observed and reported by Whiting and Child (1953), who used 75 cross cultural studies to test the hypothesis that the rewards and punishments experienced by a child in the process of his "socialization" lead to enduring values which are reflected in his adult behavior. The Whiting and Child studies revealed childhood socializatin processes based on a system of rewards and punishments on three different dimensions: physical, social and psychological. Table 37 illustrates the types of sanctions which apply to these socialization systems.

Table 37
Socialization Processes
in Childhood Training

	Rewards	Punishments
Physical	food, candy	spanking, withholding food
Social	love, approval	ostracism, guilt
Psychological	praise, prestige	ridicule, threats to self esteem

This same typology lends itself to the classification of mail questionnaire incentive techniques. For example, the monetary premium which has proved so successful in motivating questionnaire response can obviously be classified as a physical reward. Implied threats or negative sanctions have long been used successfully by the United States government (i.e. the Bureau of the Census) in inducing mail questionnaire responses. Such threats take the form of fines or even imprisonment for continued nonresponse.

The appeals to special interest groups -- which this study has previously classified as responsibility appeals -- can be considered social appeals, in which questionnaire response merits approval, acceptance, "membership in the club", while questionnaire nonresponse results in ostracism, exclusion, threatened position in the community, or feelings of guilt for not doing one's duty to one's fellows. The threat of followups may be considered a negative social sanction.

Finally, to complete this new typology, ego appeals can be classified as psychological appeals, in which ego-enhancement stimuli,(i.e. the mental pat on the back,) serve as rewards for questionnaire response, and threats to self esteem and self concept serve as the punishment for nonresponse. A recent interview with a top management official of a major NYSE company revealed an interesting example of self-imposed negative psychological sanctions.

The gentleman, in his mid-rifties, night school-educated and eminently successful, complained that the major universities were "inconsiderately swamping" him with mail questionnaires, causing him to waste invaluable time completing them. When asked why he bothered to complete them at all, he replied indignantly, "... And have them think I'm not smart enough, or able enough, to answer their questions?"

IMPLICATIONS OF A SANCTIONS APPROACH TO QUESTIONNAIRE RESPONSE

If empirical research can demonstrate that adult behavior in respect to questionnaire response is based on the socialization processes experienced as a child, a number of interesting implications emerge.

(1) Studies may reveal the causative factors -- derived from childhood training -- which impel an adult to respond (or not respond) to mail questionnaires.

(2) Research which identifies the relevant socialization process inherent in certain groups (i.e. socio-economic class, geographic location or ethnic group) will indicate the type of sanctions which should be employed to effectively induce questionnaire response.

(3) Perhaps researchers should reconsider the type of sanctions which are presently used as incentives to stimulate questionnaire response. The literature indicates that most researchers have employed positive sanctions (i.e. rewards, ego gratifications, approval, etc.) It may be worthwhile to test the effectiveness of negative sanctions

in improving response rates. It may be found that the effectiveness of sanctions is dependent on the needs of recipients. In certain circumstances, threats may be more effective than rewards; possibly a combination of both positive and negative sanctions (a carrot-and-stick approach) would be more effective than either alone.

Another implication which emerges from the Whiting and Child studies concerns the linkage of demographic and personality variables. Their studies indicated that patterns of childhood training -- which are linked to social classes, to cultures, to geographic locations and to other demographic and socioeconomic variables -- have a number of enduring effects on adult personality characteristics and values. Yet market segmentation studies often consider demographic characteristics and personality characteristics as discrete classes of variables. Future research should consider a new market segmentation strategy based on "psychodemographic" variables, which would redefine populations in terms of their psychological characteristics. Continued research in this area may find that different demographic groups -- whether defined by education, profession, ethnicity, etc. -- respond differentially to different motivational stimuli. Future research based on the present study and its underlying hypothesis may provide the groundwork for such a segmentation strategy.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

INTRODUCTION

Mail questionnaire surveys offer substantial advantages to market and opinion researchers, to the business and government decision makers who use research, and to academic researchers and scholars concerned with understanding human behavior. However, the numerous advantages of mail surveys as a data collection device are sometimes offset by a tendency towards low response rates, with the attendant problems of response bias and nonresponse bias.

The literature is replete with research efforts designed to increase response rates to mail questionnaires; however, reported studies tend to deal with specific techniques, without relating such techniques to scientific theory. No systematic effort has been made to develop an underlying theory and a body of knowledge which explains why people respond to mail questionnaires. No empirical studies have related specific techniques to underlying human motives except in an intuitive sense.

In order to increase the usefulness of the mail questionnaire as a data collection technique, a theoretical framework is needed which explains human questionnaire response behavior. Such a framework, based on psychological theory, would make a great contribution to survey research

methodology, because it would enable researchers to selectively choose the most effective techniques for inducing maximal response from populations under study. Thus research results would tend to provide more valid and more reliable predictive information upon which to base strategic decisions.

BACKGROUND

Efforts to increase response rates to mail questionnaires can be viewed as attempts to motivate a voluntary respondent to answer. Motivation theory contends that people act to fulfill their individual needs, wants and desires; that all human activity is directed towards goal fulfillment. Thus it is logical to assume that individuals voluntarily complete mail questionnaires because in some way the act of completion helps to fulfill their own psychological needs.

Books and articles on personal interviewing often take explicit cognizance of the need to motivate the prospective respondent; however, the literature on mail surveys does not. The presumed purpose of the cover letter is to motivate the respondent, but very little discussion of the cover letter or its function appears in the literature. The implicit purpose behind the pre and post followups and the various other techniques described in the literature to increase response rates is to motivate the respondent, but rarely is correspondence made between the technique itself and the needs, wants and goals of the recipient, except in an intuitive way.

Empirical studies indicate that many of the techniques cited in the literature are effective, but give no indication of why or how they help to fulfill respondents' needs.

DEVELOPMENT OF HYPOTHESES

An examination of the implicit assumptions underlying recommended techniques to increase response rates suggested to the researcher that an individual's willingness to respond to a specific questionnaire may be based upon the degree to which the questionnaire satisfied his basic psychological needs.

A reexamination of the techniques cited in the literature to increase response rates revealed that they lent themselves to categorization as techniques designed to fulfill the human needs for recognition, responsibility and reward or to reduce the negative motivations implicit in questionnaire response. However, no empirical studies could be found which attempted to measure the relative effectiveness of different motivational treatments -- that is, treatments based on different psychological constructs -- on response rate. Yet motivational theory suggested that people respond selectively to questionnaire inducements based on their psychological needs and values. If this were true, then differing motivational treatments utilized in a mail questionnaire survey would result in self-selected responses based on the specific value systems of the respondents. The people who responded to a ques-

tionnaire employing a specific motivational treatment could be expected to hold strong personal values related to the psychological value embodied in the questionnaire. Such respondents would tend to be more homogeneous in terms of the specific psychological value which was used as the motivating stimulus than respondents to a questionnaire employing a different psychological value as the motivating stimulus.

These predictions were based on the major underlying hypothesis that individuals selectively respond to the motivational stimuli of mail questionnaires as a function of their own psychological values.

OBJECTIVES OF THE RESEARCH

The objective of this investigation was to discover some of the reasons underlying an individual's willingness to respond to a mail questionnaire. This information would enable researchers to increase the usefulness of the mail survey as a research technique capable of providing valid and reliable predictive information for strategic management and marketing decisions. It would afford social scientists and scholars greater insight into the meanings of their research findings and give them deeper understanding of the populations under study.

EXPERIMENTAL DESIGN

Specifically, the investigation was designed to reveal (1) whether systematic manipulation of basic motivational treatments affects the response rates to mail questionnaires and (2) whether people respond selectively to different motivational stimuli as a function of the psychological values they hold. Accordingly, a sample of 1100 plant management executives was randomly assigned to four matched experimental groups. Each group was sent a similar mailing consisting of a cover letter, a questionnaire which included three personality scales, and a stamped preaddressed return envelope. Four different motivational treatments -- benevolence, responsibility, ego and tangible reward -- were operationalized within the postscripts of the cover letters and directed, respectively, to each of the four subsamples (i.e. the Benevolence (B), Responsibility (R), Ego (E) and Tangible Reward (T) experimental groups.

The psychological scales included in the questionnaire met several criteria: they measured three of the four constructs used as motivational treatments (no suitable test could be located which measured the desire for tangible reward); they were relatively short, and could be self-administered.

To summarize, the independent variable in this experiment was motivational treatment, the dependent variable was the self selection of respondents, as measured by (1) response rate and (2) the personality scores received by members of each subsample on the three personality scales.

PROCEDURE

Preliminary experimental validation of the cover letters was undertaken to verify that each cover letter was seen as distinctly different from each other by an adult sample, despite the fact that the letters differed only in terms of their respective postscripts.

A pretest of the study was conducted prior to the major mailing in order to determine the rate of response to be expected and the completeness of the replies to be received. Of 100 questionnaires mailed in the pretest, 22 per cent were completed and returned within seven days after mailing. This response rate more than adequately met the a priori criterion rate of 15 per cent required for statistical analyses.

The questionnaires were uniformly coded (see Codebook, Appendix C) and responses keypunched on standard 80 column IBM cards. The personality scales were scored both manually and by means of a fortran program developed from a scoring key provided by the test publishers. Each questionnaire was identified by a blindcoded number and checked against the sample list.

RESULTS

Appropriate statistical analyses were performed upon the data in an effort to obtain empirical confirmation or rejection of the hypotheses. The criterion for rejection of the null hypotheses was set at an alpha level equal to .05. The results of the hypotheses tests are listed below.

HYPOTHESIS 1

First, on the broadest level of analysis, it was hypothesized that there would be a difference in response rates between experimental groups which utilized different motivational appeals. This hypothesis was supported at a highly reliable level of significance. Thus the null hypothesis was rejected, supporting the contention that motivational appeals embodied in mail questionnaire letters of transmittal significantly affect the response rate.

HYPOTHESIS 2

Hypothesis 2 predicted that respondents to the four experimental conditions would differ in terms of their demographic and socioeconomic characteristics. The null hypothesis was accepted. These findings tended to support the respondent profiles which were developed from the modes, which portrayed the respondents, across all treatment groups, as essentially homogeneous. Several modal differences between the responsibility group and the other groups suggested that the responsibility construct, as it was operationalized, may tend to tap a somewhat different population.

Measured demographic and socioeconomic characteristics of respondents appeared to be randomly distributed among the subsamples; thus, the four experimental groups appeared to retain the homogeneity implicit in the composition of randomly assigned subsamples.

Examination of the data suggests that respondents, across all groups, may have been self selected on the basis of an identification with and interest in higher education.

HYPOTHESIS 3

Hypothesis 3 tested whether relevant differences in personality characteristics exist between individuals who respond to different psychological stimuli. No statistically significant differences were found between experimental groups on their personality scores; thus the null hypothesis could not be rejected.

HYPOTHESES 4, 5 and 6

Hypothesis 4 predicted that individuals with strong responsibility needs would respond to the responsibility stimulus; Hypothesis 5 predicted that individuals with strong ego needs would respond to the ego stimulus; and Hypothesis 6 predicted that individuals with strong benevolence needs would respond to the benevolence stimulus. None of these hypotheses could be supported; thus the null hypotheses could not be rejected.

Internal Validation

Three questions were included in the classification section of the questionnaire in an effort to internally validate the personality scores. They were based on the assumptions that (1) business executives with high responsibility scores would tend to belong to business or professional societies; (2) individuals with high benevolence scores would tend to be active in philanthropic and community activities; and (3) individuals with high ego scores would answer an open-ended question which asked them to cite their personal achievements.

Analyses of the data revealed that membership in business or professional societies, participation in philanthropic and community activities, and willingness to cite one's achievements in answer to an open-ended question were all independent of personality score and independent of experimental treatment.

SUMMARY

In summary, the hypotheses tests found no statistically reliable differences between respondents to the four experimental conditions in terms of their measured demographic and socioeconomic variables nor in terms of their tested personality variables. Responses to the three questions designed for internal validation were found to be independent of experimental treatment and independent of the relevant personality scores.

Thus the highly reliable differences in response rates achieved by the four experimental conditions could not be attributed to either socioeconomic, demographic or personality variables. Two explanations are possible: (1) the independent variables operationalized in the cover letters may not have adequately induced the basic motivational constructs measured by the psychological tests, and (2) the psychological tests may not have adequately measured the motivational constructs which they purported to measure.

THE EFFECTS OF SMALL TANGIBLE REWARDS ON RESPONSE RATE: A TENTATIVE MODEL

One very provocative finding of the present investigation was the effectiveness with which a small monetary reward induced top and middle management officials to respond to an hour-long questionnaire. Approximately 40 per cent more responses were received by the T group than would reasonably be expected by chance alone. Despite the fact that the quarter was the obvious catalytic agent responsible for the increase in responses, it does not seem reasonable to believe that the motivating stimulus was, in fact, economic; the sum involved was altogether too trivial. Therefore, another explanation was sought, one which was based on psychological theory. A tentative model was developed which may explain why small tangible rewards are effective in inducing individuals to respond to mail questionnaires. The model consists of six sequential steps, as follows:

(1) The tangible inducement (i.e. a quarter) enclosed with a mail questionnaire is a gift provided by the researcher to the recipient.

(2) The recipient either accepts the gift or rejects it.

(3) If the recipient accepts the gift, he incurs feelings of obligation toward the donor.

(4) An unfulfilled obligation creates cognitive dissonance. (A small gift tends to create maximal dissonance; a large gift tends to create minimal dissonance.)

(5) At a certain level of cognitive dissonance, the recipient is motivated to achieve consonance by fulfilling

his obligation (i.e. completing and returning the questionnaire.)

(6) Followup efforts directed at the nonrespondents serve to increase the level of cognitive dissonance. When the cognitive dissonance becomes great enough, the recipient is motivated to achieve consonance by completing and returning the questionnaire.

This model is derived from existing psychological and sociological theory. It is still rudimentary and admittedly post hoc. Substantial research must be done to more clearly define and validate the model and to integrate its parts into a cohesive theoretical framework.

IMPLICATIONS

This model, if it were validated, would explain why small tangible inducements effectively increase response rates of mail questionnaires. It would also explain why followups are so effective in increasing response rates. As dissonance-inducers, followups can be either tangible or psychological in nature. One problem in using dissonance to induce response is the fact that the stimulus value of the dissonance-inducer tends to vary from person to person. Research would have to find some basis for determining the dissonance "threshholds" for different categories of individuals.

The model suggests that the motivational treatment used in a mail questionnaire should be designed to create sufficient cognitive dissonance to impel response. Thus care must be taken to select an incentive of the proper

magnitude to create the greatest level of dissonance. Theory suggests that small gifts tend to create maximal dissonance; thus a small tangible gift is very effective in inducing response. Followup efforts should be designed to increase the level of dissonance of the nonrespondent to the point where he feels impelled to respond.

It is hoped that this model will be empirically validated in future research so that the theoretical base-points from which it is derived can be integrated into a unified and cohesive theoretical framework of questionnaire response behavior.

CONCLUSIONS

In the field of mail surveys, there is an urgent need for a systematic body of empirical knowledge based on underlying theory related to other studies or scientific theories. This investigation has attempted to take a new approach to the problem of understanding and predicting questionnaire response behavior. It has based its underlying hypotheses on motivation theory and has tried to open up new avenues for research derived from educational, sociological and psychological theory. It is hoped that this approach will provide the basis for the development of a unified body of knowledge and a theoretical framework which will integrate and order the fragments of empirical knowledge which presently exist. If this study has provided any of the basic building blocks to construct a theoretical framework for relating specific findings to broader explanations, it will have made an important contribution to survey research methodology.

APPENDIX A

Questionnaire Mailing

Baruch College
The City University of New York
257 Park Avenue So.
New York
N.Y. 10010

Graduate Division

Dear Sir:

We are trying to validate a selection test designed to identify acceptable applicants to a new university program leading to a Master of Business Administration degree.

Validation procedures suggest that such applicants earn scores on the selection test which are similar to the scores received by professional managers in industry.

For this reason, we are asking businessmen like yourself to complete the enclosed questionnaire and return it in the stamped reply envelope. It will take only a few minutes of your time, and we are certain that you will find it interesting.

The questionnaire itself is anonymous and the information will be used only for research purposes and in aggregate with scores of other managers in this scientifically selected sample of American industry.

Thank you for your help.

Sincerely yours,

Alan Rand

Alan Rand
Director, Selection Research

P.S. In an effort to match your generosity in completing this questionnaire, the writer pledges to donate one dollar to the American Cancer Society for every completed questionnaire returned.

FIGURE 1

Baruch College
The City University of
University of
257 Park Avenue So.
New York
N.Y. 10010

Graduate Division

Dear Sir:

We are trying to validate a selection test designed to identify acceptable applicants to a new university program leading to a Master of Business Administration degree.

Validation procedures suggest that such applicants earn scores on the selection test which are similar to the scores received by professional managers in industry.

For this reason, we are asking businessmen like yourself to complete the enclosed questionnaire and return it in the stamped reply envelope. It will take only a few minutes of your time, and we are certain that you will find it interesting.

The questionnaire itself is anonymous and the information will be used only for research purposes and in aggregate with scores of other managers in this scientifically selected sample of American industry.

Thank you for your help.

Sincerely yours,

Alan Rand

Alan Rand
Director, Selection Research

P.S. The careful selection of applicants for an MBA degree will result in an improvement in the caliber of new managerial trainees in industry. By contributing just a few minutes of your time, you can make an important contribution to the selection and training of the future business leaders of America.

FIGURE 2

Baruch College
The City University of
University of
257 Park Avenue So.
New York
N.Y. 10010

Graduate Division

May 17, 1973

Dear Mr. Jones:

We are trying to validate a selection test designed to identify potentially successful applicants to a new university program leading to a Master of Business Administration degree.

Validation procedures suggest that desirable applicants earn scores on the selection test which are similar to the scores received by professional managers in industry.

For this reason, we are asking successful businessmen like yourself to complete the enclosed questionnaire and return it in the stamped reply envelope. It will take only a few minutes of your time, and we are certain that you will find it interesting.

The questionnaire itself is anonymous and the information will be used only for research purposes and in aggregate with scores of other managers in this scientifically selected sample of American industry.

Thank you for your help.

Sincerely yours,

Alan Rand

Alan Rand
Director, Selection Research

P.S. This questionnaire is being sent to a select list of successful industry leaders throughout the nation; therefore, your reply is extremely important to us. May we count on your response?

FIGURE 3

Baruch College
The City University of New York
257 Park Avenue So.
New York
N.Y. 10010

Graduate Division

Dear Sir:

We are trying to validate a selection test designed to identify acceptable applicants to a new university program leading to a Master of Business Administration degree.

Validation procedures suggest that such applicants earn scores on the selection test which are similar to the scores received by professional managers in industry.

For this reason, we are asking businessmen like yourself to complete the enclosed questionnaire and return it in the stamped reply envelope. It will take only a few minutes of your time, and we are certain that you will find it interesting.

The questionnaire itself is anonymous and the information will be used only for research purposes and in aggregate with scores of other managers in this scientifically selected sample of American industry.

Thank you for your help.

Sincerely yours,

Alan Rand

Alan Rand
Director, Selection Research

P.S. The enclosed coin is just a token of our appreciation for your help. It may brighten the day for some youngster you know.

FIGURE 4

Baruch College
The City University of New York
257 Park Avenue So.
New York
N.Y. 10010

Graduate Division

MBA SELECTION VALIDATION STUDY

Please answer the proposed selection test for applicants to a new Master of Business Administration degree program. Applicants to the program will be judged in relation to the scores received by seasoned managers in industry. Please remember that the questionnaire is anonymous. The information will be used for research purposes only and in aggregate with scores of other managers in industry.

DIRECTIONS

Page 2 of this booklet contains statements representing things that people consider to be important to their way of life. These statements are grouped into sets of three. Examine each set. Within each set, find the one statement which represents what you consider to be most important to you. Then place a checkmark in the space beside that statement in the column headed M (for Most.)

Next, examine the remaining two statements in the set. Decide which one of these statements represents what you consider to be least important to you. Place a check in the space beside that statement in the column headed L (for Least), leaving one statement unmarked.

Page 3 of this booklet contains a number of descriptions of personal characteristics of people. These descriptions are grouped in sets of four. Examine each set and find the one description that is most like you. Then place a checkmark in the space beside that statement in the column headed M (for Most.)

Next, examine the other three statements in the set and find the one description that is least like you; then place a check in the space beside that statement in the column headed L (for Least.) Do not make any marks following the two remaining statements.

For every set you should have one and only one checkmark in the M (Most) column, and one and only one checkmark in the L (Least) column.

In some cases, it may be difficult to decide which statements you should mark. Make the best decisions you can. Remember, there are no right or wrong answers.

Please turn page and begin . . . .

FIGURE 5

For each set, select the one statement which represents what is most important to you, and put a check next to it in the M column. Then select the statement which represents what is least important to you, and put a check next to it in the L column.

EXAMPLE

	M	L
have a hot meal at noon		✓
get a good night's sleep	✓	
get plenty of fresh air		

	M	L
have others approve of what I do		
make decisions for the group		
share my belongings with others		
be free to come and go as I want		
help the poor and needy		
show respect to my superiors		
have the affection of other people		
do things in the approved manner		
go around doing favors for others		
be generous toward other people		
be my own boss		
have understanding friends		
be free to do as I choose		
have others agree with me		
make friends with the unfortunate		
be able to do pretty much as I please		
be in charge of an important project		
work for the good of other people		
be friends with the friendless		
have people do good turns for me		
be known by people who are important		
hold an important job or office		
treat everyone with extreme kindness		
do what is accepted and proper		
be the leader of the group I'm in		
have people admire what I do		
be independent in my work		
be selected for a leadership position		
be treated as a person of importance		
have things pretty much my own way		
always do what is morally right		
go out of my way to help others		
have people offer me a helping hand		
be looked up to by other people		
be quick in accepting others as friends		
direct others in their work		
be very popular with other people		
be free from having to obey rules		
be in a position to tell others what to do		
be praised by other people		
be relatively free of social conventions		
work for the good of society		
have other people interested in me		
have proper and correct social manners		
be sympathetic with those in trouble		
have people admire me		
always do the approved thing		
be able to leave things around if I wish		
associate with people who are well known		
attend strictly to the business at hand		
have a great deal of influence		
be known by name to many people		
do things for other people		
work on my own without direction		
not have to follow orders		
follow rules and regulations closely		
have people notice what I do		
have people think of me as important		
have complete personal freedom		
know that people are on my side		
have people act considerately toward me		
have other people work under my direction		
spend my time doing things for others		
be able to lead my own life		
contribute a great deal to charity		
have people talk favorably about me		

B	R	E

FIGURE 5 (cont.)

For each set, select the one statement which is most like you, and put a check next to it in the M column. Then select the statement which is least like you, and put a check next to it in the L column, leaving two statements unmarked.

EXAMPLE

	M	L
has an excellent appetite		
gets sick very often		✓
follows a well-balanced diet		
doesn't get enough exercise	✓	

	M	L		M	L
a good mixer socially			finds it easy to make new acquaintances		
lacking in self confidence			cannot stick to the same task for long		
thorough in any work undertaken			easily managed by other people		
tends to be somewhat emotional			maintains self-control even if frustrated		
not interested in being with others			can make important decisions without help		
free from anxieties or tensions			does not mix easily with new people		
quite an unreliable person			inclined to be tense or high-strung		
takes the lead in group discussions			sees a job through despite difficulties		
acts somewhat jumpy and nervous			not too interested in mixing socially		
a strong influence on others			doesn't take responsibilities seriously		
does not like social gatherings			steady and composed at all times		
a very persistent and steady worker			takes the lead in group activities		
a person who can be relied upon			finds it easy to influence other people		
easily upset when things go wrong			gets job done in the face of any obstacle		
not too sure of own opinions			limits social relations to a select few		
prefers to be around other people			tends to be a rather nervous person		
doesn't make friends very readily			assured in relationships with others		
takes an active part in group affairs			feelings are rather easily hurt		
keeps at routine duties until completed			follows well-developed work habits		
not too well-balanced emotionally			prefers to keep to a small group of friends		
becomes irritated somewhat readily			free from worry or care		
capable of handling any situation			lacks a sense of responsibility		
doesn't like to converse with strangers			not interested in mixing with opposite sex		
thorough in any work performed			skillful in handling other people		
prefers not to argue with other people			finds it easy to be friendly with others		
unable to keep to a fixed schedule			prefers to let others lead in group activity		
a calm and unexcitable person			seems to have a worrying nature		
inclined to be highly sociable			sticks to a job despite any difficulty		
able to sway other people's opinions			can be relied upon entirely		
lacks interest in group activities			doesn't care for the company of most people		
quite a nervous person			finds it rather difficult to relax		
very persistent in any task undertaken			takes an active part in group discussion		
calm and easygoing in manner			doesn't give up easily on a problem		
cannot stick to the task at hand			inclined to be somewhat nervous in manner		
enjoys having lots of people around			lacking in self-assurance		
not too confident of own abilities			prefers to pass time in company of others		

FIGURE 5 (cont.)

The following questions are for classification purposes:

1. What is the nature of your company's business? (Please be specific: e.g. electrical parts manufacturing, food processing, construction, etc.)

_____

2. What is your job title or position? (e.g. partner, general manager, plant manager, etc.)

_____

3. About how many employees are there in your entire corporation, including all plants, divisions and branches?

less than 100	____	1,000 to 4,999	____
100 to 499	____	5,000 to 9,999	____
500 to 999	____	10,000 or more	____

4. How many employees do you have under your supervision -- both directly and through subordinates?

_____

5. What was your age at your last birthday? _____

6. What was the highest level of school you (a) attended? (b) graduated?

	(a) Attended	(b) Graduated
Grade School	____	____
High School	____	____
2 year college	____	____
4 year college	____	____
Masters program	____	____
PhD program	____	____
Professional School	____	____

7. Are you presently a member of any business or professional societies?

Yes ____ No ____

8. Are you presently, or have you in the past five years, been an officer, trustee or committee member of a school, college, library, charitable organization, hospital, religious or other institution?

Yes ____ No ____

9. Describe any service you have performed for your community, your company or your industry of which you are particularly proud, whether or not you have received any recognition for it whatsoever.

_____

_____

_____

THANK YOU FOR YOUR COOPERATION.

FIGURE 5 (cont.)

APPENDIX B

Preliminary Experimental Validation

We are trying to develop mail questionnaire appeals which will motivate individuals with specific personality characteristics to respond.

Please read the attached cover letter carefully, then describe the type of person that you think might respond to its appeal. Decide where that person "fits" on the line connecting each pair of opposing statements listed below, then place a checkmark at the appropriate space.

For example, if you think he is more materialistic than idealistic, you should place the checkmark somewhere to the left on the first line; if he is more idealistic, you will place your check somewhere to the right. If you can form no judgement as to a specific personality dimension, place your checkmark in the middle of the line. Please be sure to place a checkmark on <u>each</u> line which connects two statements.

Materialistic	——·——·——·——·——·——	Idealistic
Does good turns for others	——·——·——·——·——·——	Wants others to do good turns for him
Doesn't care what others think	——·——·——·——·——·——	Wants to be admired
Concerned with advancing his profession	——·——·——·——·——·——	Concerned with advancing his own career
Seeks psychological rewards	——·——·——·——·——·——	Seeks tangible rewards
Befriends the powerful	——·——·——·——·——·——	Befriends the friendless
Modest and unassuming	——·——·——·——·——·——	Looks for compliments
Believes hard work is the key to success	——·——·——·——·——·——	Believes success is based on who you know
Practical	——·——·——·——·——·——	Emotional
Gives to those less fortunate than himself	——·——·——·——·——·——	Believes charity begins at home
Persistent worker	——·——·——·——·——·——	Easily sidetracked
Wants recognition from others	——·——·——·——·——·——	Gets pleasure from the job itself

FIGURE 1

FIGURE 2

Mean Profiles
Semantic Differential Scales
Preliminary Experimental Validation
Of Cover Letters

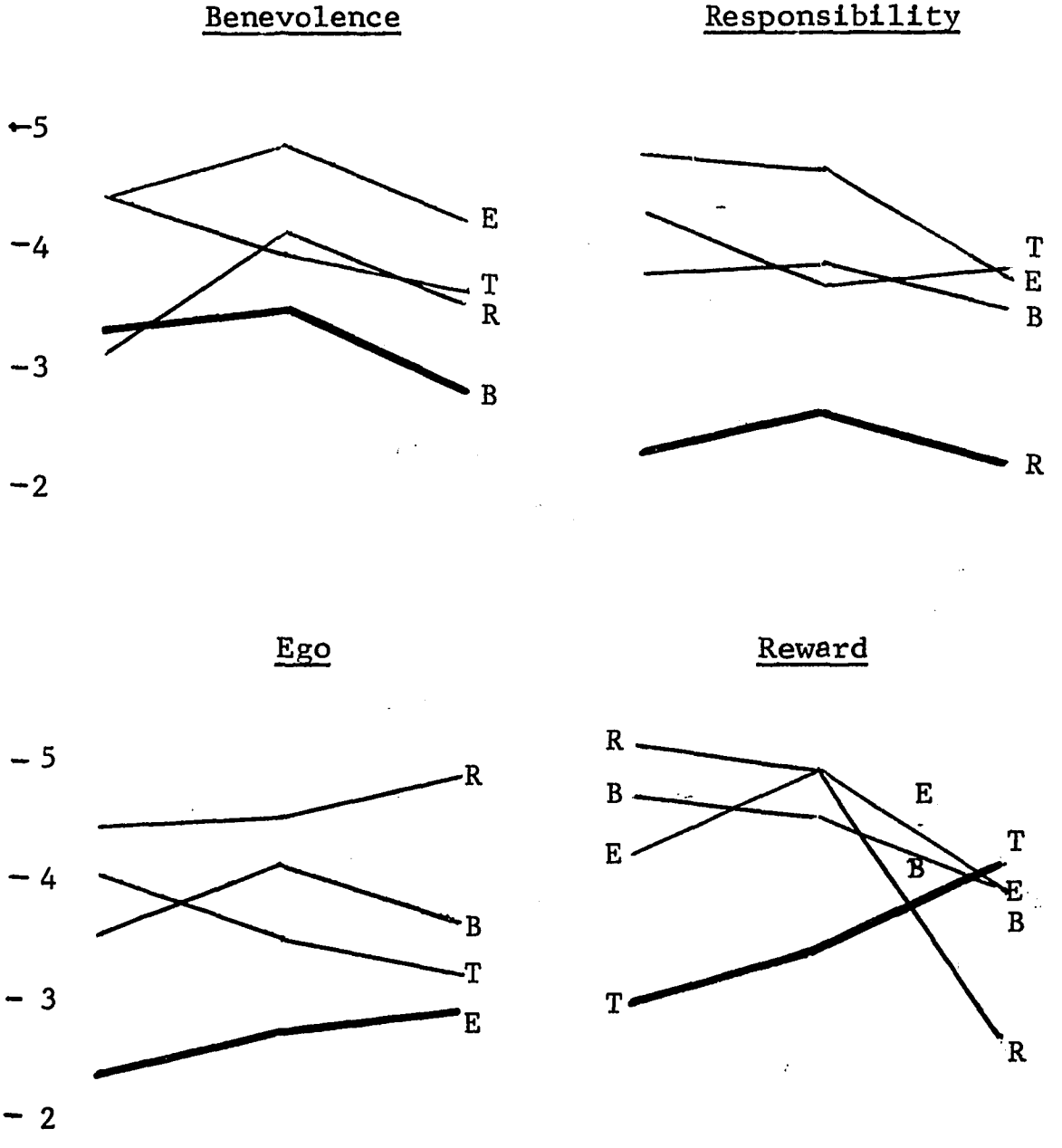


Table 1

Mean Profile Scores
Semantic Differential Scales
Preliminary Experimental Validation
of Cover Letters

	B	R	E	T
Benevolence				
Good Turns	3.26	3.07	4.40	4.40
* Befriends the friendless	3.47	4.07	4.83	3.97
Gives to less fortunate	2.76	3.53	4.20	3.60
Responsibility				
Advanced profession	3.80	2.33	4.80	4.13
Hard work	3.93	2.67	4.67	3.70
Persistent	3.53	2.26	3.77	3.83
Ego				
* Admired	3.47	4.33	2.33	3.97
* Compliments	4.07	4.44	2.67	3.45
Recognition	3.60	4.80	2.87	3.17
Tangible Reward				
Materialistic	4.67	5.07	4.17	2.96
* Tangible Rewards	4.53	4.90	4.90	3.37
Practical	3.93	2.70	3.90	4.10

*Reversed Scores

APPENDIX C

Codebook

CODE BOOK

"MBA SELECTION STUDY"

Card 1

Identification Number (Cols. 1-5)

Col. 1 - 6-B experimental group
7-R experimental group
8-E experimental group
9-T experimental group

Cols. 2,3,4,5 - Punch in identification number

Number of days received after mailing

Cols. 6,7 - Punch in number, computed as follows:

Pilot Ident:	0001-0025(B) 0251-0275(R) 0501-0525(E) 0751-0775(T)	Major Mailing Ident:	0026-0250,1001-1025(B) 0276-0500,1251-1275(R) 0526-0750,1501-1525(E) 0776-1001,1751-1775(T) (subtract 7 days from pilot)

Pilot

Date	# of Days	
May *14		(pilot mailed)
17	03	
18	04	
*21	07	(major mailing)
23	09	
24	10	
25	11	
*29	15	
30	16	
31	17	
Jun 1	18	
* 4	21	
5	22	
6	23	
7	24	
8	25	
*11	28	
12	29	
13	30	
14	31	
15	32	
*18	35	
19	36	
20	37	
21	38	
22	39	

Jun 23	40
24	41
*25	42
26	43
27	44
28	45
29	46
30	47
Jul 1	48
* 2	49
3	50
4	51
5	52
6	53
7	54
8	55
* 9	56
10	57
11	58
12	59
13	60

*first day of week

Return Classification

Col. 8
1 usable response (completed pp. 2,3,4)
2 non-deliverable
3 no response, quarter returned
4 no response (returned)
5 not useable
6 skipped classification questions (completed 2,3)
7 skipped test(completed pp. 2,4 - useable)
8 returned, no quarter, wrong addressee

Ques. 1 Industry Classification

Cols. 9,10 - punch in industry classification from SIC code

00=no response

Ques. 2 Job Title

Col. 11 - 1-President, Owner, Partner, Chairman of Bd. Chief Exec.

2-VP, Division President

3-General Manager

4-Plant Manager

5-Corporate Officer, Treasurer, Controller

6-Division Manager, Operations Manager

7-Misc. Middle Management (Personnel Manager, Sales Manager, Mktg. Exec, Admin. Mgr, Staff Exec, Corporate Services Mgr, Pres. Asst. Systems Analysts)

8-Misc. Lower Management (Purchasing Agent, Office Mgr.)

9-Misc.

0-no response

Ques. 3 Number of Employees

Col. 12
1-less than 100
2-100 to 499
3-500 to 999
4-1000 to 4999

Col. 12 (cont.)
5-5000 to 9999
6-10,000 or more
0-no response

Ques. 4 Number of Subordinates

Col. 13

1- 0 to 24
2- 25 to 49
3- 50 to 99
4- 100 to 249
5- 250 to 499
6- 500 to 999
7- 1000 to 4999
8- 5000 to 9999
9- 10,000 or more
0- no response

(If respondent is president owner or partner, and responds to Ques.3 but says "All" to Ques. 4, the mid-point + 1 of his Ques.3 category is coded for his Ques.4 response, i.e. Ques. 3 response is 100-499 employees, then Ques.4-#5 category should be coded.)

Ques. 5 Age of Respondent

Cols. 16,17 ÷ punch in actual number
00=no response

Ques. 6A Highest Level of School Attended

Col. 18

1-Grade School
2-High School
3-2 yr. college
4-4 yr. college
5-Masters program
6-PhD program
7-professional school
0-no response

(Code Professional School separately in Col. 41)

Ques. 6B Highest Level of School Graduated

Col. 19

Instructions: Highest level graduated is one step below highest level attended (if not same). Code Professional School separately in Col. 42.

1-Grade School
2-High School
3-2 yr. college
4-4 yr. college
5-Masters program
6-PhD program
7-professional school
0-no response

Ques. 7 Business/Professional Association Membership

Col. 20

1-yes
2-no
0-no response

Ques. 8 Philanthropic/Academic/Community Activity

Col. 21
1-yes
2-no
0-no response

Ques. 9 Responded to Question 9

Col. 22
1-yes
2-responded "none"
0-no response

Col. 23 Benevolence Accomplishments
Punch in number of citations in this category

9=9 or more
0=no response in this category

Col. 24 Type of Benevolent Activity

1-church work
2-charity work
3-youth work
4-handicapped
5-hospital work
6-service-oriented (rotary, community service)
7-equal opportunity
8-drug work
9-misc.
0-not applicable, no response

Col. 25 Responsibility (duty) accomplishments
punch in number of citations in this category

9=9 or more
0=no response in this category

Col. 26 Type of Responsibility Accomplishments

1-company oriented
2-employee oriented
3-industry oriented
4-invention, scientific papers, machinery design
5-community oriented, political
6-social responsibility, university alumni work
7-ecology
8-military-oriented
9-misc.
0-not applicable, no response

Col. 27 Ego (Recognition) Accomplishments
punch in number of citations

9=9 or more
0=no response in this category

Col. 28 Type of Ego Citation

1-rank, title
2-paternalism in business
3-professional/industry recognition
4-company success
5-community status
6-family success
7-good neighbor
8-pride
9-misc.
0-not applicable, no response

Col. 29 Tangible Reward (money, etc.) Accomplishments
punch in number of citations

9=9 or more
0=no response in this category

Col. 30 Type of Tangible Reward Citation

1-pay high taxes
2-company success, stressing money
3-financial coup
4-benevolence, stressing money
5-responsibility, stressing money
6-
7-
8-
9-misc.
0-not applicable, no response

Col. 31 "Other"Accomplishments, Comments

1-disillusionment with people
2-acknowledgment of quarter
3-request for results
4-included name and address
5-stamp replaced
6-cannot be objective about self
7-comments
8-disparaging
9-misc.
0-no other response, not applicable

Col. 32 Number of "Other" Accomplishments, Comments, etc.
punch in actual number

Col. 32 (cont.) 0=no response, not applicable

Cols. 33,34 Benevolence score
punch in actual score
99=not useable
00=no response

Cols. 35,36 Responsibility score
punch in actual score
99=not useable
00=no response

Cols. 37,38 Ego score
punch in actual score
99=not useable
00=no response

Col. 41 attended professional school

Col. 42 graduated professional school

Cols. 43,44 Type of Benevolent Activity (See Col. 26)

Cols. 45,46 Type of Responsibility Activity (See Col. 26)

Col 80 = 1

Card 2

Cols. 1 through 5 - identification number

Cols. 8 through 73 - responses to Ego and Benevolence scales

Col. 80 = Card 2

Card 3

Cols. 1 through 5 - identification number

Cols. 8 through 79 - responses to Responsibility scale

Col. 80 = Card 3

Card 4

Cols. 1,2-Benevolence Score)
4,5-Ego Score)
7,8-Supportiveness Score) SIV Personality Scales
10,11-Conformity Score)
13,14-Independence Score)
16,17-Leadership Score)

19,20-Responsibility Score)
22,23-Ascendancy Score) GPP Personality Scales
25,26-Sociability Score)
28,29-Emotional Stability)

31,32-Years of Education, computed as follows:

Card 1 Col. 18 Values Highest Level Attended		Card 1 Col. 19 Values Highest Level Graduated	
Old	New	Old	New
1	7 (years of ed.)	1	8 (years of ed.)
2	11	2	12
3	13	3	14
4	15	4	16
5	17	5	18
6	20	6	23

Instructions:

If Column 19 is equal to or larger than Column 18, give new values corresponding to Column 19. If Column 19 is smaller than Column 18, give new values corresponding to Column 18.

Cols. 78,79,80 - Case Numbers (for identification)

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