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1975

THE IMPACT OF SERIES AND QUESTION SEQUENCE UPON
RESPONSE BEHAVIOR IN A MAIL QUESTIONNAIRE

by

JOEL RAYMOND EVANS

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1975

This manuscript has been read and accepted for the Graduate Faculty in Business in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

THE IMPACT OF SERIES AND QUESTION SEQUENCE UPON
RESPONSE BEHAVIOR IN A MAIL QUESTIONNAIRE

by

Joel R. Evans

Adviser: Professor Conrad Berenson

This research was designed to reveal (1) whether the rotation of series of questions in a mail questionnaire would affect response behavior, and (2) whether the rotation of specific questions within a series of a mail questionnaire would affect response behavior. For this study, a series was defined as a set of questions grouped together by type. Factual, attitudinal, and classification series were constructed, with five questions appearing in each series.

To test the hypotheses, a three page mail questionnaire was developed. Each page contained one complete series of questions. Eleven different forms of the questionnaire were derived. The forms were equivalent except for the order of the series or specific questions within the series. A sample of 3080 upper middle class professionals was randomly assigned to these eleven experimental groups. Every group received similar material in the mail:

disguised cover letter, questionnaire, and stamped return envelope. The only difference in the material received by the various groups was the sequence of series or specific questions.

Analysis of variance and chi square analysis were performed on the data. Overall form responses, responses for each series, and responses to individual questions were examined from different perspectives. Modal responses, the number of correct fact responses, overall mean attitudes, and the total number of attitude questions answered above the mode per respondent were each investigated for form effects.

Several statements about the effects of series rotation in a mail questionnaire evolved from analysis of the data. One, questionnaire rate of return was affected. Two, overall responses were not influenced. Three, responses were not affected within any of the series. Four, a significant number of individual responses were not influenced. Five, form effects did not occur or differ by demographic category. Six, item nonresponse was minimal and differences could not be measured for this study. Seven, rotation of the second and third series had an impact on responses which was not expected.

Several statements about the effects of question rotation in a mail questionnaire evolved from analysis of the data. One, questionnaire rate of return was affected when

specific fact questions were rotated, but not when specific attitude or classification questions were rotated. Two, the rotation of questions within any of the series influenced overall response behavior. Three, responses to attitude and fact questions were affected by the placement of these questions in their series, while responses to classification questions were not. Four, answers to questions in non-rotated series were influenced by the placement of specific classification questions, but not by the placement of specific fact or attitude questions. Five, sequence had an impact on responses to both general and specific questions, when these questions were rotated. Six, the switching of like and dislike questions had no effect on responses to these questions. Seven, the placement of personal or difficult questions within a series had no impact on answers to these questions. Eight, item nonresponse was too small to be analyzed.

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Lastly, I must express my love and appreciation to my wife, Linda, who has quietly suffered with me during the long days and sleepless nights. Without her encouragement and understanding, this project would not have been possible. Linda, this is our dissertation.

TO MY WIFE, LINDA

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CHAPTER I

INTRODUCTION

FROM A NATURAL TO A SCIENTIFIC ORDER OF INQUIRY

For well over two thousand years man has been attempting to formalize the "art of asking questions." One of the earliest excursions into the field was undertaken by the Greek philosopher Aristotle during the fourth century B.C. It was Aristotle who constructed a set of rules for asking questions--the natural order of inquiry: (1) determine whether the connection of a property with a thing is a fact; (2) ascertain the reasons for the connection; (3) inquire whether the thing does exist; (4) ask questions about the nature of the thing (Hiz, 1962, pp. 253-254).

Since the days of Aristotle, man has made some progress toward lifting the efficiency and effectiveness of question asking. What must be determined is the extent of the progress. That will be done in this study in succeeding chapters. It is essential that marketing researchers--all researchers--use the most precise procedures possible in the construction, completion, tabulation, and analysis of questionnaires. This has become a necessity, since the use of surveys during the last few decades has rapidly expanded, as have the claims of their validity and reliability.

In this study, one aspect of the questioning process will be examined--the order or sequence of questions in a mail survey. This is an area of questionnaire design that is as worthy of study today as it was in the time of Aristotle. It is important for marketers and other survey researchers to know that the natural order of inquiry has given way to the scientific order of inquiry.

OBJECTIVES OF THE STUDY

The purpose of this study is to examine the impact of series and question order upon response behavior to a mail questionnaire. While the topic to be considered is one of position or sequence, series order and question order effects require two different areas of analysis.

A series of questions may be defined as two or more questions grouped together under one heading or one section of a questionnaire. A series may be constructed by type of question, subject area, common theme, precoding technique, and other criteria. Series order refers to the arrangement of the various groups of questions in the questionnaire. If a questionnaire were divided into series A, B, and C, the order of these three series would have to be determined. In this example, the researcher would have six possible series arrangements: ABC, ACB, BAC, BCA, CAB and CBA.

Within any series, there are usually several individual questions. Question sequencing refers to the positioning of questions in a single series or group. The questionnaire described above, with series ABC, would require sequencing decisions for individual questions within each series. If series A had five questions, the proper arrangement of these questions would have to be selected from among 120 alternative orders. The same would hold true for question sequencing in the other two series.

The research proposed in following sections has been framed in a manner that allows series and question sequence effects to be measured and analyzed. For marketers and other researchers to move closer to scientific research, sequence problems must be posed and studied via questionnaires containing the highest degree of reliability and validity. For this area of questionnaire construction, an empirical basis will be offered for use in future mail survey construction.

VALUE OF THE STUDY

As the reader reviews the literature in this area, detailed in Chapter II, the need for a study on sequence effects in mail questionnaires becomes clear. Millions of dollars are spent in distributing and analyzing questionnaires; but little is expended for developing improved questionnaire construction techniques.

There are many reasons why a study on sequence effects in a mail questionnaire may be a contribution to the field of marketing and other disciplines using survey methods. The major reasons will be enumerated at this point.

This is the first time that a comprehensive, well-integrated study on the impact of question sequence upon response behavior to a mail questionnaire has been conducted. Accordingly, a total framework is developed that will allow the various hypotheses to be tested using one data bank. Other studies (Bauer and Meissner, 1963; Ferber, 1952; O'Dell, 1962) attempt to examine only pieces of the overall issue of sequence effects.

Many of the major works (Payne, 1951; Parten, 1950; Blankenship, 1943; Oppenheim, 1966) offer qualitative statements and not quantitative results. This study will field test several of the qualitative statements.

Only one study (Bradburn and Mason, 1964) has been uncovered that deals specifically with series order effects for mail questionnaires in an empirical manner. Another study (Cohen, 1965) centers on series order effects; but, this is done for a personal interview. This study will examine a wide range of hypotheses on series order effects as well as question order effects.

Only one major study (Ferber, 1966) has empirically examined item nonresponse as a function of question sequence in a mail questionnaire. This study will go beyond Ferber

and examine the effect of series and question positioning on response behavior under a variety of criteria.

Current terminology and definitions will be employed in the construction of a questionnaire. This means that the impact of sequencing on response behavior can be measured in terms of the present. Since the field of semantics and the literacy of the public have improved over the last several years, the influence of series and question position upon response behavior must be examined in a current fashion. The results can then be evaluated against past conclusions. It is possible that the respondent of today is less sensitive to question positioning than those of ten and twenty years ago. Of course, the opposite may also be true.

The statistical techniques and programs that are available today at low costs allow the raw data to be used in a more efficient manner than in the past. Therefore, this study will be able to employ eleven split-forms or subsamples and a total mailing of 3080. No other research of this magnitude has been conducted in the area of question sequencing for mail questionnaires.

This study will take an interdisciplinary approach to improving construction of mail questionnaires. A marketing perspective is present throughout the research, but the literature in psychology, political science, economics, sociology, and others has been reviewed extensively. The format of the study has been drawn from this variety of

writings and is an improvement over a more parochial view toward problem solving. The results will be valuable to all behavioral scientists who employ the mail survey technique.

For the above reasons, it is strongly believed that the study to be described later in this paper will be of value to marketers and other behavioral scientists. Practitioners and theorists alike should be able to benefit from the results of a comprehensive, well-integrated study. Questionnaire construction is sorely in need of procedures that have been quantitatively tested. The area is ripe for field research. The completion of this work will be one step in the right direction.

LIMITATIONS OF THE STUDY

Due to sampling and cost constraints, only eleven split-forms will be used to test the hypotheses. However, the make-up of these forms is sufficient to allow all hypotheses to be adequately tested and goes further than any other work published to date.

The study will be made as random as possible, but the selection of a population from which to draw the sample is a matter of convenience. As such, care must be taken in making assumptions about the behavior of other populations.

Last, it is difficult if not impossible for academicians to have access to corporate and other business files which might aid research. Therefore the only literature

available for this study is that published in various journals and books.

ORGANIZATION OF THE STUDY

Chapter II will contain a review of the major writings about sequence effects on response behavior to mail surveys. The literature on series order, and then question order, will be examined.

Chapters III and IV present the hypotheses to be tested and the rationale for doing so. Chapter III deals with series order effects. Chapter IV deals with question order effects.

Chapter V explains the methodology employed and the statistical tests used. Chapter VI reveals the results of this investigation. Chapter VII offers a discussion on the series order findings. Chapter VIII contains a discussion on question order findings. Chapter IX describes a summary of the study and conclusions and recommendations for further research.

Appendix A includes a copy of the questionnaire and related papers. Appendix B includes pretest data. Appendix C includes coding materials.

CHAPTER II

LITERATURE REVIEW

INTRODUCTION

Several books and hundreds of articles have been written about survey research. Of the literature dealing with questionnaire design, only a very small percentage concerns itself with the problem of series and question sequencing. An even smaller number of empirical studies have been conducted.

In this chapter a variety of literature will be reviewed. The first section presents literature on the general area of survey research. The second section offers the literature on series sequencing in questionnaires. The last section contains writings on question positioning in questionnaires.

GENERAL LITERATURE ON SURVEY AND QUESTIONNAIRE DESIGN

Much of the writing on survey and questionnaire design is general and descriptive in nature. The objectives of this literature are to outline the basic goals and problems of survey research, and then offer solutions

that allow the goals to be achieved. Empirical studies have been conducted, but on a limited basis.

This section will review the literature for the following areas: the state of survey research, types of surveys, physical questionnaire design, question design, sequence decisions, respondent behavior, interviewer bias, validation of questions and use of the mail survey.

The State of Survey Research

A diversity of books and articles have been written that describe the state of survey research. This literature examines the past and present of survey research, and offers suggestions for the future.

Only a handful of books have been written specifically on the topic of survey research. The earliest of these was a book by Blankenship (1943), which detailed the objectives and problems of consumer and opinion research, and made suggestions for survey improvement. The most quoted book on survey research was written by Stanley Payne (1951). This book followed a handbook format in dealing with aspects of asking questions. Major emphasis was on question construction.

At the same time Payne was writing, Mildred Parten (1950) compiled a comprehensive book covering the key areas of survey research. Kahn and Cannell (1957) authored a book on the interviewing process, centering their attention on techniques for the personal interview. The most recent book

on survey research was published in 1966 (Oppenheim), but this work does not offer any significant additions to what was already written.

All of these books are general and descriptive. Each is quite straightforward and perhaps simplistic. Most importantly, there does not appear to be any substantial addition to this literature since Payne in 1951.

The current marketing research texts do offer chapters on questionnaire design. This interest can be traced to 1937 when the American Marketing Association published a book on marketing research which included references to survey design. The books today (for example, Green and Tull, 1970; Boyd and Westfall, 1972; Cox and Enis, 1972; Luck, Wales and Taylor, 1974) each have material on survey and questionnaire research. This material is usually well-integrated and includes references to descriptive and empirical material.

Other books consider aspects of survey research from a different perspective. Mischel (1968) worked with personality and assessment. Triandis (1971) concentrated on attitudes and attitude change. Karlins and Abelson (1970) dealt with the area of persuasion. Glock (1967) detailed survey research in the social sciences. Goode, Barr and Scates (1936) described educational research. Hovland, et al. (1957) analyzed the order of presentation in persuasion.

Each of the above makes a contribution to the improvement of survey research, although none makes specific recommendations about questionnaire design. They provide researchers with a more interdisciplinary perspective.

Many articles, general and somewhat philosophical, detail the state of the art. Paul Lazarsfeld, who worked on the American Marketing Association's research book, was an early analyst (1935). Floyd Allport (1937, 1940) was concerned with making public opinion research more scientific through the comprehensive surveying of topics. Jenkins (1940) presented a basic guide for questionnaire development.

Getzels (1954) viewed survey research as a question-answer process, and not a one-sided tactic. Alpert (1956) was another who dealt with opinion research as a science. Alfred Politz (1957) presented his views on science in marketing research. Hiz (1962) took a more analytical approach to the question-answer process.

Stephan (1963) discussed the art of interviewing rather than the science. Banks (1964) emphasized the need for validity in doing marketing research. Nathan (1966) presented question asking as an art and not a science. Most recently Gannon (1973) and Gleason and Staelin (1973) have written. Gannon was concerned that questionnaire data was not properly used, while Gleason and Staelin offered a technique for improving ordinal data.

The majority of articles mentioned above provide a general analysis and philosophy for survey research. Some call the research science--others call it art. Few of the articles (for example: Gannon, 1973; Gleason and Staelin, 1973) offer useful adaptation for field researchers. The other literature has provided a valuable framework, but it is time to go past this framework into solid field research and utility for modern business, government and academia.

Types of Survey

The researcher must determine the type of survey he will employ--personal, telephone or mail. The literature has many works that describe the advantages and disadvantages of each technique. A few of these works will be noted in this sub-section.

Personal interviews have the advantages of flexibility, amount of information obtained, and short period of time for collection. Personal interviews have the disadvantages of high costs, difficulty in administration and interviewer bias. (For example, see Blankenship, 1943; Parten, 1950; Oppenheim, 1966; Boyd and Westfall, 1972; Luck, Wales and Taylor, 1974).

Telephone surveys have the advantages of low costs, quick completion, and ease in administration. Telephone surveys have the disadvantages of brevity in questions,

and interviewer bias. (For example, see Blankenship, 1943; Parten, 1950; Oppenheim, 1966; Boyd and Westfall, 1972; Luck, Wales and Taylor, 1974).

Mail questionnaires have the advantage of low costs, ease of administration, convenience and privacy for the respondent. Mail questionnaires have the disadvantages of low return rates, long time period for completion, and increased probability of cheating or incorrect person responding. (See, for example: Blankenship, 1943; Parten, 1950; O'Dell, 1962; Oppenheim, 1966; Boyd and Westfall, 1973; Luck, Wales and Taylor, 1974). Further discussion about mail surveys appears in a later sub-section.

In selecting the type of survey, the researcher must consider his objectives and constraints. Each type presents different advantages and problems. For this study, the mail survey has been used because it allows a large, geographically dispersed population to be interviewed at acceptable levels of validity and reliability, and for low cost factors.

Physical Questionnaire Design

Once the type of survey has been selected, the physical layout of the questionnaire can be developed. This differs by type of survey, because the respondent only sees the written form for a self-administered questionnaire. For other surveys, interviewer instructions

must be clearly detailed on the form. Since a mail survey is used in this study, this sub-section will concentrate on the literature dealing with self-administered forms.

Interest in the physical format of questionnaires dates back to the early days of questionnaire design. One report (Mathews, 1929) discussed the effects of different orderings for response words to questions. A substantial primacy effect was found, as was an impact caused by horizontal positioning. This study was empirical.

Herbert Toops (1937) presented a guide for constructing the written questionnaire. However, this was a low-level discussion on the use of punctuation and question arrangement. An inconclusive study by Metzner and Mann (1953) examined the effects of grouping and heading questions versus interspersing questions throughout the questionnaire. Nixon (1954) also postulated some basic rules for the written questionnaire. He stressed continuity and clarity. More recently, Ford (1968) conducted a study on questionnaire appearance and response rates. He found that improving the appearance of the mail questionnaire was not justified by qualitative or cost criteria. Berdie (1973) in a study on questionnaire length and response rates, found no significant correlation between the two. Small sample sizes cast some doubt on these findings.

Other articles have been written in this area, but the above give an accurate sampling. The literature is

limited and the studies somewhat simplistic. The physical layout of questionnaires follows intuition more than science.

Question Design

Probably the largest block of literature on survey research deals with the area of question design or construction. This sub-section will present a variety of these works.

Paul Lazarsfeld (1938) was one of the first to discuss the applicability of depth interviews in marketing. Question construction was difficult and important for this type of interview. Roslow and Blankenship (1939) worked on question phraseology and presented several suggestions. Rugg (1944) and Rugg and Cantril (1942) wrote on the effects of question wording for public opinion polls rather than for marketing.

Cahalan and Tamulonis (1947) evaluated the effects of question variations in opinion surveys. Terris (1949) examined the difficulty of poll questions and made recommendations for clarifying questions. Hubbard (1950) went further and stated that intent is changed by using definite or indefinite articles with questions. Indefinite articles provide the least bias.

Stanley Payne (1949-50, 1965) stated that questions should be simple and straightforward, and that open-ended questions were hardly worth the effort. Paradise and

Blankenship (1951) also examined the use of open-ended or depth questions. They came to a different conclusion. Depth questioning, when properly used, allows the interviewer great flexibility and follow-up. Politz (1953) added that a biased question may be necessary to get a true response, since bias exists in everyday activities.

Berg and Rapaport (1954) concluded that a response bias exists in an unstructured questionnaire. This was not viewed as desirable. Adams (1956) reached parallel but similar conclusions in his experiment. Comparative wording of questions produced response bias which would not exist under independent wording. Thurmin (1962) argued that buffer or neutral questions must be inserted between more sensitive questions contrasting with the Politz (1953) position mentioned above.

Dohrenwend and Richardson (1964) and Dohrenwend (1965, 1970) looked at leading and open-ended questions. The conclusions were that opening questions which are heavily biased may be able to loosen up the respondent and that open-ended questions may be of little use. On the other hand, Berent (1966) advocated depth interviewing, but offered several guidelines to reduce interviewer intervention.

Belkin and Lieberman (1967) tested passive and active question wordings and found that the active wording caused a greater pressure to respond. Bradburn (1970) used a more qualitative approach in developing rules of thumb for selecting the questions to be asked.

Dillehay and Jernigan (1970) found that response behavior was biased when lenient questions were asked, but responses were not biased when harsh questions were asked. Noelle-Neumann (1970) discovered that the use of leading questions provides the respondents with greater information and increases recognition rates. Laurent (1972) found that longer questions elicit fuller and more accurate information than short ones. This contradicts some of Payne's (1949-50, 1965) earlier hypotheses, but caution should be exercised in accepting this study since the sample size was very small.

This literature review demonstrates that question construction has been a well-discussed and controversial topic. Many problems (such as the use of leading questions) remain to be solved. In this area field work has continued and developed over the years.

Sequencing Problems

Series and question sequencing problems will be reviewed later in this chapter. At this point, the background for sequencing decisions will be presented, because this is one general decision area among the many presented in this part of the chapter.

Many of the books noted previously (see, for example: Blankenship, 1943; Parten 1950; Payne, 1951; Oppenheim, 1966; Boyd and Westfall, 1972) described general rules for series and question sequencing. Other authors

worked with more specific problems like primacy-recency effects (Hovland, et al., 1957; Lana, 1961, 1963a, 1963b, 1963c, 1964a, 1964b; Karlins and Abelson, 1970; and so forth). Huck and Bowers (1972) dealt with item difficulty and sequence effects.

Kinard (1955) developed a technique for limiting sequence effects for multiple-choice questions, solving difficulties raised by McNamara and Weitzman (1945). Warner (1965) also constructed a technique for randomizing responses and reducing bias. Landon (1971) worked with sequencing problems for the semantic differential.

The literature on series and question placement will be reviewed fully later in the chapter. This sub-section was intended only to touch upon some of the writing on this topic in conjunction with the general literature on questionnaire design.

Respondent Behavior

A number of authors have examined why and how respondents reply to questionnaires. This literature will be decomposed into two categories: the approval motive and yeasayer-naysayer behavior; reasons for non-response.

Lewis and Taylor (1955) discussed how anxiety could be provoked by asking a respondent to select an extreme response preference. A respondent who is anxious will choose an extreme answer more often than a low anxiety person in order to gain approval. Hare (1960) found that less

knowledgeable respondents exhibit conformity to hide their ignorance and gain approval. Crowne (1964) devoted his book to the approval motive, its meaning and implications.

Yeasayer-naysayer behavior has been found to be closely related to the approval motive. Couch and Keniston (1960), Taylor (1961), Wells (1962, 1963), Becker and Myers (1970), and Greenwald and Clausen (1970) have all studied this behavior. These reports confirmed that yeasayers are dependent, over-expressive, anxious and passive.

Nonresponse is a big problem for the researcher using a mail questionnaire. Insights into the reasons for nonresponses, and the differences between respondents and nonrespondents, have been sought. Donald (1960) discovered that response rates were related to levels of participation. High participation in the subject area under survey led to high response rates. Lubin, Levitt, and Zuckerman (1962) found that personality differences existed between respondents and nonrespondents; respondents were more open.

Pomeroy (1963) determined that respondents would be reluctant to participate if the interview included personal or sensitive questions. The respondent would have to be reassured and convinced that the research would serve a useful purpose. Ferber (1966) discussed how item non-response differed among types of questions. Respondents answered those questions pertaining to product ownership and plans, but omitted many classification questions.

From the above, it is evident that respondents have different reasons for participating in surveys. Nonresponses and responses are affected by these reasons.

Interviewer Bias

Interviewer bias, although not a problem in mail questionnaires, is another aspect of survey research that has received coverage in the literature. Omissions, changes, and cheating by interviewers are the main concerns. Various problems and their solutions have been presented.

Blankenship, et al. (1949) described the necessity for skilled interviewers who fully follow the instructions of their superiors. This parallels the work done by Cahalan and Verner (1947). Interviewer bias occurs for certain types of questions, in order to minimize difficulties. Crespi (1945-1946) took a slightly different approach. He objected to the use of cheater questions that would challenge interviewer honesty. Crespi acknowledged shortcomings in the interviewing process and called for a professional interviewing organization.

Boyd and Westfall (1955, 1970) examined interviewer bias. In their earlier work they pointed out various guidelines for reducing bias. But, fifteen years later, Boyd and Westfall concluded that intervening research on interviewer bias was sparse and non-productive. A later article (Shapiro, 1970) confirmed these objections. Shapiro spoke about interviewer verbosity, yet offered no real solutions.

Interviewer bias does exist today because of low wages, little involvement in subject area, lack of adequate training, and minimal supervision. It has been accepted rather than corrected.

Validation of Questions

The construction of a questionnaire and individual questions requires a validation process. Do answers to the questions accurately provide the information sought? Only through pre-testing can questions be validated, as has been done in this study.

Payne (1949-1950, 1951) and Gallup (1947) described procedures for ensuring that early questions cannot bias others in the questionnaire. Through a filtering or quin-tamensional process, the bias of introductory questions can be minimized. Therefore, each question gains validity, since the researcher knows that the answer pertains only to the specific question. Banks (1964) enumerated several research designs that allow validity to be tested, ranging from pre-testing to post-testing.

Answer behavior can easily be validated for most factual and demographic data, since it is usually available in one form or another. This validation, check on correctness of response, is valuable (Parry and Crossly, 1950; Boyd and Westfall, 1972).

The validation of responses to attitude scales or questions is much more difficult, if not impossible (Ostrom,

1971-1972). A major argument against the validation of attitudinal responses was presented by Walter Mischel (1973) who suggested that a great multiplicity of variables (such as mood, situation, experience and so forth) cause attitudes to constantly change or be expressed differently. Since attitudes would be measured under one set of conditions, it would not be feasible to validate them under a similar but different set of conditions.

In this study, a pre-test was conducted and the factual and classification questions were validated based upon correct answers. Attitudinal questions were also pre-tested and revised but, following Mischel's argument, the answers were not validated.

Using the Mail Survey

The literature on mail surveys will be reviewed in this sub-section, because that is the type of survey undertaken in this study. The other types of survey, personal and telephone, were discussed briefly in a prior sub-section.

One of the early writings on mail surveys (Mitchell, 1939) concerned a problem that has not disappeared since-- the rate of return. Boyd and Westfall (1972) commented that until ten years ago response rates for mail questionnaires varied from three to ten percent. Modern mail surveys elicit much higher response rates, but the exact figures are disputed. Boyd and Westfall (1972, p. 153) stated that 50 percent was the minimum acceptable response rate, while

Green and Tull (1970, p. 158) argued that the average mail response rate was 20 to 40 percent.

Increasing response rates and distinguishing between respondents and nonrespondents have received considerable attention. Follow-up letters, and incentives of different kinds, have been used (Wallace, 1954; Donald, 1960; Wiserman, 1973) with varying success to increase response rates. Respondents were found to differ from nonrespondents (Franzen and Lazarsfeld, 1945; Wallace, 1954; Donald, 1960). Respondents were expressive, interested, confident, and well-educated.

The addition of interesting questions (Clausen and Ford, 1947) raised the rate of return. Improving questionnaire appearance (Ford, 1968) had little effect; neither did personal or impersonal salutations (Clausen and Ford, 1947). Payne (1950) found that respondents tended to overstate answers and use outside materials because they viewed themselves as contestants. O'Dell (1962) added that mail surveys were really quota samples and not probability samples.

Ferber (1966) discovered that item nonresponse differed by kind of question. Personal data was omitted more often than product ownership or buying plans. Nuckols and Mayer (1970) revealed that independent responses cannot be obtained from different household members, and housewives responded most often.

The population and questionnaire used in this study attempted to overcome the problems described above. A well-educated, socially accepted sample was chosen. A type of incentive was offered. A topic of interest to this sample was used in the questioning, and an appeal made to the ego.

Summary of the General Sequencing Literature

Figure I summarizes the major series and question sequencing guidelines presented in the literature. These decision rules are helpful as a starting point, but do not reveal sequencing methods to be very scientific. Figure I will be referred to again later in this chapter.

SERIES SEQUENCING IN QUESTIONNAIRES

The literature on series sequencing in a mail questionnaire is quite sparse. However, there are writings on order effects that provide insights for this area. In the first sub-section, an overview of the primacy-recency controversy, as it affects questionnaire sequencing problems, will be presented. In the second sub-section, some articles dealing specifically with series sequencing decisions will be discussed.

Figure 1

GENERAL SERIES AND QUESTION SEQUENCE RULES

1. The questionnaire usually consists of a set of question series.
2. The order of the series must be considered before the questions themselves.
3. The questionnaire must be attractive and interesting in its format and physical layout.
4. The questionnaire must not appear too intimidating to the respondents.
5. Questions must be relevant to the explained purpose of the study.
6. Any one question must be viewed in the context of its series and the overall questionnaire.
7. Opening questions must create rapport, and therefore should not be crucial to the study.
8. Opening questions should be general and non-directive.
9. Opening questions may be open-ended or closed, depending on the individual survey.
10. The first few questions must be easy to answer.
11. The first few questions must allow the respondent to demonstrate his intelligence and build up his confidence.
12. Filter questions can be used to exclude respondents from answering certain series.
13. Serial questions can be employed--one introduction and a series of questions based upon it.
14. Foldover questions are implemented to classify the respondent and determine his intensity towards a subject.
15. Probes can be used to follow-up open-ended questions.
16. Sleeper items may be inserted as control items to test the respondent's answering pattern.

17. A quintamentional plan can be utilized for certain types of filter questions.
18. The respondent must not be given hints or cues early in the questionnaire, because responses to later questions will be affected.
19. Personal questions must be placed well into the body of the questionnaire.
20. Questions that test intelligence must be placed well into the body of the questionnaire.
21. Questions that evoke little interest must be placed well into the body of a series of questions.
22. A series of questions is necessary to measure motives and attitudes.
23. Motive and attitude questions, as well as others, should be arranged psychologically.
24. There must be an internal consistency for interlocking questions.
25. When a series of questions is asked, the editor can fill in a response when an answer is omitted by looking at the other answers in the series. **HOWEVER, THIS TECHNIQUE MUST BE USED WITH GREAT CAUTION.**
26. Interviewers must follow instructions exactly, and not omit or reorder questions.
27. In some personal interviews, the interviewer may change the question order if the respondent seems hesitant or uncooperative. This approach should be used only with skilled interviewers, and care must be exercised.

NOTE: The above table is an integrated presentation from the following:

American Marketing Association (1937); Blankenship (1943); Boyd and Westfall (1972); Gallup (1947); Hobart (1950); Oppenheim (1966); Parten (1950); Payne (1951).

Primacy-Recency and Sequencing in a Questionnaire

Sequencing decisions, for series and questions, are very much affected by primacy-recency considerations. If a researcher wants to minimize sequence effects on response behavior, he must minimize primacy-recency effects. When a primacy effect exists, a respondent is influenced by the introductory series or question. When a recency effect exists, responses to early series or questions are not much influenced by later series or questions, unless the respondent goes back and changes his previous responses.

The pioneer study on primacy effects was conducted by Lund (1925), who found that such an impact existed when presenting positive and negative arguments. The side introduced first had an advantage. More than two decades later, this study was challenged (Hovland and Mandell, 1952). Hovland and Mandell found the opposite results. An advantage exists for the argument presented last. Since 1952 a variety of experiments have been performed to determine whether a primacy or recency effect exists.

Hovland, Harvey and Sherif (1957) examined assimilation and contrast effects during communication. They concluded that when distance was small between the argument proposed and the belief held, the participant viewed the information as impartial. When a speaker initially presented an argument quite different from the belief held by the participant, a more antagonistic feeling arose.

Miller and Campbell (1959), while admitting that a primacy effect existed, concentrated on recency. A recency effect was found, due to rapid forgetting. Shaw (1961) determined that both primacy and recency effects existed when individuals stated their opinions to a group.

Several articles on the order of presentation in communication were written by Lana (1961, 1963a, 1963b, 1964a, 1965b) and Lana and Rosnow (1963). Lana discovered that primacy effects occurred when participants were previously familiar with the topic and recency effects occurred when participants had no prior knowledge about the topic (Lana, 1961). A highly controversial topic was prone to a recency effect (Lana, 1963a). When an opinion questionnaire was employed, a greater primacy effect existed among students not participating in a pretest than among those who did (Lana, 1964a). Recency effects were not uncovered.

Insko (1964) confirmed Miller and Campbell (1959) when he discovered that recency effects increased as the time between communications increased, but did not replicate all findings. Husek (1965) found that early presentation of negative information had a substantial influence on participants' opinions. Late presentation of negative information resulted in acceptance of the conversation. Leventhal and Singer (1966) discovered high acceptance of recommendations after initial exposure to fear arguments

on dental hygiene. Acceptance of the arguments was due to positioning, not to the level of fear.

Rosnow (1966) stated that many variables intervened with primacy and recency effects. Commitment, familiarity, pretest sensitivity, audience awareness, and so forth, all had an impact on the reception of an argument by a participant. Therefore, measurement of primacy effects was difficult. Rosnow and Goldstein (1967) examined order of presentation and concluded that where salience was low for the participant, a primacy effect existed. High salience led to recency. These results differ from those offered by Lana (1961).

Wilson and Miller (1968) conducted a study which completely validated the model presented by Miller and Campbell (1959) on recency effects. Luchins and Luchins (1970) discovered recency effects for the first questions asked after information was presented. By the fourth and fifth questions, recency had disappeared and a primacy effect appeared. Anderson and Parkas (1973) found a slight recency effect which disappeared over time when they measured continuous responses.

The above review spans almost fifty years of research on primacy-recency effects. The impact of first or last positioning is still open to considerable debate. General agreement exists that primacy and recency effects exist under certain conditions, and a maze of variables limits the ability to resolve the controversy.

From the perspective of questionnaire design, primacy effects present the greatest problem. Series and questions should be arranged so that early responses do not influence later ones. Many of the rules presented in Figure 1 have this result as their objective. As stated previously, these rules are a first step. The literature on primacy-recency adds to this step. Unfortunately, the results of the work in this field do not allow definitive decisions on sequencing to be made.

The literature described in this sub-section applies equally well for series and question sequencing. Because of its importance and impact on thinking, the primacy-recency literature was placed under the series sequence section heading.

Series Sequencing

Metzner and Mann (1953) examined response behavior when questions were grouped in series and headed, and when questions were dispersed throughout the questionnaire. The results were inconclusive. There have been other studies on the mechanics of questionnaire construction (Mathews, 1929; Toops, 1937; Nixon, 1954; Ford, 1968; Berdie, 1973). None dealt with series sequencing problems or recommendations.

Little has been written on series sequencing, and even less on series sequencing in a mail questionnaire. Blankenship (1943), Parten (1950), Payne (1951), Oppenheim (1966), Boyd and Westfall (1972) offered general sequencing

tips which appear in Figure 1. They did not make any mention of series sequencing in a mail questionnaire.

Reuben Cohen (1965) examined series order and found that no effect existed. This study was a personal interview and not a mail survey. Klosner and Gellman (1973) investigated series orders for classroom tests. Questions were presented in three forms--subject matter, ascending order of difficulty, and ascending order of difficulty within subject matter. Performances did not differ significantly by form. This study was conducted in person, and not as a mail survey.

Two studies consider series order effects in a mail survey (Bradburn and Mason, 1964; Ferber, 1966). Only one of these (Bradburn and Mason, 1964) was expressly concerned with series order in a mail survey. They found that no series effect occurred when a questionnaire with six parts (series) was distributed in four alternative forms. Self-report and self-evaluation were not influenced by order. Ferber (1966) discovered that item nonresponse could be evaluated by grouping questions into series. Personal data requests received the most nonresponses. This study was interesting and involved a large sample (14,600), but it was constructed as an adjunct to another study after the results were tabulated. A more scientific follow-up was not designed.

It is clear that the literature on series sequencing, and especially series sequencing in a mail questionnaire, is very limited. A major part of this study attempts to add to the body of knowledge on series sequencing in a mail survey.

QUESTION SEQUENCING IN QUESTIONNAIRES

There is a broad literature comprising studies on question sequence decision areas. Not all of these studies involve mail surveys, but they are applicable to them.

Harriman (1935), in personal situations, discovered that introductory questions must create rapport. Intermediary concepts, problems, tests, and so on, accomplished this purpose. Gallup (1947) described a quintamensimal plan for gathering information. Questions would be asked in a group of five: information and filter, open-ended, yes-no, why, and intensity of feelings. Payne (1949) stated that questions must be short and simple. If questions followed these rules, order would not affect response behavior.

Campbell and Mohr (1950) conducted an experiment on item order in a checklist. They used a list of sixteen radio programs, and asked respondents to pick their favorite five. The respondents were 1,280 college students. The data showed that ordinal position had no influence on the rating of the programs. This study was replicated by Sam L. Becker (1954). Becker found quite different results. He found order effects for eight of the sixteen programs, and all the programs were mentioned less often when placed in the bottom half of the list.

Ferber (1952) mailed several thousand questionnaires requesting the ratings of a list of several occupations. A significant response bias was found when the list of occupations was reversed. For the occupation labelled "professional," ratings were much higher when it was placed last.

Tannenbaum (1954) rotated twelve news items. Recall ten minutes after the test was significantly higher for items heard first or last by the respondents.

Drayton (1954) experimented in Canada, using a personal survey on cheese. Three questionnaire forms were used. Purchase behavior was less exaggerated when asked first and more specific questions followed. Nakamura (1959) found that, when students were given four true-false questions on mental health which were ideal or behavioral, changing question order did have an effect on response behavior.

O'Dell (1962) conducted a marketing study employing a mail questionnaire. He created a deliberate bias in his survey on gasoline brand purchases to determine if mail respondents would minimize this bias by going back and changing answers to previous questions. Respondents were not found to have changed their answers.

Another marketing study was completed by Edwin Gross (1964). He examined question order effects in a personal interview on buying intentions for a 29¢ pen. When advantages were presented and buying intentions asked, 17 percent of the participants were very much interested. When

disadvantages were presented, none of the participants were very much interested. When advantages and disadvantages were presented and buying intentions asked, 6 percent were very much interested. For this study, order effects were significant.

Brenner (1964) evaluated the effect of question order on the results of college mid-term examinations and concluded that question order had no influence on test results. Berger (1968) found similar results for high school seniors. Item order did not affect performance.

Cohen (1965), in the personal interview study cited previously, found significant question order effects. He found differences of up to 15 percent attributed to order effects. Flaughner, Melton, and Myers of the Educational Testing Service (1968) offered tentative conclusions that written verbal test questions may be affected by question order, while mathematical questions would not. This conflicts with the Brenner (1964) and Berger (1968) studies mentioned above.

Noelle-Neumann (1970) ran a different type of experiment. She varied the amount of information available on food labels. Respondents exposed to a label in steps were able to identify the label with less information than respondents who were shown only one step of the label. This study can be applied to the use of leading questions.

Willick and Ashley (1971) asked 400 students their political preferences and those of their parents. The order of the questions was reversed. Answers about parents' political beliefs remained the same, but those students who were questioned about their own beliefs after their parents' were found to be more independent.

Huck and Bowers (1972) have conducted a more recent study on sequence effects in a test situation. Like Brenner (1964) and Berger (1968), no effects were found. Bean and McCroskey (1973) found that response behavior was not affected when middle items in a serial learning program were switched. This concurs with the conclusion of the previous study cited in this paragraph.

The literature presented in this section covers various aspects of question sequencing. Many of the works dealt with personal and not mail surveys. The present study will center on question sequencing in a mail survey and add to this literature.

SUMMARY

Many articles and books have been written on the subject of questionnaire design. Only a small portion of this writing examined the impact of series and question sequence on response behavior to a mail survey.

The general literature on survey and questionnaire design covered a broad area. Analytical works examined the current state of survey research and offered suggestions

to make the discipline more scientific. Personal, telephone, and mail surveys were described in terms of their advantages and disadvantages. Rules for the physical design of questionnaires were enumerated. Articles on the design of individual questions were presented. Works on general sequencing problems were detailed. Reasons for varying types of respondent behavior were given. The existence of interviewer bias was examined. Procedures for validating questions were provided. Writings on the mail survey were uncovered. Figure 1, which summarizes the general rules for series and question sequencing, appeared in this chapter.

Section 2 described the literature on series sequencing in a questionnaire. The primacy-recency controversy was detailed as it pertains to series and question sequencing. The debate over primacy-recency effects has not been resolved and continues today. Studies that were conducted on series order effects, for mail and personal interviews, were presented. This literature was quite brief.

Section 3 contained the studies centering on question sequencing. This literature was quite broad. Results were somewhat conflicting, and many studies did not employ the mail survey.

DISCUSSION

The literature on series and question sequencing effects upon response behavior in a mail survey is unsatisfactory. Empirical studies are too few in number to provide meaningful data. In addition, the studies on the topic have employed limited statistical techniques and, most importantly, fragmentary hypothesis testing. None of the studies utilizes as many split-forms or attempts to examine the diversity of hypotheses as undertaken in this paper.

The following quotations capsulize the current state of questionnaire design:

Any list of "principles" tends to be abstractions It is the researcher's own subjective judgment, more often than not, which determines the degree to which the principles have been followed (Blankenship, 1943, p. 399).

... the reader will be disappointed if he expects to find here a set of definite rules or explicit definitions. The art of asking questions is not likely ever to be reduced to easy formulas. ... this book consists of some observations of human behavior, a few principles of wording, many exceptions to these principles, several unexplained oddities, and numerous unsolved dilemmas. It is undoubtedly richer on the how-not-to side than on the how-to side. (Payne, 1951, p. xi).

Questionnaire construction is still much more of an art than 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 (Boyd and Westfall, 1972, p. 288).

This study attempts to eliminate some of the negatives contained in the preceding quotations, and make sequencing in a mail questionnaire more scientific.

CHAPTER III

SERIES ORDER HYPOTHESES

The questionnaire constructed for this study was composed of three series of questions: factual (F); attitudinal (A); and classification (C). The first part of the study was designed to investigate the hypothesis that series order affects response behavior for a mail questionnaire. The specific hypotheses on series order effects will be presented in this chapter.

HYPOTHESIS IA

Responses to questions in each type of series (factual, attitudinal and classification) are affected by the positioning of the series in a mail questionnaire.

In many questionnaires, questions are grouped together by series. There are few rules for ordering these series (Boyd and Westfall, 1972). Through the testing of this hypothesis, conclusions and recommendations may be reached about the impact of series order on answer behavior.

Three questionnaire series arrangements were developed to test this hypothesis: FAC, ACF and CFA. All questions within the series remained constant. Only series

order was varied. The hypothesis would be accepted if response behavior was significantly different for questions in each of the series for the three forms.

HYPOTHESIS IB

For a mail questionnaire, responses to questions in attitudinal series are more affected by sequence than responses to questions in factual and classification series.

Answers to attitudinal questions are the most volatile because of changes in environmental conditions, person variables, and phenomenological impact (Mischel, 1973). Unlike factual and classification questions, there is no correct answer.

Three questionnaire series arrangements were employed to test this hypothesis. These forms were the same as those used for IA. Examination of Hypothesis IB will show if series order is a contributor to greater volatility in answer to attitude questions than in answer to fact and classification questions. The hypothesis would be accepted if the overall form-series interaction was significant and the attitude series contributed the greatest variation toward the overall significance.

HYPOTHESIS IC

Series order in a mail questionnaire affects questionnaire and item nonresponse.

There is no discussion in the literature about the impact of series order on questionnaire or item (question) nonresponse, despite all the references made to low response rates in Chapter II.

Testing of this hypothesis would involve the comparison of questionnaire and item response rates for each of the three forms mentioned in IA. Acceptance of the hypothesis would mean that response rates were significantly different among the forms.

HYPOTHESIS ID

For a mail questionnaire, series order affects the answer behavior to each type of series for respondents within each classification category: age, job title, highest degree earned, and income.

People participate in surveys for different reasons (Lewis and Taylor, 1955; Wells, 1962, 1963; Donald, 1960; Pomeroy, 1963; Ferber, 1966). Respondents to a mail survey are highly educated, interested, expressive (Franzen and Lazarsfeld, 1945; Wallace, 1954; Donald, 1960). Because the sample selected for this study is rather homogeneous in these areas, an analysis of response behavior for each series order by classification data would be fruitful. Again forms FAC, ACF, and CFA would be deployed, with only series order varied.

The hypothesis would be proven if all respondents within a classification category were affected by series placement. Answer behavior that differed among the three forms would be analyzed by classification category. For example, response behavior would be examined by age group across the various forms. Significant differences in answers would have to exist within the age and other classification categories for this hypothesis to be accepted.

HYPOTHESIS IE

For a mail questionnaire, when series order affects responses within classification categories, each group in each category is affected.

This hypothesis is an extension of the previous one. Testing of Hypothesis IE would demonstrate whether the answer behavior for classification categories exhibiting differences in responses across the category was affected by series rotation for each group in the category.

Forms FAC, ACF, and CFA would be employed to test the hypothesis. Acceptance would occur if response behavior differed significantly within each group of the classification category when series order was varied.

HYPOTHESIS IF

Response behavior is affected by the order of each series in a mail questionnaire and not by just the series that appears first.

An evaluation of primacy-recency effects (Hovland, et al., 1957; Lana, 1961, 1963a, 1963b, 1964a, 1964b; Karlins and Abelson, 1970; Luchins, 1957a; Rosenbaum and Levin, 1968) is reflected in this hypothesis. If the first information presented is the crucial information, the first series presented should be the crucial series. Response behavior would be affected by the character of the first series, but not by succeeding series. In this case, primacy effects would exist and the hypothesis would be rejected.

Recency effects would exist if the hypothesis was accepted. Two forms were utilized to analyze the hypothesis: ACF and AFC. The questionnaires were identical except for the switching of the second and third series (classification and fact). The attitudinal series remained in the first position. Acceptance of the hypothesis would require that significant response differences be elicited for these two forms.

DISCUSSION

There are a variety of reasons why the first part of this study, centering on the hypotheses developed in the chapter, will be a valuable piece of research.

1. Much of the literature on questionnaire design is descriptive, not empirical. Few studies have been conducted that examine the impact of series order on response behavior. Only two of these studies (Bradburn and Mason, 1964; Ferber, 1966) work with series sequence effects in the mail questionnaire, and the latter of these employs hindsight in the development of hypotheses.

2. Several decision rules for series order have been developed, and these were presented in Figure 1 (Chapter II). Most of these decision rules were offered over two decades ago and have never been tested in the field.

3. The literature from other fields (i.e., primacy-recency in psychology) has received limited coverage in survey research. This study utilizes an interdisciplinary approach throughout its construction.

4. Little hypothesis testing on series sequencing in mail questionnaires has been conducted. This study examines six separate hypotheses against a common base of data.

5. Respondents have changed over the last two decades in many demographic and psychographic ways. A current analysis of the effects of series order on answer behavior is necessary because of these changes.

6. None of the studies reviewed employed as many forms as the four split-forms used in this study. That allows more accurate hypothesis testing.

7. Improved statistical technique and programs, and ready access to computers, make current testing of hypotheses superior to those conducted ten and twenty years ago. It is hoped that the testing in this study will make the series sequencing decision in mail questionnaires more scientific.

8. The major objective of the first part of the study is to develop recommendations that will improve series sequence decisions in a practical as well as theoretical manner.

CHAPTER IV

QUESTION ORDER HYPOTHESES

The questionnaire constructed for this study was composed of five questions, plus parts, for each of the three series (factual, attitudinal, and classification). The second part of the study was designed to investigate the hypothesis that question order within individual series affects answer behavior for mail questionnaires. The specific hypotheses on question order effects will be presented in this chapter.

HYPOTHESIS IIA

Responses to each type of question (factual, attitudinal, and classification) are affected by its positioning within a series for a mail questionnaire.

Within each series of a mail questionnaire, there are several individual questions. In Figure 1 (Chapter II) a variety of general decision rules appeared. Many of these rules apply to question sequencing for a mail survey (American Marketing Association, 1937; Blankenship, 1943; Boyd and Westfall, 1972; Oppenheim, 1966; Parten, 1950; Payne, 1951). Through the testing of this hypothesis, these decision rules may be proven or disproven. Several of these rules have not yet received empirical testing.

The hypothesis will be examined by comparing different split-forms. The impact of question order on response behavior to factual questions will be measured by analyzing Forms 1, 2, 3. Series order is held constant (FAC), but fact question order is varied. The effect of question order on responses to attitudinal questions will be measured by analyzing Forms 5, 6, 7, 8. Series order is held constant (AFC), but attitude question order is rotated. The influence of question order upon answers to classification questions will be measured by analyzing Forms 9, 10, 11. Series order is held constant (CFA), but classification question order is changed. Questionnaire forms appear in Appendix A and a more complete description of the methodology appears in Chapter V.

Acceptance of this hypothesis would occur if answers to questions within the arranged series were significantly different for each of the comparisons (factual, attitudinal, classification).

HYPOTHESIS IIB

For a mail questionnaire, the rotation of questions within any type of series (factual, attitudinal, or classification) has an effect on overall response behavior.

As reported by Mischel (1973), attitudes or opinions are susceptible to change, or at least to change in outward expression. Classification questions also provoke respondent sensitivity (Ferber, 1966), but this can be measured against true conditions. Factual questions do not produce significant order effects (Brenner, 1964; Berger, 1968); if they did, they could be measured against correct answers.

Testing of this hypothesis would demonstrate whether or not overall response behavior was affected by attitude question order, while overall responses were not affected by the rotation of factual and attitudinal questions. The comparison of split-forms will be the same as in IIA. The hypothesis would be accepted if differences occur among overall responses when attitude, fact, or classification questions are rotated.

HYPOTHESIS IIC

For a mail questionnaire, changing the order of questions within a given series affects the responses to questions within other series.

This hypothesis suggests that when questions are rotated within one series (i.e., factual), response behavior is influenced for other series (i.e., attitudinal and classification). To evaluate this statement, answers will be compared for questions in non-adjusted series. When factual questions are rotated, answers to attitudinal and classification questions will be contrasted for Forms 1, 2 and 3. The rotation of attitudinal questions will cause responses to factual and classification questions to be compared for Forms 5, 6, 7 and 8. Where classification questions are rotated, responses to factual and attitudinal questions will be compared for Forms 9, 10 and 11.

The hypothesis would be accepted if answer behavior is significantly different for questions within non-adjusted series across the various forms.

HYPOTHESIS IID

Question order within specific series has an effect on questionnaire and item nonresponse for a mail survey.

The arrangement of specific questions in a mail questionnaire may have an effect on nonresponse (Ferber, 1966). Testing of this hypothesis will demonstrate the extent of questionnaire and item nonresponse rates caused by the rotation of specific questions within individual series.

Examination of the hypothesis would involve a comparison of the forms described in IIA. The hypothesis would be accepted if questionnaire and item nonresponse rates were significantly different among the forms.

HYPOTHESIS IIE

The arrangement of general and specific questions affects responses to a mail questionnaire. If specific questions are placed before general questions, responses to both will be affected.

Payne (1951), Blankenship (1943), Parten (1950), Gross (1964) and others stated that general questions must precede specific ones. This must be done to limit the hints or suggestions provided to the respondents to the specific questions. Specific questions give the respondents information which can be used to answer other questions. This bias may be minimized if these questions are placed last.

In this questionnaire, general and specific attitude questions were developed to test the hypothesis. An analysis

of response behavior to Forms 5, 7 and 8 will explain the validity of the decision rule. The hypothesis would be accepted if response behavior to the general and specific attitude questions differed significantly among the forms.

HYPOTHESIS IIF

In a mail questionnaire, responses to questions involving product or idea advantages and disadvantages are affected by their order of presentation. The rate and intensity of responses are affected by whether advantages (likes) or disadvantages (dislikes) are asked first.

Gross (1964) discovered substantial changes in response behavior when the order of presentation was altered for product advantages and disadvantages. Through the testing of Hypothesis IIF, the effects of this sequencing problem upon both the rate and intensity of responses will be measured.

Response behavior will be analyzed for the like-dislike questions appearing in the attitude series. Forms 5 and 6 will be employed. The hypothesis would be accepted if placement of the like-dislike questions significantly affected answers.

HYPOTHESIS IIG

The arrangement of personal or difficult questions in a mail questionnaire affects the responses to these questions.

Payne (1951) and Blankenship (1943) discussed this sequence problem, and concluded that personal or difficult

questions must be placed deep into the questionnaire. This conclusion will be evaluated through the testing of Hypothesis IIG.

The effect of question order on responses to personal questions will be examined by rotating questions in the classification series, and comparing answers to Forms 9, 10 and 11. The effect of question order on responses to difficult questions will be conducted by rotating fact questions, and contrasting answers to Forms 1, 2 and 3. The hypothesis would be accepted if response behavior is significantly different across the forms.

DISCUSSION

There are a lot of reasons why the second part of this study, centering on the hypotheses developed in the chapter, will be a valuable piece of research:

1. Several studies examine various aspects of question sequencing. These studies were enumerated in Chapter II. However, many of the studies employed personal and not mail surveys. In addition, conflicting results were frequent (i.e., Campbell and Mohr, 1950 versus Becker, 1954; Brenner, 1964 and Berger, 1968 versus Flaugh, Melton, and Myers, 1968) and not conclusive.

2. Many decision rules for question order have been developed and these were presented in Figure 1 (Chapter II). Like the decision rules on series order, these

rules were developed over two decades ago, and have received little empirical follow-up. Some studies do offer solid contributions (i.e., Drayton, 1954; O'Dell, 1962; Gross, 1964), but these have not been conducted in the climate which exists today.

3. Respondents have changed in demographic and psychographic ways. The effect of question order on the answer behavior of today's respondent must be measured.

4. The literature on question order effects covers many fields. Nonetheless, researchers have maintained narrow interests, and do not appear to have gained from contributions in fields outside their own. This study is interdisciplinary and utilizes the work appearing in all the literature.

5. Hypothesis testing has been fragmented and overlapping. Experiments have considered few hypotheses. This study evaluates seven hypotheses on the effects of question order in mail questionnaire.

6. This experiment employs ten split-forms to test the various hypotheses on question order effects. No other mail research project uses this many split-forms. The large number of forms allows fuller hypothesis testing.

7. Improved statistical techniques and programs, and easy access to computers, make current validation of hypotheses easier and more comprehensive than tests conducted two decades ago. It is for this reason that so many split-forms may be implemented.

8. The major goal of the second part of the study is to develop recommendations which will improve question sequence decisions in both practical and theoretical ways. A more scientific plateau is desired.

CHAPTER V

METHODOLOGY AND STATISTICAL TESTS

BACKGROUND

A mail questionnaire on general business knowledge and attitudes was constructed to test the hypotheses described in Chapters III and IV. The questionnaire and other relevant paperwork appear in Appendix A.

This questionnaire allowed both series and question sequence effects to be measured. It was divided into three series of questions: factual, attitudinal, and classification. Each of these series contained five basic questions, with many of the questions having parts.

To measure the impact of series and question sequence on response behavior to a mail survey, a split-ballot technique was used. Eleven separate questionnaire forms were derived from the original. Forms 1, 4, 5 and 9 were employed to measure the effects of series order. Forms 1, 2, 3, 5, 6, 7, 8, 9, 10 and 11 were constructed to measure the effects of question order. The layouts of the forms were as follows:

- Form 1: Fact, Attitude, and Classification Series.
- Form 2: Same series order as Form 1; place Fact Question 4 in the first position in the series and move the others down one position each.
- Form 3: Same series order as Form 1; same question order as Form 2; place Fact Question 1C in the first position in the series and move Fact Questions 1A and 1B down one position each.
- Form 4: Attitude, Classification, and Fact Series.
- Form 5: Attitude, Fact, and Classification Series.
- Form 6: Same series order as Form 5; switch Attitude Questions 1B and 1C.
- Form 7: Same series order as Form 5; change Attitude Questions 1B and 1C to 1A and 1B; move Attitude Question 1A to 1C.
- Form 8: Same series order as Form 5; place Attitude Question 1 last in the series and move the others up one position each.
- Form 9: Classification, Fact, and Attitude Series.
- Form 10: Same series order as Form 9; place Classification Question 5 in the third position in the series and move Classification Questions 3 and 4 down one position each.
- Form 11: Same series order as Form 9; place Classification Question 5 in the first position in the series and move the others down one position each.

Each of the forms described above was identical except for the changes noted. The experiment was controlled as much as possible by altering only the variables mentioned. Forms 1, 4, 5 and 9 were examined for series order effects. Forms 1, 2 and 3 were examined for the effects of reordering

fact questions. Forms 5, 6, 7, 8 were examined for the effects of reordering attitude questions. Forms 9, 10, 11 were examined for the effects of reordering classification questions. These analyses will be more fully discussed in the following chapters.

EXPERIMENTAL DESIGN

In order to obtain similar samples for each of the eleven forms detailed previously, a single large population base was chosen. The population consisted of all people appearing in Who's Who in the East, 1973-1974 (A.N. Marquis and Company). This publication was chosen for several reasons. Eighteen thousand current names and addresses were available. A wide range of demographic data was given for each person in the publication. The quality of people was excellent because of high admission standards. Those admitted were both homogeneous, level of education and status, and heterogeneous, type of education and occupation.

A total sample size of 3080 was selected from Who's Who, 280 for each of the eleven forms. The total sample was obtained by picking every sixth name, after using a random start. Then every eleventh name from the 3080 was placed into each of the sub-samples. All 3080 questionnaire were sent out in one mailing.

COVER LETTER

The cover letter was written on Baruch College stationery. It was composed in a manner that would appeal to the ego of the respondent in terms of his concern about current American business activities.

The true purpose of the project was disguised. The survey was described as one investigating the business knowledge and attitudes of important American citizens. The researcher was listed only as "Joel Evans - Marketing Department" without position or title.

A type of incentive was offered to the potential respondents. Summary results of the study would be sent to anyone requesting them under separate cover, to maintain anonymity. The use of this letter has been disputed as an incentive, but was used in this study. The summary results have already been sent to those requesting them. A copy appears in Appendix A, along with the cover letter.

QUESTIONNAIRE PRINTING AND ENVELOPES

Questionnaires were photo-offset on lightweight eight and one-half by eleven inch paper. The lightweight paper was used to minimize outgoing postage costs. The questionnaire was composed of three pages, one series to a page. At the top of each page was a series heading. In addition, a one page cover letter and a return envelope were inserted in the outgoing envelope.

Outgoing envelopes had a Baruch College return address, and were stamped "Marketing Department." Respondents' addresses were attached to the envelopes with typewritten gummed labels. The envelopes were metered with first-class postage. Where possible, in almost all instances, the questionnaires were sent to the respondents' home addresses.

Return envelopes were inserted with each questionnaire. These envelopes bore the markings "Business Reply Mail - postage will be paid by Baruch College - Attention: Box 293." First class postage was used for the return envelopes, which were sent to the Baruch College address. The envelopes were professionally produced.

CODING

The back of the last page of each questionnaire was coded with invisible ink for the easy identification of form type and to enable the checking of demographic data against that reported in Who's Who. Two numbers were written on the back of the questionnaires. The first number specified the form type from 1 to 11. The second number specified the respondent of that form from 1 to 280.

No invasion of privacy was violated. After the demographic data was checked and validated, all questionnaires and responses were recorded by separate code numbers and not by respondents' names.

SERIES FORMAT

As enumerated in Chapters III and IV, two sets of hypotheses were under investigation in this study. The first set concerned series order, and the second set concerned question order. The construction of the questionnaire required that series decisions had to be made before any specific question decisions.

In developing the best possible series format, the ensuing decisions were made. Series were sorted into fact, attitude and classification modes, rather than by type of question, topic, and so forth. It was felt that these categories were distinct and realistic, and serious analyses could be conducted. This format follows that outlined by Boyd and Westfall (1972).

The use of fact, attitude, and classification series allowed the construction of a questionnaire that would examine the factual knowledge, attitudes, and demographics of potential respondents. Accordingly, the questionnaire was broken down into these three series.

The selection of a sample from Who's Who in the East enabled the researcher to choose knowledge and attitudes about United States business activities as the general topic of the survey. This topic was highly relevant for this well-educated and business-experienced population, and it involved areas of interest to marketers.

As a result of the above, the questionnaire was divided into three series: fact questions (knowledge about American business); attitude questions (attitudes toward American business); classification questions (demographic data). Each series appeared on a single page and was headed. Headings were used to provide the respondents with information. Series were confined to a single page so that only the intended variations would be measured and not extraneous typing changes.

Since question order effects were being measured along with series order effects, it was not feasible to construct the six variations of series order necessary to have a perfect factorial design (Fact=F; Attitude=A; Classification=C: FAC, FCA, AFC, ACF, CFA, CAF). Four designs were developed: FAC, AFC, ACF, and CFA. These four layouts placed each series type in the three possible positions and also provided for an analysis on the impact of only the first series on response behavior, AFC versus ACF.

The series were constructed in a manner that allowed each of them to be placed in any of the three positions. This does not mean the series themselves or series order were dependent or independent. At this point, it can only be stated that the series had a logical connection, following Lazarsfeld (1943), but an undetermined level of independence. As Payne (1950) wrote in describing carryover effects, independence exists only when changing a sequence

has no impact on response behavior. Only analysis of the data can lead to any conclusions regarding the independence of these series or the lack of it.

Five basic questions were placed within each series. Questions in the factual series centered on respondent knowledge about a variety of U.S. business terms, events, and practices. Questions in the attitudinal series centered on the respondents' opinions about various U.S. business activities. Questions in the classification series centered on the respondents' demographic backgrounds. Within the series, questions were diversified yet consistent with the concept of the particular series.

QUESTION FORMAT

A key objective in constructing the questionnaire was to have the number and type of questions in each series as similar as possible. Each series contained five questions plus parts. Each series had one open-ended question; the remaining questions were multiple-choice or scale in nature. All questions were short and straightforward. Procedures for answering the questions were given.

Factual questions examined knowledge about a variety of U.S. business topics: definition of laissez faire; validity of a statement on business firms and business systems; sales rank of five large corporations; legislative restrictions on business; the Federal Trade Commission and mergers; definition of class action suits; and definition of planned obsolescence.

Attitudinal questions covered ratings on a variety of United States business activities: overall economic and social performance; practices most beneficial to life; practices least beneficial to life; honesty; responsiveness to consumers; effect on the environment; and necessary level of government activity.

Classification questions centered on many characteristics of the respondents: age; sex; current job title or profession; last level of education completed; college degrees, university or college name, major field, date degrees received; and total annual gross family income.

The construction of the questions outlined above went through many drafts and pre-testing to ensure validity and reliability. Question content, form, and wording underwent constant revisions. The end result was a questionnaire that contained validity and reliability for the sample selected, and allowed the hypotheses mentioned in Chapters III and IV to be tested. Monetary and other constraints limited the number of forms used in the examination of question sequence effects to 10.

PRE-TESTING

After the questionnaire had undergone numerous revisions, a pre-test was conducted. This pre-test was used to test validity and reliability of the questionnaire. Five classes of marketing students were chosen as a sample, three advanced undergraduate classes (groups 1, 2, 3) and two graduate classes (groups 4,5). For the pre-test, only series order and question validity were examined. Groups 1 and 4 had series order FAC (Fact, Attitude, Classification). Groups 2, 3 and 5 had series order AFC.

Results of the pre-test showed that series order had a minimal impact upon factual and classification question responses, but a clear effect on responses to attitudinal questions. The preliminary questionnaire and the results of the pre-test appear in Appendix B.

Questions proved to be valid and reliable with the following exceptions, which resulted in changes to the final questionnaire. The fact question on class action suits was made open-ended, so that one open question would appear in each series. The attitude question on overall performance of American business was changed to overall economic and social performance. The attitude questions on most and least beneficial practices of American business were adjusted to most and least beneficial aspects. The wording of the attitude scales was altered to that used by Cox and Enis (1973). An answer to the classification question on the

level of education was changed from "Post-Graduate" to "Post-Graduate (one course or more completed)."

Additional revisions were made because of the pre-test. Page length was reduced from the eight and one-half by fourteen inch paper used in the pre-test to eight and one-half by eleven inch. A lightweight paper was substituted to minimize postage costs.

After the changes described previously were completed, the edited questionnaire was shown to several people knowledgeable in this area, and approved by them. At this point the questionnaire was submitted for photo-offsetting. Since the pre-test proved satisfactory, and further preliminary work would be quite expensive, the final questionnaire was not tested on the Who's Who population.

The pre-testing was conducted between April 20 and 24, 1974. Tabulating, analyzing, and consultation took place between April 25 and May 8, 1974. Final revisions were completed by May 20, 1974.

MAILING

Once the pages of the 3080 questionnaires and cover letters were printed, many activities had to be completed before the mailing. Several undergraduate students were employed to do these jobs. The questionnaires had to be carefully collated and stapled. Address labels were attached to the envelopes. The backs of the questionnaires were coded.

The questionnaires, cover letters, and return envelopes were folded and stuffed in the envelopes. Finally, the questionnaires were sent to the Baruch College mailroom for metering and mailing.

The mailing process was undertaken during the period of May 21 to May 30, 1974. The questionnaires were metered and mailed on May 30 and 31, 1974.

PREPARATION AND PROCESSING OF DATA,
DATA ANALYSIS, AND STATISTICAL TESTS

Dummy tables were constructed to give the researcher a good idea of how to analyze the forthcoming data. A procedure for processing the data on IBM cards was developed. This procedure appears in Appendix C. Methods for coding the questionnaires and individual questions are contained in this procedure.

The statistical tools to be implemented were finalized at this juncture. Whenever possible, the Statistical Package for the Social Sciences would be used. Tests would include chi-square analysis and analysis of variance, each used with a .05 level of significance. These tests would allow order effects to be examined among any combination(s) of the eleven forms. Frequency distributions would be used for summary and illustrative purposes.

When the questionnaires were received, each was coded on IBM cards, one card per questionnaire (as described

in Appendix C). Questionnaires were coded by form number. All data was classified by this researcher and transposed on to IBM coding sheets. Two students were employed to key-punch the data, which was then cross-checked by the researcher.

A cut-off point of six weeks (June 1 to July 12, 1974) was allowed for the receipt of completed questionnaires. The twenty questionnaires received after this date were discarded. On July 15, 1974 statistical testing was begun on the complete and coded data set. All tests were run in the Baruch College Computer Center. The basic data set appears in Chapter VI. Chapters VII and VIII contain the results of the analysis of this data.

SUMMARY OF METHODOLOGY

Three thousand and eighty (3080) names were randomly selected from Who's Who in the East, 1974-1975, and divided into eleven groups. All of these groups received a mail questionnaire composed of three series of questions (Attitude, Fact and Classification) with five questions in each series. Each group was sent a different series and/or question sequence. All factors were held constant except the order changes. The objective was to measure the impact of order on response behavior to a mail survey. In the next chapter, the basic results of this study will be presented.

CHAPTER VI

RESULTS

Chapter VI contains a summary of the responses obtained from the mail questionnaire employed in this study. Included are the answer distributions to all questions asked in the survey. In the chapter, data is presented in tabulated form. Tables are necessary to describe the basic results.

The results are given by total and group responses. The names of the eleven groups or forms are abbreviated in the tables: Fact Form 1 = F1; Fact Form 2 = F2; Fact Form 3 = F3; Attitude Form 1 = A1; Attitude Form 2 = A2; Attitude Form 3 = A3; Attitude Form 4 = A4; Attitude Form 5 = A5; Classification Form 1 = C1; Classification Form 2 = C2; Classification Form 3 = C3. The composition of each of these forms was detailed in the last chapter.

Statistical analyses and discussion of the results, as they pertain to the hypotheses under investigation, will be offered in Chapters VII and VIII.

SAMPLE SIZE AND RESPONSE RATE

A total of 3080 questionnaires were mailed to a random sample of people listed in the 1974-1975, Who's Who in the East. These 3080 questionnaires were composed of eleven different forms with 280 questionnaires each. Table 1 shows the total and group response rates that were obtained.

Of the original 3080 questionnaires mailed, 139 were returned as non-deliverable. These non-deliverables were noted for each of the groups, and ranged from five for group A5 to 18 for group A2. The undelivered questionnaires were subtracted from the total mailing and net sample sizes were recorded. Responses were measured against the net sample sizes to achieve net response rates.

The total net response rate was 26.32 percent. Group response rates ranged from 21.93 percent for group F2 to 33.20 percent for group F1.

RESPONSES TO FACTUAL QUESTIONS

Respondents were asked several questions in order to evaluate their knowledge of American business and the effect of sequence on this knowledge. Tables 2-12 present the distribution of answers to these questions.

Table 2 deals with the question of defining the term laissez faire. Only 31 respondents (4 percent) did not answer this question. Ninety-three percent of the total correctly defined laissez faire as freedom from government

Table 1

TABLE SIZE AND RESPONSE RATE BY EXPERIMENTAL GROUP

	<u>Total</u>	<u>F1</u>	<u>F2</u>	<u>F3</u>	<u>A1</u>	<u>A2</u>	<u>A3</u>	<u>A4</u>	<u>A5</u>	<u>C1</u>	<u>C2</u>	<u>C3</u>
Mailed	3080	280	280	280	280	280	280	280	280	280	280	280
Non-Deliverable	<u>139</u>	<u>12</u>	<u>11</u>	<u>13</u>	<u>15</u>	<u>18</u>	<u>13</u>	<u>11</u>	<u>5</u>	<u>13</u>	<u>14</u>	<u>14</u>
Net Sample Size	2941	268	269	267	265	262	267	269	275	267	266	266
Responses	774	89	59	68	63	62	69	65	69	71	72	87
Net Response Rate	26.32%	33.20%	21.93%	25.47%	23.77%	23.66%	25.84%	24.16%	25.01%	26.59%	27.01%	32.71%

Table 2

DEFINITION OF LAISSEZ FAIRE

	<u>Total</u>		<u>F1</u>		<u>F2</u>		<u>F3</u>		<u>A1</u>		<u>A2</u>		<u>A3</u>		<u>A4</u>		<u>A5</u>		<u>C1</u>		<u>C2</u>		<u>C3</u>	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Government Intervention	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	1	0	0
Freedom	717	93	86	97	54	92	67	99	59	94	57	92	63	91	59	91	60	87	66	93	65	90	81	93
Fair Trade	21	3	2	2	3	5	1	1	2	3	2	3	2	3	4	6	0	0	2	3	2	3	1	1
Import Tariff	1	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
Spending Limits	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	0	0	0	0	0
No Response	<u>31</u>	<u>4</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>8</u>	<u>12</u>	<u>3</u>	<u>4</u>	<u>4</u>	<u>6</u>	<u>5</u>	<u>6</u>
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100*	69	100	71	100	72	100	87	100

*Rounding Error

intervention. The distribution of correct answers among the eleven groups ranged from 87 percent for group A5 to 99 percent for group F3.

Table 3 contains the responses to statements on business firms and business systems. The correct statement was to be selected from the five given. Respondents found this question to be more difficult than that on laissez faire. Sixty-six respondents (9 percent) did not answer this question, and only 59 percent selected the correct statement; consumer freedom leads to increased complexity. Fifteen percent chose the statement on profit as the sole objective of U.S. business.

Correct responses among the eleven groups varied from 49 percent for group C2 to 69 percent for group A2. Responses to the statement on profit went from 7 percent for group A2 to 24 percent for group C2. These statistics come from Table 3.

Respondents were asked to rank five large American companies by annual sales: Exxon; Goodyear; General Motors; IBM; U.S. Steel. The results of these rankings appear in Tables 4-8. This question provided respondents with difficulty. The nonresponse rate for the question was low (five percent), but the number of correct answers was not as high as with other questions.

Forty-eight percent correctly identified Exxon as being second in annual sales (Table 4) varying from 44 percent for group A5 to 54 percent for group A1. Another 45 percent of the total responses were incorrectly distributed among rankings 1, 3 and 4.

Table 3

STATEMENTS ON BUSINESS FIRMS AND BUSINESS SYSTEMS

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Consumer Freedom Reduces Productivity	5	1	0	0	0	0	1	2	0	0	1	2	0	0	1	2	0	0	0	0	2	3	0	0
Problems Are the Same in All Systems	70	9	9	10	8	14	5	7	4	6	6	10	6	9	7	11	5	7	8	11	4	6	8	9
Profit is the Sole Objective in the United States	113	15	10	11	6	10	10	15	9	14	4	7	16	23	14	22	8	12	10	14	17	24	9	10
Business Cannot Work under Govern- ment Regulation	47	6	5	6	4	7	7	10	3	5	1	2	6	9	4	6	2	3	4	6	5	7	6	7
Consumer Freedom Leads to Increased Complexity	453	59	58	65	33	56	42	62	40	64	43	69	35	51	33	51	41	59	40	56	35	49	53	61
Multiple Response	20	3	2	2	1	2	2	3	2	3	1	2	2	3	3	5	0	0	4	6	2	3	1	1
No Response	66	9	5	6	7	12	1	2	5	8	6	10	4	6	3	5	13	19	5	7	7	10	10	12
Total	774	100*	89	100	59	100*	68	100*	63	100	62	100*	69	100*	65	100*	69	100	71	100	72	100*	87	100

*Rounding Error

Table 4

SALES RANK OF EXXON

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	124	16	12	14	9	15	12	18	8	13	11	18	12	17	9	14	15	22	9	13	7	10	20	23
2	373	48	44	49	27	46	33	49	34	54	29	47	35	51	33	51	30	44	35	49	34	47	39	45
3	139	18	17	19	14	24	9	13	11	18	14	23	9	13	12	19	11	16	15	21	16	22	11	13
4	89	11	12	14	7	12	9	13	6	10	5	8	7	10	4	6	4	6	11	16	12	17	12	14
5	13	2	1	1	0	0	3	4	0	0	1	2	3	4	3	5	1	1	0	0	1	1	0	0
No Response	36	5	3	3	2	3	2	3	4	6	2	3	3	4	4	6	8	12	1	1	2	3	5	6
Total	774	100	89	100	59	100	68	100	63	100*	62	100*	69	100*	65	100*	69	100*	71	100*	72	100	87	100*

*Rounding Error

Eighty-three percent correctly placed Goodyear into the fifth position in annual sales (Table 5). This ranged from 73 percent for group A5 to 96 percent for group C1. Eleven percent of the total responses incorrectly placed Goodyear into the fourth position.

Seventy-one percent of the total respondents correctly chose General Motors as the leader in annual sales (Table 6). This went from 64 percent for group C3 to 80 percent for group C1. Seventeen percent incorrectly placed General Motors second in annual sales.

The ranking of IBM (Table 7) and U.S. Steel (Table 8) was the most difficult. Only 38 percent of the total correctly named IBM as third in annual sales; 33 percent incorrectly placed U.S. Steel in this position. Just 36 percent correctly identified U.S. Steel as fourth in annual sales, while 35 percent incorrectly put IBM in this position.

Correct ranking of IBM varied from 32 percent for group A2 to 45 percent for group C3. Correct ranking of U.S. Steel went from 28 percent for group C1 to 48 percent for group F3. These statistics are from Tables 7 and 8.

Tables 9-11 involve three parts of a single question. Table 9 contains responses to the question on the first year of government legislative restrictions on U.S. business. The nonresponse rate to this question was small (5 percent). Yet only 56 percent of the total respondents gave the correct answer--1880s. Thirty-six percent answered the 1920s. The

Table 5

SALES RANK OF GOODYEAR

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	8	1	1	1	1	2	2	3	0	0	0	0	1	1	0	0	1	1	0	0	2	3	0	0	0
4	89	11	11	12	4	7	7	10	10	16	9	15	8	12	11	17	10	15	2	3	9	13	8	9	9
5	640	83	74	83	51	86	57	84	49	78	52	84	57	83	49	75	50	73	68	96	59	82	74	85	85
No Response	36	5	3	3	3	5	2	3	4	6	1	2	3	4	4	6	8	12	1	1	2	3	5	6	6
Total	774	100	89	100*	59	100	68	100	63	100	62	100*	69	100	65	100	69	100*	71	100	72	100*	87	100	100

*Rounding Error

Table 6

SALES RANK OF GENERAL MOTORS

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	551	71	65	73	41	70	51	75	45	71	46	74	48	70	45	69	45	65	57	80	52	72	56	64
2	135	17	12	14	13	22	13	19	10	16	10	16	13	19	10	15	14	20	8	11	14	19	18	21
3	41	5	7	8	3	5	2	3	3	5	4	7	2	3	5	8	2	3	3	4	4	6	6	7
4	11	1	2	2	0	0	1	2	1	2	1	2	2	3	1	2	0	0	2	3	0	0	1	1
5	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
No Response	34	4	3	3	2	3	1	2	4	6	1	2	3	4	4	6	8	12	1	1	2	3	5	6
Total	774	100*	89	100	59	100	68	100*	63	100	62	100*	69	100	65	100	69	100	71	100*	72	100	87	100

*Rounding Error

Table 7

SALES RANK OF IBM

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	27	4	5	6	2	3	3	4	1	2	2	3	1	1	3	5	1	1	0	0	6	8	3	3
2	0	12	10	11	3	5	13	19	4	6	9	15	8	12	9	14	4	6	10	14	13	18	7	8
3	292	38	34	38	22	37	29	43	21	33	20	32	29	42	23	35	25	36	24	34	26	36	39	45
4	269	35	30	34	25	42	18	27	23	37	23	37	26	38	21	32	24	35	34	48	17	24	28	32
5	58	7	7	8	4	7	3	4	10	16	6	10	2	3	5	8	7	10	1	1	8	11	5	6
No Response	38	5	3	4	3	5	2	3	4	6	2	3	3	4	4	6	8	12	2	3	2	3	5	6
Total	774	100*	89	100*	59	100*	68	100	63	100	62	100*	69	100	65	100	69	100	71	100	72	100	87	100

*Rounding Error

Table 8

SALES RANK OF U.S. STEEL

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	37	5	4	5	5	9	1	2	5	8	2	3	5	7	3	5	0	0	4	6	5	7	3	3
2	140	18	20	23	14	24	8	12	11	18	12	19	10	15	9	14	13	19	16	23	9	13	18	21
3	257	33	27	30	17	29	23	34	24	38	22	36	25	36	21	32	22	32	28	39	22	31	26	30
4	279	36	31	35	20	34	31	46	19	30	22	36	23	33	25	39	23	33	20	28	32	44	33	38
5	24	3	4	5	1	2	3	4	0	0	2	3	3	4	3	5	3	4	1	1	2	3	2	2
No Response	37	5	3	3	2	3	2	3	4	6	2	3	3	4	4	6	8	12	2	3	2	3	5	6
Total	774	100	89	100*	59	100*	68	100*	63	100	62	100	69	100*	65	100*	69	100	71	100	72	100*	87	100

*Rounding Error

Table 9

FIRST YEAR OF GOVERNMENT LEGISLATIVE RESTRICTIONS ON BUSINESS

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1760s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800s	7	1	1	1	2	3	0	0	0	0	0	0	0	0	2	3	0	0	0	0	1	1	1	1
1840s	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
1880s	434	56	53	60	35	59	48	71	36	57	35	57	36	52	33	51	37	54	34	48	42	58	45	52
1920s	275	36	29	33	16	27	17	25	23	37	25	40	26	38	25	39	23	33	33	47	24	33	34	39
1960s	18	2	3	3	3	5	2	3	0	0	1	2	2	3	2	3	1	1	1	1	2	3	1	1
No Response	<u>37</u>	<u>5</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>5</u>	<u>1</u>	<u>2</u>	<u>4</u>	<u>6</u>	<u>1</u>	<u>2</u>	<u>5</u>	<u>7</u>	<u>3</u>	<u>5</u>	<u>8</u>	<u>12</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>6</u>
Total	774	100	89	100	59	100*	68	100*	63	100	62	100*	69	100	65	100*	69	100	71	100	72	100*	87	100

* Rounding Error

distribution of correct answers ranged from 48 percent for group C1 to 71 percent for group F3.

Table 10 deals with the merger responsibilities of the Federal Trade Commission. The nonresponse rate was small (5 percent). Seventy percent of the total respondents identified the proper choice of answer: involvement with all types of mergers. These responses varied from 65 percent for group A1 to 79 percent for group C1. Twenty percent of the total improperly answered that the Federal Trade Commission was involved only with mergers between manufacturers ranging from 13 percent from group A5 to 27 percent for group F3.

Participants were asked to define a class action suit. The results of this question appear in Table 11. Eighty-two percent of the total respondents correctly defined the term. However, the nonresponse rate for this question was high (10 percent--81 nonresponses). Correct definitions varied from 75 percent of those in group A5 to 90 percent of those in group F1.

Respondents were asked to define the critics' description of the automobile industry. The answers to this question are in Table 12. Ninety-two percent of the total correctly explained the term, ranging from 87 percent in group A5 to 99 percent in group F1. The nonresponse rate was only 4 percent; 30 nonresponses.

All of the results described above pertain to the factual section of the questionnaire. The following results are from the attitudinal section.

Table 10

THE MERGER RESPONSIBILITIES OF THE FTC

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Only with Manufacturers	154	20	15	17	12	20	18	27	14	22	14	23	14	20	15	23	9	13	11	16	12	17	20	23
Only with Retailers	29	4	7	8	2	3	3	4	3	5	2	3	1	1	2	3	1	1	1	1	5	7	2	2
Only with American and Foreign Companies	6	1	0	0	0	0	1	2	0	0	1	2	2	3	0	0	1	1	0	0	0	0	1	1
All Types	544	70	65	73	42	71	45	66	41	65	41	66	46	67	46	71	50	73	56	79	53	74	59	68
No Response	<u>41</u>	<u>5</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>1</u>	<u>2</u>	<u>5</u>	<u>8</u>	<u>4</u>	<u>7</u>	<u>6</u>	<u>9</u>	<u>2</u>	<u>3</u>	<u>8</u>	<u>12</u>	<u>3</u>	<u>4</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>6</u>
Total	774	100	89	100	59	100*	68	100*	63	100	62	100*	69	100	65	100	69	100	71	100	72	100*	87	100

*Rounding Error

Table 11

DEFINITION OF A CLASS ACTION SUIT

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Correct	632	82	80	90	48	81	58	85	51	81	50	81	53	77	50	77	52	75	59	83	55	76	76	87
Incorrect	47	6	3	3	2	3	7	10	3	5	6	10	6	9	5	8	2	3	5	7	6	8	2	2
Don't Know	14	2	0	0	0	0	3	4	4	6	2	3	1	1	1	2	1	1	0	0	2	3	0	0
No Response	<u>81</u>	<u>10</u>	<u>6</u>	<u>7</u>	<u>9</u>	<u>15</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>8</u>	<u>4</u>	<u>7</u>	<u>9</u>	<u>13</u>	<u>9</u>	<u>14</u>	<u>14</u>	<u>20</u>	<u>7</u>	<u>10</u>	<u>9</u>	<u>13</u>	<u>9</u>	<u>10</u>
Total	774	100	89	100	59	100*	68	100*	63	100	62	100*	69	100	65	100*	69	100*	71	100	72	100	87	100*

*Rounding Error

Table 12

CRITICS' DESCRIPTION OF ANNUAL MODEL CHANGES
IN THE AUTOMOBILE INDUSTRY

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Planned Obsolescence	711	92	88	99	53	90	63	93	59	94	56	90	60	87	61	94	60	87	65	92	67	93	79	91
Product Planning	7	1	0	0	0	0	1	2	1	2	1	2	2	3	2	3	0	0	0	0	0	0	0	0
Diversification	2	0	0	0	0	0	0	0	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0
Product Segmentation	5	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1	1	1	1	1	1
Competition	19	2	0	0	3	5	3	4	0	0	3	5	2	3	1	2	0	0	3	4	2	3	2	3
No Response	<u>30</u>	<u>4</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>5</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>1</u>	<u>2</u>	<u>4</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>8</u>	<u>12</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>6</u>
Total	774	100	89	100	59	100	68	100*	63	100*	62	100*	69	100	65	100*	69	100	71	100	72	100	87	100*

*Rounding Error

RESPONSES TO ATTITUDINAL QUESTIONS

The questions in this section of the questionnaire attempt to determine the attitudes of the respondents toward American business and the effects of sequence on these attitudes. There are no correct or incorrect responses to questions in this section. Tables 13-21 deal with response distributions in attitude questions.

Respondents were asked to rate the overall economic and social performance of American business on a seven-point scale from extremely bad to extremely good. The results of this question appear in Table 13. Nonresponses and multiple responses were small (together equal 5 percent). Replies were skewed slightly to the right: 41 percent answered both good and bad; 12 percent answered slightly good; 25 percent answered very good.

Among the eleven groups, responses varied from: 26 percent of group A5 to 49 percent of group C3 for both good and bad category; 7 percent of group F2 to 26 percent of group A5 for slightly good category; 20 percent of group A3 to 32 percent of A2 for very good category. These results come from Table 13.

Respondents were asked the aspects of American business that are most beneficial to life in the United States. This was an open-ended question. Table 14 contains the number of most beneficial U.S. business practices named by the respondents. Seventy-eight percent of the total mentioned

Table 13

OVERALL RATING OF AMERICAN BUSINESS

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Extremely Bad	21	3	1	1	3	5	4	6	4	6	3	5	0	0	3	5	0	0	0	0	2	3	1	1
Very Bad	43	6	5	6	5	9	1	2	5	8	3	5	9	13	6	9	3	4	3	4	1	1	2	2
Slightly Bad	44	6	6	7	3	5	3	4	7	11	1	2	6	9	4	6	4	6	4	6	3	4	3	3
Both Good and Bad	315	41	41	46	21	36	28	41	21	33	24	39	29	42	27	42	18	26	31	44	32	44	43	49
Slightly Good	93	12	9	10	4	7	6	9	10	16	6	10	8	12	5	8	18	26	6	9	9	13	12	14
Very Good	196	25	19	21	17	29	17	25	13	21	20	32	14	20	17	26	21	30	19	27	17	24	22	25
Extremely Good	20	3	0	0	1	2	7	10	0	0	3	5	1	1	1	2	0	0	4	6	2	3	1	1
Multiple Response	24	3	4	5	2	3	0	0	2	3	1	2	0	0	1	2	4	6	3	4	5	7	2	2
No Response	<u>18</u>	<u>2</u>	<u>4</u>	<u>5</u>	<u>3</u>	<u>5</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	774	100*	89	100*	59	100*	68	100	63	100	62	100*	69	100	65	100	69	100*	71	100*	72	100	87	100*

*Rounding Error

Table 14

NUMBER OF MOST BENEFICIAL U.S. BUSINESS PRACTICES

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	219	28	19	21	13	22	15	22	21	33	12	19	20	29	12	19	19	28	27	38	32	44	29	33
2	225	29	34	38	12	20	19	28	18	29	19	31	23	33	17	26	21	30	18	25	21	29	23	26
3	159	21	17	19	9	15	18	27	13	21	20	32	10	15	23	35	12	17	9	13	11	15	17	20
4	66	9	8	9	5	9	6	9	8	13	4	7	5	7	7	11	7	10	8	11	1	1	7	8
5	18	2	0	0	4	7	4	6	1	2	1	2	1	1	2	3	1	1	3	4	0	0	1	1
6	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
No Response	<u>85</u>	<u>11</u>	<u>11</u>	<u>12</u>	<u>16</u>	<u>27</u>	<u>6</u>	<u>9</u>	<u>1</u>	<u>2</u>	<u>6</u>	<u>10</u>	<u>10</u>	<u>15</u>	<u>3</u>	<u>5</u>	<u>9</u>	<u>13</u>	<u>6</u>	<u>9</u>	<u>7</u>	<u>10</u>	<u>10</u>	<u>12</u>
Total	774	100	89	100*	59	100	68	100*	63	100*	62	100*	69	100	65	100	69	100*	71	100*	72	100	87	100

*Rounding Error

between one and three practices. Twenty-eight percent named one aspect, 29 percent named two aspects, and 21 percent named three aspects. A large number of respondents did not answer this question at all (11 percent; 85 nonresponses).

The number of practices mentioned varied among the eleven groups. The response rates for naming one practice went from 19 percent for groups A2 and A4 to 44 percent for group C2. The response rates for naming two practices went from 20 percent for group F2 to 38 percent for group F1. The response rates for naming three practices went from 13 percent for group C1 to 35 percent for A4. These results are derived from Table 14.

Table 15 consists of the practices listed by the respondents as most beneficial to life in the United States. Free competition or enterprise was mentioned as a most beneficial practice by 26 percent of the total respondents (Table 15, part A). This ranged from 16 percent for group A2 to 45 percent for group A4.

The invention of new and diverse products was described as a most beneficial practice by 28 percent of the total respondents (Table 15, part B). Response rates varied from 15 percent of group C2 to 39 percent of group C1.

A high level of employment and job opportunity was listed as a most beneficial practice by 29 percent of the total respondents (Table 15, part C). The number went from 17 percent of group A1 to 37 percent of group A4.

Table 15

MOST BENEFICIAL PRACTICES NAMED

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
A. Free Competition	201	26	24	27	12	20	22	32	16	25	10	16	14	20	29	45	19	28	24	34	13	18	18	21
B. Diverse and New Products	213	28	27	30	19	32	20	29	21	33	18	29	15	22	21	32	14	20	28	39	11	15	19	22
C. High Level of Employment	221	29	26	29	19	32	20	29	11	17	22	35	16	23	24	37	23	33	16	23	15	21	29	33
D. Low Prices	104	13	15	17	5	8	11	16	12	19	11	18	5	7	10	15	9	13	11	15	3	4	12	14
E. Social Concern and Contributions	120	16	16	18	11	19	13	19	14	22	11	18	10	14	12	18	9	13	3	4	11	15	10	11
F. High Standard of Living	360	47	31	35	26	44	34	50	30	48	37	60	34	49	30	46	40	58	30	42	30	42	38	44
G. Technology and Productivity	281	36	27	30	19	32	28	41	31	49	21	34	29	42	31	48	16	23	24	34	25	35	30	34
H. Other	36	5	5	6	4	7	5	7	7	11	1	2	4	6	2	3	2	3	1	1	2	3	3	3
I. None	<u>85</u>	11	<u>11</u>	12	<u>16</u>	27	<u>6</u>	9	<u>1</u>	2	<u>6</u>	10	<u>10</u>	15	<u>3</u>	5	<u>9</u>	13	<u>6</u>	9	<u>7</u>	10	<u>10</u>	12
Total Most Beneficial Practices (Excluding I)*	1536		171		115		153		142		131		127		159		132		137		110		159	

*Many respondents appear twice or more in this table, since multiple responses were encouraged.

A small number of people, 13 percent, named the existence of low prices as a most beneficial practice (Table 15, part D). This ranged from a response rate of 4 percent in group C2 to 19 percent in group A1. Another small number of participants, 16 percent, mentioned the social concern and contributions of American business as a most beneficial practice (Table 15, part E). This varied from 4 percent of those in group C1 to 22 percent of those in group A1.

The creation and delivery of a high standard of living in the United States was often given as a most beneficial practice. Forty-seven percent of the total respondents named this practice (Table 15, part F). The number mentioning this aspect differed among the eleven forms from 35 percent of group F1 to 60 percent of group A2.

The inception and maintenance of advanced technology and productivity was described as a most beneficial practice by 36 percent of the total respondents (Table 15, part G). Response rates ranged from 23 percent of form A5 to 49 percent of form A1.

Only 5 percent of the responses to the question on the most beneficial practice of American business were placed into the other category (Table 15, part H), from 1 percent in group C1 to 1 percent in group A1.

Respondents were also asked the aspects of American business that are least beneficial to life in the United States. This was an open-ended question. Table 16 contains the number of least beneficial U.S. business practices named by the respondents. Eighty-eight percent of the total mentioned between one and four practices. Thirty-six percent named one aspect, 30 percent named two aspects, 14 percent named three aspects, and 8 percent named four practices. A great many respondents did not answer this question at all (11 percent, 86 non-responses).

The number of least beneficial practices mentioned varied among the eleven groups. The response rates for naming one practice went from 27 percent of group F1 to 48 percent of group A2. The response rates for naming two practices went from 21 percent of group A2 to 37 percent of group F1. The response rates for naming three practices went from 6 percent of group C2 to 19 percent of groups F1, A3 and A5. The response rates for naming four practices went from 1 percent of group C2 to 14 percent of group A1. This data comes from Table 16.

Table 17 consists of the practices listed by the respondents as least beneficial to life in the United States. Exploitation of consumers was mentioned by 19 percent of the total as a least beneficial business practice (Table 17, part A). This varied from 6 percent of group C2 to 30 percent of group A1.

Table 16

NUMBER OF LEAST BENEFICIAL U.S. BUSINESS PRACTICES

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	277	36	24	27	17	29	23	34	20	32	30	48	23	33	25	38	24	35	28	39	28	39	35	40
2	230	30	33	37	15	25	21	31	18	29	13	21	18	26	19	29	19	27	20	28	26	36	28	32
3	112	14	17	19	8	14	8	12	11	17	6	10	13	19	9	14	13	19	12	17	4	6	11	13
4	60	8	5	6	4	7	9	13	9	14	4	6	8	12	7	11	4	6	4	6	1	1	5	6
5	5	1	0	0	2	3	1	2	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0
6	4	1	0	0	2	3	0	0	1	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0
No Response	86	11	10	11	11	19	6	9	4	6	9	15	7	10	4	6	9	13	6	8	12	17	8	9
Total	774	100*	89	100	59	100	68	100*	63	100	62	100	69	100	65	100*	69	100	71	100*	72	100	87	100

*Rounding Error

Table 17

LEAST BENEFICIAL PRACTICES NAMED

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
A. Exploitation of Consumers	147	19	18	20	15	25	10	15	19	30	11	18	16	23	17	26	14	20	10	14	4	6	13	15
B. High Prices	85	11	10	11	6	10	13	19	6	10	5	8	11	16	5	8	8	12	10	14	5	7	6	7
C. Monopoly or Lack of Competition	128	17	17	19	9	15	16	24	9	14	6	10	15	22	18	28	9	13	12	17	7	10	10	11
D. Political Power of Business	100	13	15	17	8	14	11	16	17	27	4	6	9	13	8	12	5	7	14	20	4	6	5	6
E. Poor Allocation and Use of Resources	359	46	39	44	27	46	31	46	29	46	26	42	32	46	24	37	37	54	37	52	36	50	41	47
F. Over-emphasis on Profit Motive	312	40	33	37	25	42	24	35	27	43	24	39	28	41	31	48	29	42	23	32	31	43	37	43
G. Proliferation of Poor Quality Products	135	17	18	20	10	17	15	22	13	21	7	11	10	14	14	22	10	14	12	17	7	10	19	22
H. Other	97	13	11	12	9	15	10	15	11	17	7	11	9	13	8	12	5	7	7	10	7	10	13	15
I. None	<u>86</u>	11	<u>10</u>	11	<u>11</u>	19	<u>6</u>	9	<u>4</u>	6	<u>9</u>	15	<u>7</u>	10	<u>4</u>	6	<u>9</u>	13	<u>6</u>	8	<u>12</u>	17	<u>8</u>	9
Total Least Beneficial Practices (Excluding I)*	1363		161		109		130		131		90		130		125		117		125		101		144	

*Many respondents appear twice or more in this table, since multiple responses were encouraged.

High prices were listed by only 11 percent of the total respondents as a least beneficial business practice (Table 17, part B). Response rates among the eleven forms ranged from 7 percent for groups C2 and C3 to 19 percent for group F3.

Seventeen percent of the total respondents were concerned about monopolistic practices or a lack of competition (Table 17, part C). Replies about this practice varied from 10 percent for groups A2 and C2 to 28 percent for group A4. Thirteen percent of the total respondents named the political power of business as a least beneficial practice (Table 17, part D), from 6 percent for groups A2, C2, and C3 to 27 percent for group A1.

A large number of the total respondents described the poor allocation and use of resources, including labor, as a least beneficial business practice. Forty-six percent mentioned this practice (Table 17, part E). Answers differed from 37 percent of those in group A4 to 54 percent of those in group A5.

A great many respondents detailed the over-emphasis on the profit motive as a least beneficial business practice. Forty percent of the total named this practice (Table 17, part F). Response rates varied from 32 percent in group C1 to 48 percent in group A4.

A smaller number of respondents (17 percent) listed the proliferation of poor quality products and planned obsolescence as a least beneficial business practice

(Table 17, part G). The replies differed from 10 percent of group C2 to 22 percent of groups F3, A4, and C3.

A limited number of responses (13 percent) were placed into the least beneficial practices, other, category (Table 17, part H). This varied from 7 percent of group A5 to 17 percent of group A1.

The remaining questions in the attitude series are depicted in Tables 18-21. For each question, the respondent was asked to use a seven-point scale in rating American business. Table 18 contains the distribution of responses to the question on the honesty of U.S. business. The participants rated honesty on a scale from extremely bad to extremely good. Nonresponses and multiple responses comprise only 3 percent. Ratings are clustered around the midpoint, good and bad. The largest number of respondents (39 percent) have selected the midpoint, good and bad. This selection varies among forms from 31 percent of group A2 to 55 percent of group A5.

Twenty-one percent of the total have rated honesty as very bad to slightly bad, from 11 percent for group C3 to 32 percent for group C2. Thirty-one percent of the total have rated honesty as slightly good to very good, from 26 percent for group A3 to 35 percent for group A2. These results are from Table 18.

Respondents were asked to rate the responsiveness of U.S. business to consumers on a scale from extremely bad to

Table 18

HONESTY OF U.S. BUSINESS

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Extremely Bad	27	3	1	1	0	0	2	3	7	11	3	5	2	3	5	8	1	1	2	3	1	1	3	3
Very Bad	88	11	13	15	7	12	9	13	6	10	9	15	14	20	10	15	3	4	8	11	5	7	4	5
Slightly Bad	81	10	5	6	5	8	7	10	9	14	4	6	6	9	7	11	6	9	9	13	18	25	5	6
Both Good and Bad	305	39	38	43	22	37	23	34	23	37	19	31	25	36	21	32	38	55	27	38	24	33	45	52
Slightly Good	81	10	6	7	7	12	8	12	8	13	5	8	8	12	8	12	4	6	11	15	7	10	9	10
Very Good	162	21	22	25	13	22	15	22	9	14	17	27	10	14	13	20	16	23	12	17	15	21	20	23
Extremely Good	11	1	0	0	0	0	1	2	0	0	4	6	1	1	1	2	1	1	2	3	1	1	0	0
Multiple Response	5	1	0	0	2	3	1	2	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
No Response	<u>14</u>	<u>2</u>	<u>4</u>	<u>4</u>	<u>3</u>	<u>5</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	774	100*	89	100*	59	100*	68	100*	63	100*	62	100	69	100*	65	100	69	100*	71	100	72	100*	87	100

*Rounding Error

extremely good (Table 19). Nonresponses and multiple results are only 3 percent. Ratings are grouped around the midpoint, good and bad. The largest number of respondents (26 percent) have chosen this midpoint, ranging from 14 percent of group A4 to 39 percent of group C3.

Twenty-six percent of the total have rated the responsiveness of business as very bad to slightly bad, from 16 percent of group A2 to 37 percent of group A4. Thirty-eight percent of the total have rated the responsiveness of business as slightly good to very good, from 27 percent of group A1 to 45 percent of group C1 (Table 19).

Respondents were asked to rate the effect of U.S. business on the environment on a scale from extremely bad to extremely good (Table 20). Nonresponses and multiple responses made up only 3 percent. Ratings were clustered from extremely bad to the midpoint, both good and bad. Eighty-seven percent of the respondents rated the effect of business on the environment in this range. The most respondents (34 percent) chose the good and bad category, from 24 percent of group C1 to 45 percent of group A2.

Nine percent rated the effect on the environment as extremely bad, from 4 percent in group F1 and A5 to 19 percent in group A1. Twenty-four percent rated the effect on the environment as very bad, from 15 percent in group F2 to 32 percent in group C1. Twenty percent rated the effect on

Table 19

RESPONSIVENESS OF U.S. BUSINESS TO CONSUMERS

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Extremely Bad	27	4	0	0	1	2	2	3	7	11	1	2	2	3	6	9	1	1	1	1	3	4	3	3
Very Bad	76	10	12	14	9	15	6	9	7	11	3	5	8	12	10	15	5	7	5	7	8	11	3	3
Slightly Bad	126	16	10	11	5	8	12	18	9	14	7	11	10	14	14	22	16	23	17	24	13	18	13	15
Both Good and Bad	203	26	25	28	12	20	15	22	22	35	19	31	16	23	9	14	19	28	16	23	16	22	34	39
Slightly Good	139	18	15	17	12	20	6	9	10	16	10	16	16	23	15	23	13	19	14	20	16	22	12	14
Very Good	155	20	20	22	12	20	18	26	7	11	13	21	13	19	9	14	13	19	18	25	14	19	18	21
Extremely Good	26	3	2	2	4	7	5	7	1	2	7	11	2	3	2	3	2	3	0	0	1	1	0	0
Multiple Response	9	1	2	2	1	2	2	3	0	0	2	3	0	0	0	0	0	0	0	0	0	0	2	2
No Response	<u>13</u>	<u>2</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>5</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>2</u>
Total	774	100	89	100*	59	100*	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100*	87	100*

*Rounding Error

Table 20

EFFECT OF U.S. BUSINESS ON THE ENVIRONMENT

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Extremely Bad	71	9	4	4	3	5	8	12	12	19	3	5	7	10	12	18	3	4	4	6	10	14	5	6
Very Bad	185	24	24	27	9	15	14	21	14	22	16	26	15	22	15	23	17	25	23	32	18	25	20	23
Slightly Bad	152	20	21	24	14	24	13	19	14	22	8	13	18	26	13	20	13	19	14	20	11	15	13	15
Both Good and Bad	260	34	32	36	19	32	24	35	16	25	28	45	20	29	20	31	27	39	17	24	20	28	37	43
Slightly Good	47	6	2	2	6	10	2	3	4	6	1	2	4	6	1	2	5	7	10	14	6	8	6	7
Very Good	35	5	2	2	3	5	2	3	3	5	5	8	3	4	2	3	3	4	3	4	5	7	4	5
Extremely Good	3	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Multiple Response	5	1	0	0	2	3	1	2	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0
No Response	<u>16</u>	<u>2</u>	<u>4</u>	<u>4</u>	<u>3</u>	<u>5</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>2</u>
Total	774	100*	89	100*	59	100*	68	100*	63	100*	62	100*	69	100	65	100*	69	100*	71	100	72	100*	87	100*

*Rounding Error

the environment as slightly bad, from 13 percent in group A2 to 26 percent in group A3. These statistics are from Table 20.

Participants were asked to rate the necessary level of government activity into American business affairs on a scale from none to total (Table 21). Nonresponses and multiple responses were only 3 percent. Sixty-two percent of the total responses thought that an active to very active level of government action was necessary. Of this figure, 49 percent required an active level of government action, from 41 percent of group F3 to 54 percent of groups F2, A5, and C2. Thirteen percent required a very active level of government action, from 7 percent of group F3 to 24 percent of group A1.

Twenty percent felt that government should play a neutral role, from 14 percent of groups A1 and C3 to 26 percent of group A3. Only 8 percent answered that government should play a passive role, from 3 percent of group C2 to 13 percent of group F3 (Table 21).

All of the above results pertain to the attitudinal section of the questionnaire. The following results are from the classification series.

Table 21

NECESSARY LEVEL OF GOVERNMENT ACTION

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
None	13	2	1	1	0	0	3	4	1	2	1	2	1	1	0	0	2	3	1	1	0	0	3	3
Very Passive	22	3	4	5	0	0	2	3	1	2	3	5	0	0	2	3	0	0	2	3	6	8	2	2
Passive	61	8	9	10	5	8	9	13	5	8	4	7	6	9	3	5	7	10	5	7	2	3	6	7
Neutral	156	20	18	20	11	19	16	24	9	14	14	23	18	26	12	18	15	22	15	21	16	22	12	14
Active	383	49	44	49	32	54	28	41	30	48	29	47	30	43	33	51	37	54	36	51	39	54	45	52
Very Active	104	13	8	9	7	12	5	7	15	24	10	16	10	14	10	15	7	10	11	15	8	11	13	15
Total	10	1	0	0	0	0	3	4	2	3	0	0	0	0	2	3	1	1	1	1	0	0	1	1
Multiple Response	6	1	0	0	1	2	0	0	0	0	0	0	2	3	2	3	0	0	0	0	0	0	1	1
No Response	<u>19</u>	<u>2</u>	<u>5</u>	<u>6</u>	<u>3</u>	<u>5</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>4</u>	<u>5</u>
Total	774	100*	89	100	59	100	68	100*	63	100*	62	100*	69	100*	65	100	69	100	71	100*	72	100*	87	100

*Rounding Error

RESPONSES TO CLASSIFICATION QUESTIONS

The questions in this section of the questionnaire attempt to uncover the demographic characteristics of the respondents and to determine the effect of sequence on response behavior to the classification type of question.

As mentioned previously, the Who's Who in the East publication was used because of its inclusion of a variety of demographic statistics for each person included in the book. The figures contained in Who's Who were accepted as the correct ones; and the demographic data gathered from the completed questionnaires was validated, through the invisible coding, against the information in Who's Who for each respondent. This validating process was conducted for each question except that on income, for which there was no check.

Table 22, part A, contains the age distribution of the respondents as recorded in Who's Who in the East. Ninety-nine percent of the participants were 31 years of age and older. Thirteen percent were 31-40 years of age, ranging from 8 percent in group C2 to 17 percent in group A3. Thirty-seven percent were 44-50 years of age, ranging from 28 percent in group F3 to 41 percent in groups F2, A1, and A5. Thirty-one percent were 51-60 years of age, ranging from 24 percent in group A2 to 39 percent in groups A5 and C2. Nineteen percent were 61 years of age and older, ranging from 9 percent in group A5 to 27 percent in group F3.

Table 22

AGE OF RESPONDENTS

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3			
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
A. True Age																										
20 and under	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-30	9	1	0	0	1	2	1	1	0	0	1	2	0	0	1	2	1	1	2	3	0	0	2	2	2	2
31-40	102	13	13	15	9	15	9	13	6	10	9	15	12	17	8	12	7	10	11	15	6	8	12	14	14	14
41-50	275	37	31	35	24	41	19	28	26	41	21	34	20	29	26	40	28	41	23	32	25	35	32	37	37	37
51-60	241	31	26	29	16	27	21	31	19	30	15	24	23	33	23	35	27	39	21	30	28	39	22	25	25	25
61 and Over	<u>147</u>	<u>19</u>	<u>19</u>	<u>21</u>	<u>9</u>	<u>15</u>	<u>18</u>	<u>27</u>	<u>12</u>	<u>19</u>	<u>16</u>	<u>26</u>	<u>14</u>	<u>20</u>	<u>7</u>	<u>11</u>	<u>6</u>	<u>9</u>	<u>14</u>	<u>20</u>	<u>13</u>	<u>18</u>	<u>19</u>	<u>22</u>	22	22
Total	774	100	89	100	59	100	68	100	63	100	62	100*	69	100*	65	100	69	100	71	100	72	100	87	100	100	100
B. Response to Age Question																										
Correct	754	97	83	93	57	96	68	100	61	96	58	94	67	97	62	95	68	99	71	100	72	100	87	100	100	100
Incorrect	4	1	0	0	1	2	0	0	1	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No Response	<u>16</u>	<u>2</u>	<u>6</u>	<u>7</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>3</u>	<u>5</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100	100	100

*Rounding Error

Table 22, part B, examines the actual responses to the age question. Only 3 percent of the respondents have not answered or incorrectly answered this question.

Table 23, part A, contains the sex distribution of the respondents as recorded in Who's Who in the East. Since the selection process for Who's Who is weighted toward males, by virtue of employment or status criteria, the random sample from this population yields a response rate that is 93 percent male. This varies among the eleven forms from 86 percent of group A3 to 99 percent of group C2.

Table 23, part B, examines the actual responses to the age question. None of the respondents incorrectly answered this question, and only 2 percent chose not to answer it.

Table 24, part A, reveals the job distribution of respondents as recorded in Who's Who in the East. In order to use this data in a meaningful way, the classification of job areas was reduced into the nine categories shown, including retired and other. These categories were chosen on a judgemental basis by the researcher.

Three job areas contained 76 percent of the participants: administration, ownership, and management (AOM - 34 percent; education, religion, library, and social work (ERLSW) - 25 percent; economics, law, medicine, and psychology (ELMP) - 17 percent. The number of respondents in the three categories varies among the eleven forms from

Table 23

SEX OF RESPONDENTS

	<u>Total</u>		<u>F1</u>		<u>F2</u>		<u>F3</u>		<u>A1</u>		<u>A2</u>		<u>A3</u>		<u>A4</u>		<u>A5</u>		<u>C1</u>		<u>C2</u>		<u>C3</u>		
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	
A. <u>True Sex</u>																									
Male	720	93	80	90	56	95	62	91	59	94	60	97	59	86	61	94	66	96	66	93	71	99	80	92	
Female	<u>54</u>	<u>7</u>	<u>9</u>	<u>10</u>	<u>3</u>	<u>5</u>	<u>6</u>	<u>9</u>	<u>4</u>	<u>6</u>	<u>2</u>	<u>3</u>	<u>10</u>	<u>14</u>	<u>4</u>	<u>6</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>7</u>	<u>1</u>	<u>1</u>	<u>7</u>	<u>8</u>	
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100	
B. <u>Response to Sex Question</u>																									
Correct	759	98	83	93	58	98	68	100	62	98	61	98	67	97	62	95	68	99	71	100	72	100	87	100	
Incorrect	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
No Response	<u>15</u>	<u>2</u>	<u>6</u>	<u>7</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>3</u>	<u>5</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100	

Table 24

JOB AREAS OF RESPONDENTS

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
A. True Job Areas																									
Accounting, Engineering and Architecture	54	7	4	5	5	8	11	16	3	5	4	6	4	6	2	3	3	4	5	7	5	7	8	9	
Administration, Ownership and Management	265	34	35	39	20	34	19	28	19	30	26	42	17	25	24	37	26	38	26	37	25	35	28	32	
Arts	33	4	2	2	3	5	4	6	2	3	2	3	4	6	4	6	3	4	3	4	1	1	5	6	
Economics, Law, Medicine and Psychology	128	17	17	19	13	22	14	21	4	6	7	11	15	22	14	22	9	13	8	11	15	21	12	14	
Education, Religion, Library and Social Work	190	25	23	26	14	24	12	18	22	35	16	26	18	26	17	26	18	26	15	21	16	22	19	22	
Marketing and Sales	32	4	1	1	1	2	1	1	4	6	2	3	2	3	1	2	5	7	4	6	5	7	6	7	
Mathematics and Natural Sciences	29	4	2	2	2	3	2	3	4	6	0	0	5	7	1	2	2	3	5	7	4	6	2	2	
Retired	34	4	5	6	0	0	2	3	5	8	4	6	3	4	2	3	3	4	3	4	1	1	6	7	
Other	<u>9</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	
Total	774	100	89	100	59	100	68	100	63	100*	62	100*	69	100	65	100*	69	100*	71	100	72	100	87	100	

*Rounding Error

Table 24 (continued)

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3			
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
B. <u>Response to</u> <u>Job Area</u> <u>Question</u>																										
Correct	752	97	81	91	57	97	68	100	62	98	59	95	68	99	61	94	68	99	70	99	71	99	87	100		
Incorrect	2	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	1	0	0		
No Response	<u>20</u>	<u>3</u>	<u>8</u>	<u>9</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>1</u>	<u>4</u>	<u>6</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>		
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100		

*Rounding Error

25 percent in group A3 to 42 percent in group A2 for AOM; 18 percent in group F3 to 35 percent in group A1 for ERLSW; 6 percent in group A1 to 22 percent in groups F2, A3, and Af for ELMP. All of these results appear in Table 24.

Table 24, part B, considers the actual responses to the job area question. Only 3 percent of all respondents chose not to answer this question. Only two respondents (0 percent) answered incorrectly.

Table 25, part A, uncovers the last level of education completed by the respondents as recorded in Who's Who in the East. Ninety-seven percent possessed a Bachelor's degree of some type or better. And 80 percent had completed at least one graduate course, ranging from 75 percent of those in groups F3, A4, C1, and C3 to 87 percent of those in group A1. The number earning only a four year college degree was 11 percent, from 1 percent in group A3 to 19 percent in group F2.

Table 25, part B, shows the actual responses to the level of education question. Only 1 percent of all respondents answered incorrectly, and 2 percent chose not to answer at all.

The highest degrees earned by the respondents, as recorded in Who's Who in the East, appear in Table 26, part A. Twenty-three percent possess a Bachelor's degree, from 17 percent in groups A3 and C2 to 32 percent in groups A2 and C1. Another 23 percent have a Master's degree, from 14 percent in group A4 to 32 percent in group A2.

Table 25

LAST LEVEL OF EDUCATION COMPLETED

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
<u>A. True Education</u>																									
Less than High School	7	1	0	0	0	0	0	0	0	0	0	0	2	3	1	2	1	1	1	1	0	0	2	2	
High School	16	2	2	2	0	0	0	0	1	2	0	0	1	1	2	3	0	0	1	1	5	7	4	5	
College (1-3 years)	44	6	4	5	1	2	7	10	0	0	1	2	7	10	6	9	6	9	3	4	2	3	7	8	
College (4 year degree)	88	11	11	12	11	19	10	15	7	11	10	16	1	1	7	11	6	9	13	18	3	4	9	10	
Post Graduate (one course or more completed)	<u>619</u>	<u>80</u>	<u>72</u>	<u>81</u>	<u>47</u>	<u>80</u>	<u>51</u>	<u>75</u>	<u>55</u>	<u>87</u>	<u>51</u>	<u>82</u>	<u>58</u>	<u>84</u>	<u>49</u>	<u>75</u>	<u>56</u>	<u>81</u>	<u>53</u>	<u>75</u>	<u>62</u>	<u>86</u>	<u>65</u>	<u>75</u>	
Total	774	100	89	100	59	100*	68	100	63	100	62	100	69	100*	65	100	69	100	71	100*	72	100	87	100	

*Rounding Error

Table 25 (continued)

	<u>Total</u>		<u>F1</u>		<u>F2</u>		<u>F3</u>		<u>A1</u>		<u>A2</u>		<u>A3</u>		<u>A4</u>		<u>A5</u>		<u>C1</u>		<u>C2</u>		<u>C3</u>			
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>		
<u>B. Response to</u>																										
<u>Level of Education</u>																										
<u>Question</u>																										
Correct	752	97	82	92	57	97	67	99	61	96	61	98	68	99	61	94	68	99	68	96	72	100	87	100		
Incorrect	7	1	1	1	0	0	1	1	1	2	0	0	0	0	1	1	0	0	3	4	0	0	0	0		
No Response	<u>15</u>	<u>2</u>	<u>6</u>	<u>7</u>	<u>2</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>5</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100		

Table 26

HIGHEST DEGREE EARNED BY RESPONDENT

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
A. <u>True Highest Degree</u>																								
Bachelor's	181	23	20	22	17	29	19	28	12	19	20	32	12	17	12	19	15	22	23	32	12	17	19	22
Master's	175	23	21	24	9	15	13	19	19	30	20	32	14	20	9	14	15	22	20	28	18	25	17	20
Law	59	8	9	10	10	17	5	7	3	5	1	2	6	9	7	11	4	6	2	3	5	7	7	8
Doctor's	292	38	33	37	22	37	24	35	28	44	20	32	27	39	28	43	28	41	21	30	30	42	31	36
Not Applicable	<u>67</u>	<u>9</u>	<u>6</u>	<u>7</u>	<u>1</u>	<u>2</u>	<u>7</u>	<u>10</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>10</u>	<u>15</u>	<u>9</u>	<u>13</u>	<u>7</u>	<u>10</u>	<u>5</u>	<u>7</u>	<u>7</u>	<u>10</u>	<u>13</u>	<u>15</u>
Total	774	100*	89	100	59	100	68	100*	63	100	62	100	69	100	65	100	69	100*	71	100	72	100*	87	100*
B. <u>Response to Highest Degree Earned Question</u>																								
Correct	738	95	82	92	52	88	66	96	61	97	61	98	67	97	61	94	64	93	69	97	70	97	85	98
Incorrect	1	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No Response	<u>35</u>	<u>5</u>	<u>7</u>	<u>8</u>	<u>7</u>	<u>12</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>5</u>	<u>7</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>2</u>
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100

*Rounding Error

Eight percent own law degrees (including Bachelor's, Master's and doctor's), from 2 percent in group A2 to 17 percent in group F2. The largest group, 38 percent, earned some type of doctor's degree, from 30 percent in group C1 to 44 percent in group A1. The last category, not applicable, includes those not achieving a minimum of a bachelor's degree. This group was only 9 percent, ranging from 2 percent in groups F2, A1, and A2 to 15 percent in groups A3 and C3.

Table 26, part B, details the actual responses to the highest degree earned question. While only one respondent answered incorrectly, 5 percent of the total respondents chose not to answer this question at all.

The wide variety of major fields for the highest degree earned by respondents, as reported in Who's Who in the East, is shown in Table 27, part A. The selection of these categories was a judgemental one by the researcher. Each of the seven major fields has some representation, from 6 percent in education and religion, to 21 percent in the social sciences and art.

Twenty-one percent of the total respondents majored in the social sciences and art category, ranging from 14 percent in group A3 to 30 percent in group F1. Seventeen percent majored in business and economics, ranging from 9 percent in group A3 to 27 percent in group A2. Fourteen percent of the respondents majored in mathematics and the natural sciences, from 7 percent in group F3 to 19 percent

Table 27

MAJOR FIELD FOR HIGHEST DEGREE

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
A. <u>True Major Field</u>																									
Architecture, Engineering	89	11	6	7	8	14	13	19	9	14	11	18	5	7	5	8	7	10	11	15	5	7	9	10	
Business, Economics	134	17	11	12	11	19	11	16	9	14	17	27	6	9	9	14	16	23	14	20	15	21	15	17	
Education, Religion	49	6	6	7	2	3	5	7	4	6	2	3	8	12	3	5	2	3	3	4	5	7	9	10	
Law	59	8	9	10	10	17	5	7	3	5	1	2	6	9	7	11	4	6	2	3	5	7	7	8	
Mathematics, Natural Science	109	14	8	9	10	17	5	7	9	14	6	10	13	19	11	17	10	14	11	15	10	14	16	18	
Medicine, Psychology	99	13	13	15	5	8	10	15	11	18	6	10	11	16	10	15	8	12	7	10	13	18	5	6	
Social Science, Arts	164	21	27	30	12	20	12	18	17	27	17	27	10	14	11	17	15	22	18	25	12	17	13	15	
Other	4	1	3	3	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
Not Applicable	<u>67</u>	<u>9</u>	<u>6</u>	<u>7</u>	<u>1</u>	<u>2</u>	<u>7</u>	<u>10</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>10</u>	<u>14</u>	<u>9</u>	<u>14</u>	<u>7</u>	<u>10</u>	<u>5</u>	<u>7</u>	<u>7</u>	<u>10</u>	<u>13</u>	<u>15</u>	
Total	774	100	89	100	59	100	68	100*	63	100	62	100*	69	100	65	100*	69	100	71	100*	72	100*	87	100*	

*Rounding Error

Table 27 (continued)

	<u>Total</u>		<u>F1</u>		<u>F2</u>		<u>F3</u>		<u>A1</u>		<u>A2</u>		<u>A3</u>		<u>A4</u>		<u>A5</u>		<u>C1</u>		<u>C2</u>		<u>C3</u>		
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	
<u>B. Response to</u>																									
<u>Major Field</u>																									
<u>Question</u>																									
Correct	715	92	77	87	53	90	65	96	61	97	60	97	63	91	58	89	59	86	69	97	68	94	82	94	
Incorrect	59	8	12	13	6	10	3	4	2	3	2	3	6	9	7	11	10	14	2	3	4	6	5	6	
No Response	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100	

*Rounding Error

in group A3. Thirteen percent of the participants majored in medicine or psychology, from 6 percent in group C3 to 18 percent in groups A1 and C2. Eleven percent studied architecture and engineering, from 7 percent in groups F1, A3, and C2 to 19 percent in group F3. Eight percent of the respondents majored in law, ranging from 2 percent in group A2 to 17 percent in group F2. Six percent majored in education and religion, from 3 percent in groups F2, A2, and A5 to 12 percent in group A3. All of these results appear in Table 27.

Table 27, part B, shows the actual responses to the major field question. On this instance, all respondents have completed the question. However, 8 percent have answered incorrectly, ranging from 3 percent in groups A1, A2, and A3 to 14 percent in group A5.

Table 28, part A, enumerates the years in which respondents received their highest degrees, as reported in Who's Who in the East. Eighty-four percent of the total participants received their highest college degrees between 1930 and 1969. Eleven percent graduated during the 1930-1939 period, going from 4 percent in groups A3, and A5 to 21 percent in group A2. Eighteen percent graduated during the 1940-1949 period, varying from 11 percent in group A1 to 30 percent in group A5. The largest group, 36 percent, graduated during the 1950-1959 period, differing from 28 percent in group F3 to 41 percent in group F2. During

Table 28

YEAR RESPONDENT RECEIVED HIGHEST DEGREE

	<u>Total</u>		<u>F1</u>		<u>F2</u>		<u>F3</u>		<u>A1</u>		<u>A2</u>		<u>A3</u>		<u>A4</u>		<u>A5</u>		<u>C1</u>		<u>C2</u>		<u>C3</u>		
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	
<u>A. True Year of Degree</u>																									
1910-1919	4	1	0	0	0	0	0	0	0	0	1	2	0	0	1	2	1	1	0	0	0	0	1	1	
1920-1929	30	4	5	6	2	3	5	7	3	5	1	2	3	4	2	3	1	1	2	3	2	3	4	5	
1930-1939	90	11	11	12	8	14	9	13	5	8	13	21	3	4	5	8	3	4	12	17	10	14	11	13	
1940-1949	141	18	15	17	13	22	11	16	7	11	11	18	12	17	12	18	21	30	12	17	12	17	15	17	
1950-1959	268	36	29	33	24	41	19	28	25	40	19	31	24	35	25	39	23	34	23	32	29	40	28	32	
1960-1969	145	19	20	22	9	15	14	21	20	32	13	21	14	20	8	12	10	14	15	21	11	15	11	13	
1970-1974	29	4	3	3	2	3	3	4	2	3	3	5	3	4	3	5	3	4	2	3	1	1	4	5	
Not Applicable	<u>67</u>	<u>9</u>	<u>6</u>	<u>7</u>	<u>1</u>	<u>2</u>	<u>7</u>	<u>10</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>10</u>	<u>15</u>	<u>9</u>	<u>14</u>	<u>7</u>	<u>10</u>	<u>5</u>	<u>7</u>	<u>7</u>	<u>10</u>	<u>13</u>	<u>15</u>	
Total	774	100	89	100	59	100	68	100*	63	100*	62	100*	69	100*	65	100*	69	100*	71	100	72	100	87	100*	

*Rounding Error

Table 28 (continued)

	<u>Total</u>		<u>F1</u>		<u>F2</u>		<u>F3</u>		<u>A1</u>		<u>A2</u>		<u>A3</u>		<u>A4</u>		<u>A5</u>		<u>C1</u>		<u>C2</u>		<u>C3</u>		
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	
B. <u>Response to</u> <u>Year Degree</u> <u>Received</u> <u>Question</u>																									
Correct	651	84	74	83	45	76	59	87	54	86	53	86	60	87	50	77	55	80	59	83	63	88	79	91	
Incorrect	123	16	15	17	14	24	9	13	9	14	9	14	9	13	15	23	14	20	12	17	9	12	8	9	
No Response	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100	

the 1960-1969 period, 19 percent of the respondents graduated, ranging from 12 percent in group A4 to 32 percent in group A1.

In Table 28, part B, the actual responses to the year degree received question are shown. All respondents answered this question. A high number, 16 percent, answered the question incorrectly, ranging from 9 percent in group C3 to 24 percent in group F2.

Respondents were asked to name the school where they received their highest degrees. Rather than tabulate these responses by school name, they were computed by school location. Table 29, part A, contains the locations of the schools of highest degrees, as recorded in Who's Who in the East. The large majority, 69 percent, attended an Eastern-Northeastern school, varying from 60 percent in group A4 to 80 percent in group F2. Ten percent went to a mid-Eastern school, going from 3 percent in group A3 to 17 percent in group A1. A third, smaller group of 4 percent attended school abroad, from 2 percent in groups A1 and C3 to 11 percent in group A4.

Table 29, part B, reveals the actual responses to the school question. Only two respondents (0 percent) answered incorrectly, while 8 percent chose not to answer this question.

Table 30 contains actual responses to the question on gross yearly family income. This was the only classification question not to be validated, since income statistics were not reported in Who's Who in the East. Respondents answered

Table 29

LOCATION OF SCHOOL OF HIGHEST DEGREE

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3			
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
A. <u>True School Location</u>																										
East, Northeast	533	69	68	77	47	80	42	62	45	71	45	73	47	68	39	60	46	67	52	73	46	64	56	64		
Midwest	78	10	7	8	4	7	10	15	11	17	10	16	2	3	4	6	3	4	5	7	10	14	12	14		
Midwest	11	1	0	0	2	3	1	1	0	0	0	0	2	3	0	0	3	4	1	1	1	1	1	1	1	1
Southeast	11	1	3	3	0	0	0	0	2	3	1	2	0	0	3	5	0	0	1	1	0	0	1	1	1	1
Southwest	15	2	1	1	1	2	2	3	0	0	1	2	1	1	0	0	2	3	3	4	3	4	3	4	1	1
West, Northwest	25	3	1	1	2	3	3	4	3	5	2	3	5	7	3	5	2	3	1	1	2	3	1	1	1	1
Abroad	34	4	3	3	2	3	3	4	1	2	2	3	2	3	7	11	6	9	3	4	3	4	2	2	2	2
Not Applicable	<u>67</u>	<u>9</u>	<u>6</u>	<u>7</u>	<u>1</u>	<u>2</u>	<u>7</u>	<u>10</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>10</u>	<u>14</u>	<u>9</u>	<u>12</u>	<u>7</u>	<u>10</u>	<u>5</u>	<u>7</u>	<u>7</u>	<u>10</u>	<u>13</u>	<u>15</u>		
Total	774	100*	89	100	59	100	68	100*	63	100	62	100*	69	100*	65	100*	69	100	71	100*	72	100*	87	100*		

*Rounding Error

Table 29 (continued)

	<u>Total</u>		<u>F1</u>		<u>F2</u>		<u>F3</u>		<u>A1</u>		<u>A2</u>		<u>A3</u>		<u>A4</u>		<u>A5</u>		<u>C1</u>		<u>C2</u>		<u>C3</u>					
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>				
B. <u>Response to</u> <u>School</u> <u>Location</u> <u>Question</u>																												
Correct	710	92	77	87	52	88	63	93	60	95	59	95	63	91	57	87	59	86	67	94	69	96	84	97				
Incorrect	2	0	0	0	0	0	1	1	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0		
No Response	<u>62</u>	<u>8</u>	<u>12</u>	<u>13</u>	<u>7</u>	<u>12</u>	<u>4</u>	<u>6</u>	<u>3</u>	<u>5</u>	<u>3</u>	<u>5</u>	<u>6</u>	<u>9</u>	<u>7</u>	<u>11</u>	<u>10</u>	<u>14</u>	<u>4</u>	<u>6</u>	<u>3</u>	<u>4</u>	<u>3</u>	<u>3</u>				
Total	774	100	89	100	59	100	68	100	63	100	62	100	69	100	65	100	69	100	71	100	72	100	87	100				

*Rounding Error

Table 30

GROSS YEARLY FAMILY INCOME

	Total		F1		F2		F3		A1		A2		A3		A4		A5		C1		C2		C3	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Under \$10,000	10	1	0	0	0	0	4	6	1	2	0	0	1	1	1	2	0	0	0	0	0	0	3	3
\$10,000-19,999	71	9	5	6	3	5	4	6	6	9	10	16	12	17	6	9	6	9	6	8	5	7	8	9
\$20,000-29,999	170	22	18	20	10	17	17	25	22	35	10	16	13	19	10	15	17	25	20	28	15	21	18	21
\$30,000-39,999	155	20	19	21	11	19	8	12	10	16	13	21	15	22	14	22	6	9	20	28	21	29	18	21
\$40,000-49,000	114	15	9	10	13	22	11	16	12	19	7	11	12	17	9	14	9	13	9	13	9	13	14	16
\$50,000-59,999	70	9	3	3	6	10	13	19	2	3	7	11	6	9	10	15	8	12	6	8	3	4	6	7
\$60,000-69,999	39	5	5	6	4	7	2	3	3	5	0	0	5	7	2	3	9	13	1	1	5	7	3	3
\$70,000-79,999	34	4	6	7	4	7	2	3	2	3	4	6	0	0	3	5	2	3	2	3	5	7	4	5
\$80,000-89,999	15	2	5	6	0	0	2	3	1	2	2	3	0	0	0	0	2	3	1	1	1	1	1	1
\$90,000 and over	62	8	8	9	2	3	4	6	3	5	7	11	3	4	6	9	6	9	4	6	8	11	11	13
Multiple Response	4	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	2	3	1	1	0	0	0	0
No Response	<u>30</u>	<u>4</u>	<u>10</u>	<u>11</u>	<u>6</u>	<u>10</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total	774	100	89	100	59	100	68	100	63	100*	62	100*	69	100*	65	100	69	100*	71	100*	72	100	87	100

*Rounding Error

three categories in the greatest frequency. Twenty-two percent of all participants reported incomes of \$20,000-\$29,999, ranging from 15 percent in group A4 to 35 percent in group A1. Twenty percent of the respondents reported incomes of \$30,000-\$39,999, ranging from 9 percent in group A5 to 29 percent in group C2. Fifteen percent reported incomes of \$40,000-\$49,999, ranging from 10 percent in group F1 to 22 percent in group F2.

SUMMARY OF RESULTS

In this chapter, the most significant responses obtained from the mail questionnaire used in this study were detailed. A variety of tables were introduced that described response behavior by total and group answers.

Response rates and answers to factual, attitudinal, and classification questions were all presented in descriptive and tabular form. The factual and classification answers were validated against correct information. This validation process revealed high levels of knowledge and honesty for the population sample.

The objective of Chapter VI was to present the raw data in a clear framework that would allow the analyses in Chapter VII to flow smoothly. Statistical analyses and hypotheses testing were not conducted in this chapter. They will be performed in the next chapter.

CHAPTER VII

ANALYSIS OF SERIES ORDER DATA AND DISCUSSION OF FINDINGS

INTRODUCTION

In this chapter, the series order hypotheses described earlier will be analyzed and discussed. Fact Form 1, Attitude Form 1, and Classification Form 1 will be used to test the hypotheses. These forms are identical in format except for the order of their series: Fact, Attitude, Classification; Attitude, Classification, Fact; Classification, Fact, Attitude.

The data presented in Chapter VI, for these forms, will be subjected to a variety of analyses. These analyses will be outlined below. All tests will be conducted with a critical value of .05. Chi square analyses will be conducted on the data grouped into cells with expected frequencies equal to or greater than five per cell. As indicated in tables throughout the chapter, a few questions could not be subjected to chi square analysis since the cell size of expected frequencies was less than five.

The analysis of variance will be used to test three different order effects. First, the responses appearing in the modal answer categories of each question will be

tabulated in percentage form and arc sine transformations computed. The impact of series rotation on responses to specific series and the overall form will be examined. This analysis studies response behavior across respondents by form.

Second, the mean number of correct fact answers per respondent will be calculated. Analysis of variance will be performed on the fact series responses by form of respondent. Third, the overall mean attitude per respondent will be computed. Analysis of variance will be performed on the attitude series by form by respondent.

Chi square analysis will also be utilized to test three different types of order effect. As mentioned previously, a minimum expected cell size of five will be used in all chi square tests. Collapsing will be done when necessary. First, the total number of correct fact answers per respondent will be calculated. Analysis will be performed on the fact series of questions to determine the effects of series rotation.

Second, the total number of attitude questions answered above the mode by each respondent will be tabulated. Analysis will be performed on the attitude series of questions by form by respondent. Third, chi square analysis will be used to determine differences in responses to each individual question. The binomial distribution will be employed in conjunction with this analysis to reveal if the number of responses found significantly different would be

greater than a chance happening. This distribution is used because of the many tests conducted; and an assumption of independence among responses is made.

The analyses described above confront the hypotheses from varied perspectives and allow a more complete study to be made. Effects are examined by: form, analysis of variance using modal responses; series, analysis of variance using modal and mean responses and chi square analysis with the number of respondents appearing in various categories; question, chi square analysis with responses to individual questions.

Table 31 contains the percent of answers appearing in the modal categories of each question. This table forms the basis for analysis of variance on modal responses. The responses were examined by overall form and series for each sub-sample. Tests were conducted for differences in overall form behavior and series behavior among the forms. These tests apply to the evaluation of series order and question order hypotheses.

Table 32 shows the total number of correct fact responses and the mean number of correct fact answers per respondent. This table forms the basis for analysis of variance and chi square analysis on correct fact answers. Analysis of variance was conducted on the mean number of fact questions answered correctly by each respondent among the various forms. Chi square analysis was conducted on the number of fact questions answered correctly among the

Table 31

PERCENT OF RESPONSES APPEARING IN THE MODAL ANSWER CATEGORY
OF EACH QUESTION

<u>Questions</u>	<u>Groups</u>									<u>C1</u>	<u>C2</u>	<u>C3</u>
	<u>F1</u>	<u>F2</u>	<u>F3</u>	<u>A1</u>	<u>A2</u>	<u>A3</u>	<u>A4</u>	<u>A5</u>				
<u>Fact Questions</u>												
Laissez Faire	97	92	99	94	92	91	91	87	93	90	93	
Business Firms and Systems	65	56	62	64	69	51	51	59	56	49	61	
Ranking of Firms	73	70	75	71	74	70	69	65	80	72	64	
Government Legislation	60	59	71	57	57	52	51	54	48	58	52	
FTC and Mergers	73	71	66	65	66	67	71	73	79	74	68	
Class Action Suit	90	81	85	81	81	77	77	75	83	76	87	
Automobile Model Changes	99	90	93	94	90	87	94	87	92	93	91	
<u>Attitude Questions</u>												
Overall Rating	46	36	41	33	39	42	42	26	44	44	49	
Number Most Beneficial	38	20	28	29	31	33	26	30	25	29	26	
Number Least Beneficial	27	29	34	32	48	33	38	35	39	39	40	
Honesty	43	37	34	37	31	36	32	55	38	33	52	
Responsiveness	28	20	22	35	31	23	14	28	23	22	39	
Effect on Environment	36	32	35	25	45	29	31	39	24	28	43	
Government Action	49	54	41	48	47	43	51	54	51	54	52	
<u>Classification Questions</u>												
Age	35	41	28	41	34	29	40	41	32	35	37	
Job Area	39	34	28	30	42	25	37	38	37	35	32	
Level of Education	81	19	15	87	82	84	75	81	75	86	75	
Highest Degree	37	37	35	44	32	39	43	41	30	42	36	
Major Field	30	20	18	27	27	14	17	22	25	17	15	
Year of Degree	33	41	28	40	31	35	39	34	32	40	32	
Income	20	17	25	35	16	19	15	25	28	21	21	

Table 32

CORRECT FACT ANSWERS PER RESPONDENT--
TOTAL AND MEAN

<u>Number Correct per Respondent</u>	<u>Groups</u>										
	<u>F1 #</u>	<u>F2 #</u>	<u>F3 #</u>	<u>A1 #</u>	<u>A2 #</u>	<u>A3 #</u>	<u>A4 #</u>	<u>A5 #</u>	<u>C1 #</u>	<u>C2 #</u>	<u>C3 #</u>
0	1	2	0	2	1	3	1	7	1	2	5
1	0	2	0	0	1	1	0	0	1	0	1
2	0	0	0	0	1	2	2	2	0	1	1
3	1	2	3	4	1	5	6	2	6	5	3
4	13	11	9	5	7	10	7	4	10	12	7
5	24	12	22	24	21	16	24	17	16	22	30
6	30	16	19	17	21	23	18	25	21	16	21
7	<u>20</u>	<u>14</u>	<u>15</u>	<u>11</u>	<u>9</u>	<u>9</u>	<u>7</u>	<u>12</u>	<u>16</u>	<u>14</u>	<u>19</u>
Total Respondents	89	59	68	63	62	69	65	69	71	72	87
Mean Number Correct	5.56	5.19	5.50	5.25	5.29	4.94	5.03	5.00	5.31	5.13	5.16

various groups. These tests apply to the examination of series and question order hypotheses.

Table 33 reveals the overall mean attitudes of respondents. This table forms the basis for analysis of variance on overall mean attitudes. Table 33 also contains an explanation of the procedure used to obtain the overall mean attitude of each respondent and each form. Analysis of variance was performed on the mean overall attitudes among the various forms. This analysis is applicable for series and question order hypotheses.

Table 34 possesses the number of attitude questions answered above the mode by respondent and is the basis for chi square analysis on this type of response behavior. Chi square analysis was performed on the number of respondents appearing in the categories shown in Table 34 among the various forms.

Tables 2-30 (which were described in detail in the previous chapter) reveal the responses to individual questions. These tables are the source for chi square analysis on response behavior to specific questions. Chi square analysis was performed on the responses to each of the questions in these tables among the various forms. From these tests, it will be determined whether the responses to any individual questions were affected by order. Other tests involved overall form and series effects.

Table 33

OVERALL MEAN ATTITUDE PER RESPONDENT BY FORM*

	<u>GROUPS</u>										
	<u>F1</u>	<u>F2</u>	<u>F3</u>	<u>A1</u>	<u>A2</u>	<u>A3</u>	<u>A4</u>	<u>A5</u>	<u>C1</u>	<u>C2</u>	<u>C3</u>
Number of Respondents	76	52	64	59	59	64	61	64	67	66	79
Overall Mean Attitude	4.05	4.16	4.16	3.92	4.36	3.99	4.01	4.33	4.17	4.13	4.16

*These results were obtained from a 20 page computer run, based upon the following:

Overall Mean Attitudes were tabulated only for those respondents answering all attitude questions.

Overall Mean Attitude Per Respondent = (Overall Performance + Number Most Beneficial + Number Least Beneficial + Honesty + Responsiveness + Effect on Environment + Government Action) / 7

Overall Mean Attitude Per Form = \sum Overall Mean Attitude Per Respondent for the Form / Total Number of Respondents for the Form

Coding of Questions for Overall Mean Attitude Per Respondent -
 Overall Performance = 1 to 7 (Extremely Bad to Extremely Good)
 Number Most Beneficial - 1 to 7 (0 practices named to 6)
 Number Least Beneficial = 1 to 7 (6 practices named to 0)
 Honesty = 1 to 7 (Extremely Bad to Extremely Good)
 Responsiveness = 1 to 7 (Extremely Bad to Extremely Good)
 Effect on Environment = 1 to 7 (Extremely Bad to Extremely Good)
 Government Action = 1 to 7 (Total to None)

Table 34

ATTITUDE QUESTIONS ANSWERED ABOVE THE MODE PER RESPONDENT -
TOTAL AND MEAN

Number Answered Above the Mode Per Respondent	<u>Groups</u>										
	<u>F1</u> #	<u>F2</u> #	<u>F3</u> #	<u>A1</u> #	<u>A2</u> #	<u>A3</u> #	<u>A4</u> #	<u>A5</u> #	<u>C1</u> #	<u>C2</u> #	<u>C3</u> #
0	8	10	6	18	9	12	9	7	7	10	16
1	22	9	20	12	15	17	22	14	19	19	18
2	17	7	11	10	7	11	9	13	19	14	16
3	15	9	7	9	8	12	3	17	7	8	12
4	8	11	12	5	9	7	11	8	8	8	13
5	5	6	6	2	9	5	7	4	4	3	2
6	1	0	2	2	1	0	0	1	3	4	2
7	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Respondents	76	52	64	59	59	64	61	64	67	66	79
Mean Number Answered Above the Mode	2.16	2.56	2.39	1.83	2.49	2.00	2.10	2.33	2.21	2.15	2.03

Throughout this chapter and the next summary tables will be employed to present the results of the tests as they apply to the evaluation of specific hypotheses. The results will be based on the statistics contained in the tables just described. The exposition of complete test data for each analysis would lengthen this report by well over 100 pages and, therefore, this data is presented in condensed form. Any further details dealing with the analyses will be available upon request from the author.

HYPOTHESIS IA

Responses to questions in each type of series (factual, attitudinal, and classification) are affected by the positioning of the series in a mail questionnaire.

This hypothesis was examined in the manner explained in the introduction to this chapter. The number of responses appearing in the modal category of each question was converted to percentages, Table 31, and then arc sine transformations were computed. Analysis of variance was used to reveal the effects of series rotation on answers to questions in the fact, attitude, and classification series. In addition, the impact of series rotation on overall responses was viewed. The results of these analyses appear in Table 35. Rotation had no effect on answer behavior within any series or within the overall questionnaire.

Table 35

ANALYSIS OF VARIANCE OF SERIES ORDER
 ROTATION IMPACT UPON
 OVERALL FORM AND SERIES MODAL RESPONSES
 (USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION 1)

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Critical Value</u>	<u>Level of Significance</u>
A. <u>Fact Series</u>						
Form Effect	70.980	2	35.49	2.99	3.89	NS
Interaction Effect	142.493	12	11.87			
B. <u>Attitude Series</u>						
Form Effect	23.049	2	11.52	0.96	3.89	NS
Interaction Effect	144.685	12	12.06			
C. <u>Classification Series</u>						
Form Effect	61.460	2	30.73	3.34	3.89	NS
Interaction Effect	110.573	12	9.21			
D. <u>Overall Form</u>						
Form Effect	59.595	2	29.80	2.70	3.27	NS
Form-Series Effect	95.895	4	23.97	2.17	2.64	NS
Interaction Effect	397.750	36	11.05			

Further testing was done on fact and attitude series responses to ascertain if there was any effect of rotation within these series, when viewed from a different perspective. The results of this testing appear in Table 36. Analysis of variance on the mean number of correct fact answers for each respondent revealed no differences in responses among the three forms. Chi square analysis on the total number of correct fact answers for each respondent revealed no differences among the three forms.

Analysis of variance for the overall mean attitude, over the seven attitude questions, by respondent showed no difference in attitude responses among the three forms. Chi square analysis on the number of attitude questions answered above the mode per respondent demonstrated no differences in response behavior among the three forms. The results of these tests are in Table 36.

The classification series questions were not tested in the above manner because of the extremely high correlation of responses with the data appearing in Who's Who in the East. This high correlation precluded a series rotation effect on responses to the classification series questions.

Differences among answers to the individual questions were subjected to chi square analysis. The results of this analysis appear in Table 37. No fact or classification questions were influenced by series rotation. One attitude question, Effect on Environment ($p=.014$), was affected by the

Table 36

ANALYSES OF SERIES ROTATION IMPACT
UPON FACT AND ATTITUDE SERIES RESPONSES
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION 1)

A. ANOVA for the mean number of correct fact answers per respondent
by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Form Effect	4.244	2	2.12	1.16	3.04	NS
Within Effect	404.383	220	1.84			
Total Effect	408.627	222				

B. χ^2 for the total number of correct fact answers per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of correct fact answers per correspondent	8	10.237	15.507	NS

C. ANOVA for the overall mean attitude response per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Form Effect	2.026	2	1.01	2.32	3.04	NS
Within Effect	87.026	199	0.44			
Total Effect	89.052	201				

D. χ^2 for the number of attitude questions answered above the mode per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of attitude responses above the mode per respondent	10	14.522	18.307	NS

Table 37

CHI SQUARE ANALYSIS OF SERIES ROTATION IMPACT
UPON RESPONSES TO INDIVIDUAL QUESTIONS
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION 1)

	DF	χ^2	Critical Value	Level of Significance
A. <u>Fact Questions</u>				
Laissez Faire	2	1.463	5.991	NS
Business Firms + Systems	6	2.701	12.592	NS
Ranking of Firms	8	2.108	15.507	NS
Government Legislation	4	4.680	9.488	NS
FTC and Mergers	4	4.300	9.488	NS
Class Action Suit	4	4.454	9.488	NS
Automobile Model Changes	2	3.766	5.991	NS
B. <u>Attitude Questions</u>				
Overall Rating	8	12.074	15.507	NS
Number Most Beneficial	8	14.588	15.507	NS
Number Least Beneficial	8	8.698	15.507	NS
Honesty	8	8.435	15.507	NS
Responsiveness	8	13.791	15.507	NS
Effect on Environment	8	19.205	15.507	.014
Government Action	6	7.705	12.592	NS
C. <u>Classification Questions</u>				
Age	6	3.137	12.592	NS
Sex	CELLS TOO SMALL TO BE MEANINGFUL			
Job Areas	8	12.407	15.507	NS
Education	2	3.071	5.991	NS
Highest Degree	6	7.991	12.592	NS
Major Field	10	12.382	18.307	NS
Year Degree Received	6	4.025	12.592	NS
School Location	4	4.453	9.488	NS
Income	12	15.479	21.026	NS

rotation. The binomial distribution was used to determine if one difference out of seven tests, the number of questions in the series, was greater than a chance occurrence. One significant difference ($p=.05$, $n=7$, $r=1$) was not meaningful ($P=1$ is $.322$).

Hypothesis IA is rejected on all grounds. Testing by modal responses revealed no impact on series or overall responses. Examination by correct fact answers, mean attitude responses, and the number of attitude responses above the mode showed no differences in answers because of series rotation. The study of responses to individual questions also demonstrated no differences in behavior among forms.

The null hypothesis cannot be rejected: responses to questions in each type of series are not affected by the positioning of the series in a mail questionnaire.

HYPOTHESIS IB

For a mail questionnaire, responses to questions in attitudinal series are more affected by sequence than responses to questions in factual and classification series.

To test this hypothesis, the answers appearing in the modal categories of each question, Table 31, were examined. The form-series interaction was studied, the difference in form effects from series to series. As explained in the previous section, rotation impact on series and overall form behavior was studied via the analysis of

variance. The results of this analysis are in Table 35, part D. No rotation impact is evident.

For the current hypothesis to be accepted the overall form-series interaction would have to be significant. It is not; 2.17 is less than the critical value (at .05) of 2.64. In addition, the attitude series would have to provide the most variation toward overall significance. It does not; 23.049 is less than 70.980, fact, or 61.460, classification. On both counts, the responses to attitude questions do not support the hypothesis.

Hypothesis IB is rejected. Overall form-series interaction is not significant and the attitude series is not the greatest contributor to overall form effects. The null hypothesis cannot be rejected: for a mail questionnaire, responses to questions in attitudinal series are no more affected by sequence than responses to questions in factual and classification series. In this study, each of the series was unaffected by series rotation, as were overall responses.

HYPOTHESIS IC

Series order in a mail questionnaire affects questionnaire and item nonresponse.

Questionnaire nonresponse was compared among Forms F1, A1, and C1 using chi square analysis. Table 38 shows the contingency table for this analysis. A significant

Table 38

CHI SQUARE ANALYSIS OF SERIES ORDER IMPACT
ON QUESTIONNAIRE RESPONSE RATES

		<u>F1</u>	<u>A1</u>	<u>C1</u>	<u>Total</u>	<u>%</u>
Responses	Actual	89	63	71	233	26.3
	Expected*	75	74	74		
Nonresponses	Actual	179	202	196	577	73.7
	Expected*	193	191	193		
Total		268	265	267	800	
% Returned		33.2	23.8	26.6		

$$\chi^2 = 6.2401$$

$$2 = DF$$

$$p = .045$$

*Expected values have been rounded for tabular purposes only.

difference, $p=.045$, was found among the questionnaire response rates. Item nonresponses were too small to conduct any meaningful tests. No conclusions can be reached about this aspect of series order effects on response behavior.

The first part of this hypothesis can be accepted: questionnaire nonresponse rates are affected by series order for a mail survey. The second part of the hypothesis needs further empirical testing with questions that elicit greater amounts of nonresponse.

HYPOTHESIS ID

For a mail questionnaire, series order affects the answer behavior to each type of series for respondents within each classification category: age, job title, highest degree earned, and income.

To test this hypothesis, responses to fact and attitude series were analyzed by age, job title, highest degree earned, and income of respondents. Fact and attitude series were subjected to analysis of variance, and the results of these tests appear in Tables 39, 41, 43 and 45.

Additional insights were obtained by examining response behavior to individual questions for respondents appearing in the modal group of each classification category. A discussion of the analysis for each classification category follows.

Table 39 contains the results of the tests on series order effects by age. Age was divided into two groups: 50 or younger; 51 or older. Analysis of variance on the mean number of correct fact responses showed no form effects. Analysis of variance on modal fact responses revealed no significant form effects. Analysis of variance on overall mean attitudes and modal attitude responses also demonstrated no form effects.

Table 40 shows that respondents within the modal age category, 41-50, had no individual answers influenced by series rotation.

In Table 41 are the results of the analysis of variance by job title. Job titles were broken down into three groups: administration; arts and education; accounting, economics, mathematics. Fact questions were not answered differently among the three forms by job title. The mean number of correct fact answers and the modal fact responses showed no significant differences. Modal attitude responses were not different among the three forms by job title. Mean overall attitudes, Table 41C did differ by job title; but these attitudes were independent of form.

Answers to individual questions were examined by chi square analysis for the modal job title, administration. Administrators had only one response influenced by series rotation, Responsiveness ($p=.029$). Table 42 shows this. One significant difference from seven attitude responses was not meaningful ($p=.05$, $n=7$, $r=1$ and $P=1$ is $.302$).

Table 39

ANALYSES OF SERIES ROTATION IMPACT
UPON FACT AND ATTITUDE SERIES RESPONSES BY AGE
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION 1)

A. ANOVA for the mean number of correct fact answers per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	4.270	3	2.14	1.17	3.04	NS
Age Effect	1.450	1	1.45	0.79	3.89	NS
Form-Age Interaction	5.530	2	2.77	1.51	3.04	NS
Within Effect	<u>397.380</u>	<u>217</u>	1.83			
Total	408.630	222				

B. ANOVA for the modal responses to fact questions by age by form

Form Effect	158.300	2	79.15	3.25	3.89	NS
Age Effect	29.670	1	29.67	1.36	5.99	NS
Question Effect	4877.350	6	812.89			
Age-Form Interaction	94.630	2	47.32	3.29	3.89	NS
Form-Question Interaction	294.410	12	24.53			
Age-Question Interaction	131.060	6	21.84			
Form-Age-Question Interaction	<u>172.560</u>	<u>12</u>	14.38			
Total	5557.580	41				

C. ANOVA for the overall mean attitude response per respondent by age by form

Form Effect	2.024	2	0.67	2.33	3.04	NS
Age Effect	1.150	1	1.15	2.64	3.89	NS
Form-Age Effect	1.151	2	0.58	1.32	3.04	NS
Within Effect	<u>84.671</u>	<u>196</u>	0.44			
Total	88.996	201				

D. ANOVA for the modal responses to attitude questions by age by form

Form Effect	49.970	2	24.99	1.07	3.89	NS
Age Effect	33.840	1	33.84	2.85	5.99	NS
Question Effect	768.591	6	128.10			
Form-Age Interaction	20.891	2	10.45	1.23	3.89	NS
Form-Question Interaction	279.839	12	23.32			
Age-Question Interaction	71.357	6	11.89			
Form-Age-Question Interaction	<u>101.744</u>	<u>12</u>	8.48			
Total	1326.232	41				

Table 41

ANALYSES OF SERIES ROTATION IMPACT UPON FACT AND
ATTITUDE SERIES RESPONSES BY JOB TITLE
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION)

A. ANOVA for the mean number of correct fact answers per respondent by job title by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	2.867	2	1.43	0.84	3.04	NS
Job Title Effect	1.057	2	0.53	0.31	3.04	NS
Form-Job Interaction	1.173	4	0.29	0.17	2.41	NS
Within Effect	<u>325.467</u>	<u>190</u>				
Total	330.564	198				

B. ANOVA for the modal responses to fact questions by job title by form

Form Effect	97.130	2	48.57	3.21	3.89	NS
Job Title Effect	53.220	2	26.61	2.05	3.89	NS
Question Effect	7868.380	6	1311.39			
Form-Job Interaction	181.460	4	45.37	0.74	2.80	NS
Form-Question Interaction	181.300	12	15.11			
Job-Question Interaction	155.700	12	12.98			
Form-Job-Question Interaction	<u>1473.150</u>	<u>24</u>	61.38			
Total	10010.400	62				

C. ANOVA for the overall mean attitude response per respondent by job title by form

Form Effect	1.644	2	0.82	2.01	3.05	NS
Job Title Effect	3.681	2	1.84	4.50	3.05	.015
Form-Job Interaction	3.791	4	0.95	2.32	2.42	NS
Within Effect	<u>70.302</u>	<u>172</u>	0.41			
Total	79.418	180				

D. ANOVA for the modal responses to attitude questions by job title by form

Form Effect	45.380	2	22.69	0.87	3.89	NS
Job Title Effect	167.747	2	83.87	2.74	3.89	NS
Question Effect	1652.843	6	275.47			
Form-Job Interaction	344.685	4	86.17	1.68	2.80	NS
Form-Question Interaction	314.687	12	26.22			
Job-Question Interaction	367.406	12	30.62			
Form-Job-Question Interaction	<u>1231.722</u>	<u>24</u>	51.32			
Total	4124.470	62				

Table 42

CHI SQUARE ANALYSIS OF SERIES ROTATION IMPACT
UPON RESPONSES TO INDIVIDUAL QUESTIONS BY JOB TITLE:
CATEGORY, ADMINISTRATION
(USING FORMS: Fact 1, Attitude 1, Classification 1)

	DF	χ^2	Critical Value	Level of Significance
<u>A. Fact Questions</u>				
Laissez Faire		CELLS TOO SMALL TO BE MEANINGFUL		
Business Firms + Systems	2	4.320	5.991	NS
Ranking of Firms	8	2.499	15.507	NS
Government Legislation	2	1.862	5.991	NS
FTC and Mergers	2	1.092	5.991	NS
Class Action Suit		CELLS TOO SMALL TO BE MEANINGFUL		
Automobile Model Changes		CELLS TOO SMALL TO BE MEANINGFUL		
<u>B. Attitude Questions</u>				
Overall Rating	2	1.483	5.991	NS
Number Most Beneficial	4	6.709	9.488	NS
Number Least Beneficial	4	1.234	9.488	NS
Honesty	4	3.683	9.488	NS
Responsiveness	6	14.065	12.592	.029
Effect on Environment	4	0.859	9.488	NS
Government Action	4	5.583	9.488	NS
<u>C. Classification Questions</u>				
Age	2	0.270	5.991	NS
Sex		CELLS TOO SMALL TO BE MEANINGFUL		
Education	2	4.934	5.991	NS
Highest Degree	4	5.415	9.488	NS
Major Field	2	1.075	5.991	NS
Income	4	7.383	9.488	NS

Table 43 contains the analysis of variance results of the tests on series order effects by highest degree earned. Highest degree earned was divided into two groups: college or Master's; law or Doctor's. The mean number of correct fact answers was not different among the forms by the highest degree earned. Modal fact answers revealed no form or interaction effect, but a degree effect was shown. Responses differed by degree earned, but were independent of form. Attitude responses also showed no form effects by degree earned.

Chi square analysis was used to evaluate series rotation effects on responses to individual questions for the modal degree, Doctor's. Doctors had only one response, Government Action ($p=.020$), influenced by series order. This is not significantly different from chance ($p=.05$, $n=7$, $r=1$ and $P=1$ is $.302$). These results are in Table 44.

Table 45 has the analysis of variance results for the tests on series order effects by gross annual income. Income was divided into three groups: under \$30,000; \$30,000-\$49,999; \$50,000 and over. Responses to fact questions were affected, while responses to attitude questions were not. The mean number of correct fact answers per respondent and modal fact responses both had significant form-income interactions. Mean attitude responses and modal attitude responses were not affected by series rotation across the income groups.

Table 43

ANALYSES OF SERIES ROTATION IMPACT UPON FACT
AND ATTITUDE SERIES RESPONSES BY HIGHEST DEGREE
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION)

A. ANOVA for the mean number of correct fact answers per respondent by highest degree by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	4.466	2	2.23	1.16	3.04	NS
H.D. Effect	4.026	1	4.03	2.09	3.89	NS
Form-H.D.Interaction	8.065	2	4.03	2.09	3.04	NS
Within Effect	<u>393.814</u>	<u>204</u>	1.93			
Total	410.371	209				

B. ANOVA for the modal responses to fact questions by highest degree by form

Form Effect	136.720	2	68.36	2.86	3.89	NS
H.D. Effect	138.970	1	138.97	6.58	5.99	.045
Question Effect	5410.580	6	901.76			
Form-H.D.Interaction	254.920	2	127.46	3.03	3.89	NS
Form-Question Interaction	286.550	12	23.88			
H.D.-Question Interaction	126.790	6	21.13			
Form-Question-H.D.	<u>504.250</u>	<u>12</u>	42.02			
Total	6858.780	41				

C. ANOVA for the overall mean attitude response per respondent by highest degree by form

Form Effect	2.099	2	1.05	2.29	3.04	NS
H.D. Effect	0.704	1	0.70	1.54	3.89	NS
Form-H.D.Interaction	0.280	2	0.14	0.31	3.04	NS
Within Effect	<u>85.688</u>	<u>187</u>	0.46			
Total	88.771	192				

D. ANOVA for the modal responses to attitude questions by highest degree by form

Form Effect	29.131	2	14.57	0.63	3.89	NS
H.D.Effect	5.500	1	5.50	0.14	5.99	NS
Question Effect	947.873	6	157.98			
Form-H.D.Interaction	111.214	2	55.60	3.25	3.89	NS
Form-Question Interaction	276.156	12	23.01			
H.D.-Question Interaction	242.727	6	40.45			
Form-H.D.-Question	<u>205.179</u>	<u>12</u>	17.10			
Total	1817.780	41				

Table 44

CHI SQUARE ANALYSIS OF SERIES ROTATION IMPACT
UPON RESPONSES TO INDIVIDUAL QUESTIONS BY HIGHEST DEGREE
CATEGORY, DOCTORS
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION 1)

	DF	χ^2	<u>Critical Value</u>	<u>Level of Significance</u>
<u>A. Fact Questions</u>				
Laissez Faire		CELLS TOO SMALL TO BE MEANINGFUL		
Business Firms + Systems		CELLS TOO SMALL TO BE MEANINGFUL		
Ranking of Firms	8	1.262	15.507	NS
Government Legislation	2	3.612	5.991	NS
FTC and Mergers	2	1.429	5.991	NS
Class Action Suit		CELLS TOO SMALL TO BE MEANINGFUL		
Automobile Model Changes		CELLS TOO SMALL TO BE MEANINGFUL		
<u>B. Attitude Questions</u>				
Overall Rating	4	1.958	9.488	NS
Number Most Beneficial	4	2.236	9.488	NS
Number Least Beneficial	4	6.602	9.488	NS
Honesty	4	6.460	9.488	NS
Responsiveness	4	1.387	9.488	NS
Effect on Environment	4	3.242	9.488	NS
Government Action	4	11.676	9.488	.020
<u>C. Classification Questions</u>				
Age	4	4.842	9.488	NS
Sex		CELLS TOO SMALL TO BE MEANINGFUL		
Job Areas	4	2.993	9.488	NS
Major Field	4	2.528	9.488	NS
Income	6	2.740	12.592	NS

Table 45

ANALYSES OF SERIES ROTATION IMPACT UPON FACT AND
ATTITUDE SERIES RESPONSES BY INCOME
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION 1)

A. ANOVA for the mean number of correct fact answers per respondent by income by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	4.244	2	2.12	1.18	3.04	NS
Income Effect	4.398	2	2.20	1.23	3.04	NS
Form-Income Interaction	17.413	4	4.35	2.43	2.41	.049
Within Effect	382.719	214	1.79			
Total	408.794	222				

B. ANOVA for the modal responses to fact questions by income by form

Form Effect	152.030	2	76.02	2.66	3.89	NS
Income Effect	343.590	2	171.80	4.50	3.89	.038
Question Effect	8946.950	6	1491.16			
Form-Income Interaction	1216.960	4	304.24	6.89	2.80	.01
Form-Question Interaction	343.240	12	28.60			
Income-Question Interaction	458.150	12	38.18			
Form-Income-Question Interaction	1059.040	24	44.13			
Total	12519.960	62				

C. ANOVA for the overall mean attitude response per respondent by income by form

Form Effect	2.060	2	1.03	2.33	3.04	NS
Income Effect	0.311	2	0.16	0.36	3.04	NS
Form-Income Interaction	1.318	4	0.43	0.97	2.41	NS
Within Effect	85.341	193	0.44			
Total	89.030	201				

D. ANOVA for the modal responses to attitude questions by income by form

Form Effect	157.011	2	78.51	1.44	3.89	NS
Income Effect	119.669	2	59.84	0.85	3.89	NS
Question Effect	1355.580	6	225.93			
Form-Income Interaction	242.901	4	60.73	1.72	2.80	NS
Form-Question Interaction	654.260	12	54.52			
Income-Question Interaction	843.702	12	70.31			
Form-Income-Question Interaction	846.975	24	35.29			
Total	4220.098	62				

Differences among responses to individual questions for the modal income group, \$30,000-\$49,999, were subjected to chi square analysis. Table 46 shows that this group had no responses influenced by series rotation.

Hypothesis ID is largely rejected. No significant response differences existed when comparing answers among the three forms by age, job title, or highest degree. The mean number of correct fact answers, modal fact responses, mean overall attitudes, modal attitude answers, and individual question responses showed no effect by age, job title, or highest degree.

Analysis by income, Table 45, did reveal significant differences in the number of correct fact answers and modal fact responses. Overall and modal attitudes were not affected by the rotation.

The null hypothesis cannot be rejected: for a mail questionnaire, series order does not affect the answer behavior to each type of series within each classification category: age, job title, highest degree earned, and income. Only fact responses by income exhibited any significant differences in this study.

Table 46

CHI SQUARE ANALYSIS OF SERIES ROTATION IMPACT
UPON RESPONSES TO INDIVIDUAL QUESTIONS BY INCOME:
CATEGORY, \$30,000-\$49,999
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION 1)

	DF	χ^2	Critical Value	Level of Significance
A. <u>Fact Questions</u>				
Laissez Faire		CELLS TOO SMALL TO BE MEANINGFUL		
Business Firms + Systems	2	1.278	5.991	NS
Ranking of Firms	8	2.703	15.507	NS
Government Legislation	2	0.299	5.991	NS
FTC and Mergers	2	3.704	5.991	NS
Class Action Suit		CELLS TOO SMALL TO BE MEANINGFUL		
Automobile Model Changes		CELLS TOO SMALL TO BE MEANINGFUL		
B. <u>Attitude Questions</u>				
Overall Rating	4	2.154	9.488	NS
Number Most Beneficial	6	5.486	12.592	NS
Number Least Beneficial	4	2.462	9.488	NS
Honesty	4	6.805	9.488	NS
Responsiveness	4	6.711	9.488	NS
Effect on Environment	2	0.000	5.991	NS
Government Action	4	3.549	9.488	NS
C. <u>Classification Questions</u>				
Age	2	0.885	5.991	NS
Sex		CELLS TOO SMALL TO BE MEANINGFUL		
Job Area	4	4.632	9.488	NS
Education		CELLS TOO SMALL TO BE MEANINGFUL		
Highest Degree	4	6.100	9.488	NS
Major Field		CELLS TOO SMALL TO BE MEANINGFUL		

HYPOTHESIS IE

For a mail questionnaire, when series order affects responses within classification categories, each group in each category is affected.

This hypothesis can be evaluated only for factual responses by income category. Factual and attitudinal responses were not influenced by series order for age, job title, or degree earned classification categories. Attitude responses, when examined by income, were also not affected. Therefore the conclusions reached in the testing of this hypothesis can only be applied to fact responses by income group. These caveats flow from the analysis of the previous hypothesis.

For the hypothesis to be accepted, significant differences would have to appear in the factual responses of each income group. The mean number of correct fact answers and modal fact answers were investigated for each income level. The analysis of variance results are in Table 47.

The mean number of correct fact answers differed among the three forms when responses were evaluated by income, as shown in Table 45, part A. A strong form-interaction was present. Forms had an effect on responses within income groups.

When replies were examined separately by each income level, Table 47, part A, form effects were not present for any of the levels. This finding is not contradictory with the discovery of a form-income interaction. Examination of

Table 47

ANALYSIS OF SERIES ROTATION IMPACT UPON RESPONSES FOR GROUPS
WITHIN THE INCOME DEMOGRAPHIC CATEGORY
(USING FORMS: FACT 1, ATTITUDE 1, CLASSIFICATION 1)

A. ANOVA for the mean number of correct fact answers per respondent
by income group by form

1. Yearly income of \$29,999 and under

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	10.702	2	5.35	2.85	3.12	NS
W i t h i n Effect	140.785	75	1.88			
Total Effect	151.487	77				

2. Yearly income of \$30,000-\$49,999

Form Effect	6.624	2	3.31	1.95	3.12	NS
W i t h i n Effect	129.098	76	1.70			
Total Effect	135.722					

3. Yearly income of \$50,000 and over

Form Effect	5.119	2	2.56	1.50	3.18	NS
W i t h i n Effect	83.881	49	1.71			
Total Effect	89.000	51				

B. Number of correct fact responses -
means and number of respondents by form and income

<u>Income</u>	<u>F1</u>		<u>A1</u>		<u>C1</u>		<u>Overall</u>	
	<u>#</u>	<u>Mean</u>	<u>#</u>	<u>Mean</u>	<u>#</u>	<u>Mean</u>	<u>#</u>	<u>Mean</u>
\$29,999 and under	28	5.68	30	5.10	26	4.85	84	5.21
\$30,000- \$49,999	31	5.77	22	5.09	29	5.55	82	5.51
\$50,000 and over	30	5.23	11	6.00	16	5.63	57	5.49
Overall	89	5.59	63	5.23	71	5.30	223	5.39

Table 47 (continued)

C. ANOVA for the modal responses to fact questions by income group by form

1. Yearly income of \$29,999 and under

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	539.355	2	269.68	5.48	3.89	.022
Interaction Effect	590.634	12	49.22			

2. Yearly income of \$30,000-\$49,999

Form Effect	429.347	2	214.67	4.48	3.89	.038
Interaction Effect	575.520	12	47.96			

3. Yearly income of \$50,000 and over

Form Effect	400.323	2	200.16	10.85	3.89	.01
Interaction Effect	221.457	12	18.45			

D. Percent of respondents answering in the modal category for each fact question, summed over all fact questions (numbers shown are after arc signe transformation)

<u>Income</u>	<u>F1</u>	<u>A1</u>	<u>C1</u>	<u>Overall</u>
\$29,999 and under	482.3	416.2	400.4	433.3
\$30,000- \$49,999	500.6	423.1	463.7	466.8
\$50,000 and over	429.8	502.7	481.0	458.2
Overall	470.9	433.7	444.4	451.9

Table 47, part B, shows that interactions existed, but they occurred in different directions. The effects were large enough to show the overall form-income interaction, but not large enough to show form effects for respondents in each income level.

Series rotation did not affect the mean number of correct fact answers for either low, medium, or high income respondents. (Note: For this sample, "low" income does not really exist).

Modal fact responses differed among the three forms when answers were evaluated by income, Table 45, part B. A strong form-income interaction and an income effect were uncovered. Forms had an effect on responses within income groups, and responses differed between income groups.

When replies were investigated separately by each income level, Table 47, part C, form effects did occur for each level. Table 47, part D, shows that interactions existed, but in different directions. In this case, the effects were large enough to show the differences in responses at each income level.

Modal responses received a form-income interaction, Table 45, part B, and the overall form effect was close to the level of significance. The number of correct responses received only a form-income interaction, Table 45, part A. This explains the differences in the testing of the present hypothesis.

The hypothesis is accepted: for a mail questionnaire, when series order affects responses within classification categories, each group in each category is affected. Modal fact responses were influenced by series rotation for each income group. It must again be pointed out that the testing of this hypothesis involved only fact responses for the income category. No order effects had been previously found for the other classification categories.

HYPOTHESIS IF

Response behavior is affected by the order of each series in a mail questionnaire and not by just the series that appears first.

For this hypothesis to be accepted, answers would have to be affected by the placement of series that appear second and third in the mail questionnaire as well as by the placement of the first series. Forms A1 and A2 were used to test the hypothesis. The only difference between these two forms was a switch of fact and classification series, which appeared in the second and third positions.

The tests conducted were similar to those used for Hypothesis IA. Since testing of the current hypothesis involved two samples, F values obtained in the variance procedure were the t values squared. A two-tailed t test, with a value of .05 in both tails combined, was in order since direction was not tested.

Results of these tests appear in Tables 48-51. Analysis of variance was used with answers in the modal categories of each question. Rotation effects were studied for each series of questions and for the overall questionnaire. Table 48 shows that series rotation had no overall effect and did not influence modal answers to fact, attitude, or classification series.

However, the results stated above change significantly if the percent of answers above the mode for each attitude question are substituted for the percent of answers in the mode for each attitude question. Table 49 reveals a very strong impact of rotation on attitude answers and an overall form-series interaction. These conclusions are consistent with other tests conducted.

Analysis of variance and chi square analysis for the mean number of correct fact answers and the total number of correct fact answers per respondent revealed no effects of series rotation, Table 50. However, analysis of variance on the overall mean attitude per respondent showed that attitudes were substantially affected by order. Chi square results, from the same table, of the number of attitude answers above the mode did not demonstrate any significant effects.

The chi square results in Table 51 reveal that responses to individual fact and classification questions were not affected by series order. Two attitude questions were affected, Responsiveness ($p=.011$) and Effect on Environment

Table 48

ANALYSIS OF VARIANCE OF SERIES ORDER ROTATION IMPACT
UPON OVERALL FORM AND SERIES MODAL RESPONSES
(USING FORMS: ATTITUDE 1, ATTITUDE 2)

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
<u>A. Fact Series</u>						
Form Effect	0.046	1	0.05	0.02	5.99	NS
Within Effect	17.990	6	2.99			
<u>B. Attitude Series</u>						
Form Effect	23.921	1	23.92	1.24	5.99	NS
Within Effect	115.484	6	19.25			
<u>C. Classification Series</u>						
Form Effect	48.286	1	48.29	2.48	5.99	NS
Within Effect	116.644	6	19.44			
<u>D. Overall Form</u>						
Form Effect	1.719	1	1.72	0.12	4.43	NS
Form-Series Effect	70.534	2	35.27	2.54	3.57	NS
Within Effect	250.105	18	13.90			

Table 49

ANALYSIS OF VARIANCE OF SERIES ORDER ROTATION IMPACT
UPON OVERALL FORM AND ATTITUDE RESPONSES BY PERCENT
ANSWERING ATTITUDE QUESTIONS ABOVE THE MODE

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
<u>A. Attitude Series</u>						
Form Effect	124.207	1	124.21	13.64	5.99	.01
Interaction Effect	54.628	6	9.11			
<u>B. Overall Form</u>						
Form Effect	5.286	1	5.29	0.50	4.43	NS
Form-Series Effect	167.252	2	83.63	7.95	3.57	.01
Interaction Effect	189.245	18	10.51			

Table 50

ANALYSES OF SERIES ROTATION IMPACT UPON FACT
AND ATTITUDE SERIES RESPONSES
(USING FORMS: ATTITUDE 1, ATTITUDE 2)

A. ANOVA for the mean number of correct fact answers per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	0.041	1	0.04	0.02	3.92	NS
Within Effect	240.711	123	1.96			
Total Effect	240.752	124				

B. χ^2 for the total number of correct fact answers per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of correct fact answers per respondent	4	1.443	9.488	NS

C. ANOVA for the overall mean attitude response per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	5.716	1	5.72	10.63	3.93	.01
Within Effect	62.746	116	0.54			
Total Effect	68.462	117				

D. χ^2 for the number of attitude questions answered above the mode per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of attitude responses above the mode per respondent	5	7.310	11.070	NS

Table 51

CHI SQUARE ANALYSIS OF SERIES ROTATION IMPACT
UPON RESPONSES TO INDIVIDUAL QUESTIONS
(USING FORMS: ATTITUDE 1, ATTITUDE 2)

	<u>DF</u>	<u>X²</u>	<u>Critical Value</u>	<u>Level of Significance</u>
<u>A. Fact Questions</u>				
Laissez Faire	1	0.484	3.841	NS
Business Firms + Systems	3	2.568	7.815	NS
Ranking of Firms	4	0.782	9.488	NS
Government Legislation	1	0.000	3.841	NS
FTC and Mergers	2	0.000	5.991	NS
Class Action Suit	2	0.178	5.991	NS
Automobile Model Changes	1	0.435	3.841	NS
<u>B. Attitude Questions</u>				
Overall Rating	4	9.078	9.488	NS
Number Most Beneficial	3	3.960	7.815	NS
Number Least Beneficial	4	8.754	9.488	NS
Honesty	5	9.346	11.070	NS
Responsiveness	4	12.939	9.488	.011
Effect on Environment	4	10.522	9.488	.033
Government Action	3	2.489	7.815	NS
<u>C. Classification Questions</u>				
Age	3	2.383	7.815	NS
Sex	CELLS TOO SMALL TO BE MEANINGFUL			
Job Areas	4	3.841	9.488	NS
Education	1	0.995	3.841	NS
Highest Degree	2	3.333	5.991	NS
Major Field	5	5.065	11.070	NS
Year Degree Received	3	5.442	7.815	NS
School Location	2	0.000	5.991	NS
Income	6	9.450	12.592	NS
<u>D. Rate of Response</u>				
	1	0.000	3.841	NS

($p=.033$); and the binomial distribution showed that this was significantly different from chance ($p=.05$, $n=7$, $r=2$ and $P=2$ is $.044$).

The weight of evidence favors acceptance of the hypothesis: response behavior is affected by the order of each series in a mail questionnaire and not by just the series that appears first. Responses within the attitude series were affected by this rotation, while responses within the fact and classification series were not. This unexpected finding will be discussed later in the paper.

SUMMARY OF ANALYSIS

Several types of statistical analyses were employed in testing the series order hypotheses. These tests, described in the beginning of the chapter, revealed the following.

Hypothesis IA was rejected. Response behavior to questions in all types of series were not affected by series rotation. No differences in response behavior were found for modal responses, correct fact responses, overall mean attitudes, number of attitudes recorded above the mode, and responses to individual questions.

Hypothesis IB was rejected. Variation in attitude responses due to series rotation was not greater than the variation in fact or classification responses. No overall form-series interaction occurred and the attitude responses

did not contribute a greater part of the overall variability than fact or classification responses.

Hypothesis IC was accepted in part. Questionnaire response rates were influenced by series order. Item non-response could not be measured since this problem did not occur in the current study.

Hypothesis ID was largely rejected. Series order did not affect the answer behavior to all types of series within all classification categories: age, job title, highest degree earned, and income. Fact and attitude responses were not affected by series rotation for age, job title, and highest degree. Attitude responses by income group were also unaffected. Only fact responses by income were affected by the order of presentation.

Hypothesis IE was accepted. When series order affected responses within classification categories, each group within the category was affected. Modal fact answers were affected by rotation for each of the three income levels. Since the other classification categories had previously exhibited no differences in responses, the acceptance of the hypothesis applies only to modal fact answers by income group.

Hypothesis IF was accepted. Response behavior was affected by the placement of the second and third series in the questionnaire. Responses within the attitude series were influenced. Responses in the fact and classification series were not.

DISCUSSION OF CURRENT FINDINGS

The rejection of Hypotheses IA and IB was not expected. The general literature makes various statements about the effects of series order on response behavior (see especially Boyd and Westfall, 1972). In this study, neither fact, attitude, nor classification responses were influenced when series were rotated (F1, A1, C1).

The acceptance of Hypothesis IC was expected. Questionnaire response rates were influenced by the rotation of series. Form F1 provided the greatest response rate because the order of the series (fact, attitude, classification) was straightforward and the opening question (definition of laissez faire) was easy. Form A1 provided the lowest questionnaire response rate. The order of the series (attitude, classification, fact) was more intense and the opening question (overall rating of U.S. business) was more challenging than the introductory fact question.

Form C1 received the middle response rate. Respondents seemed willing to reveal their education, job title, and income since they ranked high in these areas. The Who's Who sample was a highly prestige-laden one. A type of snob appeal may have caused the questionnaire response rate. The selection of a less-educated, lower-salaried sample for future research might result in a different dispersion of response rates.

Measurement of item nonresponse rates was not possible in this study since nonresponses were minimal. Therefore, parts of Hypotheses IC and IID need further investigation. Question nonresponse may not have been a factor in this research because the Who's Who sample was not challenged by any of these questions. Selection of a different sample base may lead to other results.

Response behavior did not differ with all classification categories when series were rotated, Hypothesis ID. Hypothesis IE was accepted. Modal fact responses were affected by series rotation for each income group. However, other classification categories were not similarly affected. These findings are consistent with those for Hypotheses IA and IB. The effects of series rotation have been overstated.

Acceptance of Hypothesis IF is not consistent with the other findings on series order effects. Responses to questions were not influenced by series order for Forms F1, A1, C1. However, attitude responses differed between Forms A1 and A2. For these two forms, only the order of the second and third series was changed. Since attitude questions appeared first in both questionnaires, one possible explanation for these results is that respondents returned to questions in the attitude series after answering fact and classification series.

This conclusion is inconsistent with the other tests on series order rotations. Close examination of the completed questionnaires, most of them filled in with ink, did not disclose evidence of answer changes. Skipping behavior could not be similarly determined or discounted. Further research must be conducted to determine if this contradictory finding is valid.

The current findings cited above will be discussed in terms of the existing literature in Chapter IX, the concluding chapter.

CHAPTER VIII

ANALYSIS OF QUESTION ORDER DATA AND DISCUSSION OF FINDINGS

INTRODUCTION

In this chapter, the question order hypotheses described earlier will be analyzed and discussed. Investigation of these hypotheses involved several rotations of individual questions. These rotations were of three types: fact questions (Forms F1, F2, F3); attitude questions (Forms A2, A3, A4, A5); classification questions (Forms C1, C2, C3). For each type of rotation, series order remained constant while specific questions were rotated. A fuller description of the questionnaire forms appears in Figure 2.

The statistical tests, and their data bases, used in the evaluation of question order hypotheses are the same as those implemented in the testing of series order hypotheses. The explanation of the rationale for the tests appeared in the beginning of the last chapter. The data bases are detailed in Tables 2-34.

Analysis of variance is to be used with modal responses, the mean number of correct fact answers per

Figure 2

FORMAT OF QUESTIONNAIRE FORMS

- F1 Fact Form 1. Order of series: Fact, Attitude, Classification. Order of questions: Fact - laissez faire, statement on business, ranking of companies, legislation, mergers, class action suit, model changes; Attitude and Classification - see A1 and C1.
- F2 Fact Form 2. Order of series; same as F1. Order of questions: Fact - legislation, mergers, class action suit, laissez faire, statement on business, ranking of companies, model changes; Attitude and Classification - see A1 and C1.
- F3 Fact Form 3. Order of series: same as F1. Order of questions: Fact - Same as F2, class action suit placed first; Attitude and Classification - see A1 and C1.
- A1 Attitude Form 1. Order of series: Attitude, Classification, Fact. Order of questions: Fact - see F1; Attitude - overall rating, most beneficial practices, least beneficial practices, honesty, responsiveness, environment, government; Classification - see C1.
- A2 Attitude Form 2. Order of series: Attitude, Fact, Classification. Order of questions: same as A1.
- A3 Attitude Form 3. Order of series: same as A2. Order of questions: Fact - see F1; Attitude - same as A2, switch most beneficial practices and least beneficial practices; Classification - see C1.
- A4 Attitude Form 4. Order of series: same as A2. Order of questions: Fact - see F1; Attitude - most beneficial, least beneficial, overall rating, others remain the same; Classification - see C1.
- A5 Attitude Form 5. Order of series: same as A2. Order of questions: Fact - see F1; Attitude - overall rating, most beneficial, least beneficial are placed last, others remain the same; Classification - see C1.
- C1 Classification Form 1. Order of series: Classification, Fact, Attitude. Order of questions: Fact and Attitude - see F1 and A1; Classification - age, sex, job title, education, income.

Figure 2 (continued)

- C2 Classification Form 2. Order of series, same as C1.
order of questions: Fact and Attitude - see F1 and A1;
Classification - age, sex, income, job title, education.
- C3 Classification Form 3. Order of series: same as C1.
Order of questions: Fact and Attitude - see F1 and A1;
Classification - income, age, sex, job title, education.

respondent, and the overall mean attitude per respondent. Chi square analysis is to be employed with the total number of correct fact answers per respondent, the total number of attitude answers above the mode per respondent, and responses to individual questions. For the latter test, the binomial distribution will also be used to determine if the number of differences found is greater than a chance occurrence.

These analyses examine the question order hypotheses by: form, using analysis of variance with modal responses; series, using analysis of variance with modal and mean responses and chi square analysis with the number of respondents appearing in various categories; question, using chi square analysis with responses to individual questions. The results of these analyses follow.

HYPOTHESIS IIA

Responses to each type of question (factual, attitudinal, classification) are affected by its positioning within a series for a mail questionnaire.

This hypothesis was examined for each of the three types of question rotation: fact (F1, F2, F3); attitude (A2, A3, A4, A5); classification (C1, C2, C3). The results of the tests performed are in Tables 52-59.

The rotation of individual fact questions had some influence on responses to fact questions. Table 52, part A, shows that modal fact responses were affected by question rotation. F was 4.41, which exceeded the critical value (at .05) of 3.89. The level of significance was .039.

Table 52

ANALYSIS OF VARIANCE OF FACT QUESTION ROTATION IMPACT
UPON OVERALL FORM AND SERIES MODAL RESPONSES
(USING FORMS: FACT 1, FACT 2, FACT 3)

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
<u>A. Fact Series</u>						
Form Effect	99.674	2	49.84	4.41	3.89	.039
Interaction Effect	135.550	12	11.30			
<u>B. Attitude Series</u>						
Form Effect	47.060	2	23.53	2.62	3.89	NS
Interaction Effect	107.867	12	8.99			
<u>C. Classification Series</u>						
Form Effect	33.589	2	16.80	1.66	3.89	NS
Interaction Effect	121.098	12	10.09			
<u>D. Overall Form</u>						
Form Effect	88.020	2	44.01	4.35	3.27	.024
Form Series Effect	92.310	4	23.08	2.28		
Interaction Effect	364.510	36	10.13			

However, the other analyses did not show similar results. Table 53, parts A and B, contains analysis of variance data for the mean number of correct fact answers for each respondent and chi square analysis for the total number of correct fact answers for each respondent. Neither of these tests showed a difference in fact responses due to fact question rotation. The chi square analysis in Table 54, part A, also uncovered no individual fact question responses affected by this rotation.

The rotation of attitude questions had some effect on responses to attitude questions. Table 55, part B, shows that modal attitude responses were not influenced by attitude question rotation.

Tables 56, parts C and D, and 57, part B, reveal the effects of the rotation. The overall mean attitude per respondent was greatly influenced, with a level of significance less than .01. F was 11.17 with a critical value (at .05) of 2.64. Chi square analysis of responses to specific attitude questions detailed three significant differences, Overall Rating ($p=.008$), Honesty ($p=.043$), and Responsiveness ($p=.030$), out of seven questions, Table 57, part B. This is more than a random occurrence ($p=.05$, $n=7$, $r=3$ and $P=3$ is .004). In addition, other attitude questions had differences in response close to the level of significance.

Table 53

ANALYSES OF FACT QUESTION ROTATION IMPACT
UPON FACT AND ATTITUDE SERIES RESPONSES
(USING FORMS: FACT 1, FACT 2, FACT 3)

A. ANOVA for the mean number of correct fact answers per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	5.359	2	2.68	1.51	3.04	NS
Within Effect	377.859	213	1.77			
Total Effect	383.218	215				

B. χ^2 for the total number of correct fact answers per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of correct fact answers per correspondent	6	5.503	12.592	NS

C. ANOVA for the overall mean attitude response per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	0.599	2	0.30	0.59	3.04	NS
Within Effect	96.082	189	0.51			
Total Effect	96.681	191				

D. χ^2 for the number of attitude questions answered above the mode per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of attitude responses above the mode per respondent	10	10.180	18.307	NS

Table 54

CHI SQUARE ANALYSIS OF FACT QUESTION ROTATION IMPACT
UPON RESPONSES TO INDIVIDUAL QUESTIONS
(USING FORMS: FACT 1, FACT 2, FACT 3)

	<u>DF</u>	<u>X²</u>	<u>Critical Value</u>	<u>Level of Significance</u>
<u>A. Fact Questions</u>				
Laissez Faire				CELLS ARE TOO SMALL TO BE MEANINGFUL
Business Firms + Systems	8	5.090	15.507	NS
Ranking of Firms	8	3.487	15.507	NS
Government Legislation	4	4.680	9.488	NS
FTC and Mergers	4	2.609	9.488	NS
Class Action Suit	2	2.168	5.991	NS
Automobile Model Changes				CELLS ARE TOO SMALL TO BE MEANINGFUL
<u>B. Attitude Questions</u>				
Overall Rating	8	6.345	15.507	NS
Number Most Beneficial	8	15.240	15.507	NS
Number Least Beneficial	8	11.423	15.507	NS
Honesty	8	4.275	15.507	NS
Responsiveness	8	7.252	15.507	NS
Effect on Environment	8	9.876	15.507	NS
Government Action	6	5.461	12.592	NS
<u>C. Classification Questions</u>				
Age	6	3.673	12.592	NS
Sex				CELLS ARE TOO SMALL TO BE MEANINGFUL
Job Areas	8	10.244	15.507	NS
Education	4	5.498	9.488	NS
Highest Degree	6	3.971	12.592	NS
Major Field	12	17.800	21.026	NS
Year Degree Received	6	2.667	12.592	NS
School Location	4	5.838	9.488	NS
Income	10	25.653	18.307	.01

Table 55

ANALYSIS OF VARIANCE OF ATTITUDE QUESTION ROTATION IMPACT UPON
 OVERALL FORM AND SERIES MODAL RESPONSES
 (USING FORMS: ATTITUDE 2, ATTITUDE 3, ATTITUDE 4, ATTITUDE 5)

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
<u>A. Fact Series</u>						
Form Effect	43.411	3	14.47	2.14	3.18	NS
Interaction Effect	121.924	18	6.77			
<u>B. Attitude Series</u>						
Form Effect	76.970	3	25.66	1.37	3.18	NS
Interaction Effect	337.555	18	18.75			
<u>C. Classification Series</u>						
Form Effect	40.810	3	13.60	1.29	3.18	NS
Interaction Effect	190.026	18	10.56			
<u>D. Overall Form</u>						
Form Effect	93.105	3	31.04	2.58	2.78	NS
Form Series Effect	68.080	6	11.35	0.94	2.28	NS
Interaction Effect	649.503	54	12.03			

Table 56

ANALYSES OF ATTITUDE QUESTION ROTATION IMPACT
UPON FACT AND ATTITUDE SERIES RESPONSES
(USING FORMS: ATTITUDE 2, ATTITUDE 3, ATTITUDE 4, ATTITUDE 5)

A. ANOVA for the mean number of correct fact answers per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	4.559	3	1.52	0.56	2.64	NS
Within Effect	708.481	261	2.71			
Total Effect	713.040	264				

B. χ^2 for the total number of correct fact answers per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of correct fact answers per respondent	12	10.123	21.026	NS

C. ANOVA for the overall mean attitude response per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	7.543	3	2.51	11.17	2.64	.01
Within Effect	55.001	244	0.23			
Total Effect	62.544	247				

D. χ^2 for the number of attitude questions answered above the mode per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of attitude responses above the mode per respondent	15	20.319	24.996	NS

Table 57

CHI SQUARE ANALYSIS OF ATTITUDE QUESTION ROTATION IMPACT
UPON RESPONSES TO INDIVIDUAL QUESTIONS
(USING FORMS: ATTITUDE 2, ATTITUDE 3, ATTITUDE 4, ATTITUDE 5)

	<u>DF</u>	<u>X²</u>	<u>Critical Value</u>	<u>Level of Significance</u>
<u>A. Fact Questions</u>				
Laissez Faire	3	0.980	7.815	NS
Business Firms + Systems	9	12.732	16.919	NS
Ranking of Firms	12	2.094	21.026	NS
Government Legislation	6	5.324	12.592	NS
FTC and Mergers	6	4.002	12.592	NS
Class Action Suit	6	5.358	12.592	NS
Automobile Model Changes	3	2.874	7.815	NS
<u>B. Attitude Questions</u>				
Overall Rating	9	22.661	16.919	.01
Number Most Beneficial	12	17.464	21.026	NS
Number Least Beneficial	12	9.736	21.026	NS
Honesty	12	21.582	21.026	.043
Responsiveness	12	22.814	21.026	.030
Effect on Environment	12	19.573	21.026	NS
Government Action	9	3.912	16.919	NS
<u>C. Classification Questions</u>				
Age	9	13.554	16.919	NS
Sex	CELLS TOO SMALL TO BE MEANINGFUL			
Job Areas	12	10.178	21.026	NS
Education	6	14.973	12.592	.020
Highest Degree	9	13.692	16.919	NS
Major Field	15	23.764	24.996	NS
Year Degree Received	9	13.819	16.919	NS
School Location	6	11.412	12.592	NS
Income	18	20.580	28.869	NS

One other test on attitude question rotation, chi square analysis on the number of attitude questions answered above the mode by respondent (Table 56, part D), revealed no significant effects of the rotation. However, the actual value of the test, 20.319, was not far from significant, 24.996.

The rotation of classification questions had no impact on responses to classification questions. This was expected, since a preliminary examination of the data in Chapter VI showed an overwhelming correlation between the statistics in Who's Who and the actual responses.

The results presented in Tables 58, part C, and 59, part C, reinforce these earlier suppositions. Analysis of variance on modal classification responses revealed no significant effects caused by the classification question rotation. Chi square analysis of responses to individual classification questions exhibited only one difference, Education ($p=.045$), among the eight studied. This was not meaningful ($p=.05$, $n=8$, $r=1$ and $P=1$ is .337).

The hypothesis must be rejected. Responses to all types of questions were not affected by the rotation of specific questions. Classification responses were not influenced at all by the rotation of classification questions. Of the four analyses on the effects of fact question rotation, only the one concerning modal fact responses showed significant results.

Table 58

ANALYSIS OF VARIANCE OF CLASSIFICATION QUESTION
 ROTATION IMPACT UPON OVERALL FORM AND SERIES MODAL RESPONSES
 (USING FORMS: CLASSIFICATION 1, CLASSIFICATION 2, CLASSIFICATION 3)

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
<u>A. Fact Series</u>						
Form Effect	14.687	2	7.34	0.60	3.89	NS
Interaction Effect	147.657	12	12.31			
<u>B. Attitude Series</u>						
Form Effect	101.947	2	50.97	5.14	3.89	.024
Interaction Effect	119.107	12	9.93			
<u>C. Classification Series</u>						
Form Effect	25.410	2	12.71	1.36	3.89	NS
Interaction Effect	112.464	12	9.37			
<u>D. Overall Form</u>						
Form Effect	8.220	2	4.11	0.39	3.27	NS
Form-Series Effect	133.820	4	33.46	3.18	2.64	.031
Interaction Effect	379.240	36	10.53			

Table 59

CHI SQUARE ANALYSIS OF CLASSIFICATION QUESTION ROTATION
 IMPACT UPON RESPONSES TO INDIVIDUAL QUESTIONS
 (USING CLASSIFICATION FORMS 1, 2, 3)

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
A. <u>Fact Questions</u>				
Laissez Faire	2	0.364	5.991	NS
Business Firms + Systems	8	7.829	15.507	NS
Ranking of Firms	8	4.863	15.507	NS
Government Legislation	4	3.512	9.488	NS
FTC and Mergers	4	2.452	9.488	NS
Class Action Suit	4	5.460	9.488	NS
Automobile Model Changes	2	0.337	5.991	NS
B. <u>Attitude Questions</u>				
Overall Rating	6	2.092	12.592	NS
Number Most Beneficial	8	12.013	15.507	NS
Number Least Beneficial	8	10.124	15.507	NS
Honesty	8	17.042	15.507	.030
Responsiveness	8	13.092	15.507	NS
Effect on Environment	8	12.318	15.507	NS
Government Action	6	4.312	12.592	NS
C. <u>Classification Questions</u>				
Age	6	6.534	12.592	NS
Sex	CELLS TOO SMALL TO BE MEANINGFUL			
Job Areas	8	5.809	15.507	NS
Education	4	9.751	9.488	.045
Highest Degree	8	8.355	15.507	NS
Major Field	10	14.160	18.307	NS
Year Degree Received	6	2.304	12.592	NS
School Location	4	3.795	9.488	NS
Income	12	11.723	21.026	NS

The impact of question rotation on attitude responses was more visible. Overall mean attitudes and responses to individual attitude questions were significantly affected. Analysis of the number of attitude questions answered above the mode showed no significant results, but the results were close to this level.

The null hypothesis cannot be rejected: responses to each type of question are not affected by its positioning within a series for a mail questionnaire. Only attitude responses appear to be influenced by rotation.

HYPOTHESIS IIB

For a mail questionnaire, the rotation of questions within any type of series (factual, attitudinal, or classification) has an effect on overall response behavior.

This hypothesis was tested by using analysis of variance on modal responses for each type of question rotation: fact (F1, F2, F3); attitude (A2, A3, A4, A5); and classification (C1, C2, C3). Overall form differences in response behavior were studied.

It was anticipated, from statements in the literature, that attitude question rotation would affect overall responses, while fact or classification question rotation would not. As detailed below, this did not happen.

Table 52, part D, shows that the rotation of fact questions had a significant impact on overall response behavior. F was 4.35, with a critical value (at .05) of 3.27. The level of significance was .024.

Table 55, part D, reveals that the rotation of attitude questions did not have an effect on overall response behavior, although the results were close to significant. F was 2.58, with a critical value (at .05) of 2.78.

The rotation of classification questions had no impact on overall questionnaire responses, Table 58, part D. But, a form-series effect did exist. F was 3.18, with a critical value (at .05) of 2.64. The level of significance was .031. The cause of this interaction will be discussed further in Hypothesis IIC.

This hypothesis is accepted: for a mail questionnaire, the rotation of questions within each type of series has an effect on overall response behavior. Rotation of fact and classification questions each had significant overall form or form-series effects on responses, while the rotation of attitude questions elicited an overall form effect close to the level of significance.

HYPOTHESIS IIC

For a mail questionnaire, changing the order of questions within any type of series affects the responses to questions within other series.

Analysis of this hypothesis was conducted in a manner similar to that for Hypothesis IIA. The results for each type of question rotation appear below and in Tables 52-60.

The effects of fact question rotation on attitude and classification responses are reported in Tables 52-54. Modal attitude and classification responses by series were not affected by this rotation, Table 52, parts B and C. The overall mean attitude responses and the number of attitude answers above the mode by respondent were not influenced by the rotation, Table 53, parts C and D. Responses to no individual attitude questions and only one classification question, Income ($p=.004$), were affected, Table 54, parts B and C. This was not meaningful ($p=.05$, $n=8$, $r=1$ and $P=1$ is $.337$).

The impact of attitude question rotation on fact and classification responses is shown in Tables 55-57. Modal fact and classification responses were unaffected by the rotation, Table 55, parts A and C. The mean number of correct fact answers and the total number of correct fact answers per respondent were not influenced by the rotation, Table 56, parts A and B. No responses to fact questions, and only one response to classification questions, Education ($p=.020$), were affected, Table 57, parts A and C. This was not meaningful ($p=.05$, $n=8$, $r=1$ and $P=1$ is $.337$).

The influence of classification question rotation on answers to fact and attitude questions is presented in Tables 58-60. Modal fact responses were not affected by the rotation. Modal attitude responses were: F was 5.14 with a critical value (at $.05$) of 3.89. The level of significance was $.024$. Both of these results are in Table 58, parts A and B. The latter statistic explains the overall form-series

effect reported in the last section. The rotation of classification questions influenced responses to attitude questions, which was reflected in an overall form-series effect.

The rotation of classification questions had no effect on the mean number of correct fact answers per respondent, the total number of correct fact answers per respondent, overall mean attitudes, and the total number of attitude questions answered above the mode by respondent. These results appear in Table 60. In addition, no individual fact responses, and only one individual attitude response (Honesty ($p=.030$), were affected by this rotation. The latter is not meaningful ($p=.05$, $n=7$, $r=1$ and $P=1$ is $.302$), Table 59, parts A and B.

The hypothesis must be rejected. The rotation of fact or attitude questions had no impact on responses to questions in non-rotated series. The rotation of classification questions revealed an effect on modal attitude responses.

The null hypothesis cannot be rejected: for a mail questionnaire, changing the order of questions within any type of series does not affect the responses to questions within other series.

HYPOTHESIS IID

Question order within specific series has an effect on questionnaire and item nonresponse for a mail survey.

Chi square tests were conducted on questionnaire response rates for Forms: F1-F2-F3; A2-A3-A4-A5; C1-C2-C3. The results of these tests appear in Table 61. No differences

Table 60

ANALYSES OF CLASSIFICATION QUESTION ROTATION IMPACT
UPON FACT AND ATTITUDE SERIES RESPONSES
(USING CLASSIFICATION FORMS 1, 2, 3)

A. ANOVA for the mean number of correct fact answers per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	1.390	2	0.70	0.27	3.04	NS
Within Effect	578.810	227	2.55			
Total Effect	580.200	229				

B. χ^2 for the total number of correct fact answers per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of correct fact answers per respondent	8	5.560	15.507	NS

C. ANOVA for the overall mean attitude response per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	0.086	2	0.04	0.10	3.04	NS
Within Effect	89.894	209	0.43			
Total Effect	89.980	211				

D. χ^2 for the number of attitude questions answered above the mode per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of attitude responses above the mode per respondent	10	5.750	18.307	NS

Table 61

CHI SQUARE ANALYSIS OF QUESTION ORDER ROTATION
IMPACT UPON QUESTIONNAIRE RESPONSE RATES

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
A. Rotation of Fact Questions (Forms: Fact 1, Fact 2, Fact 3)	2	9.198	5.991	.010
B. Rotation of Attitude Questions (Forms: Attitude 2, Attitude 3, Attitude 4, Attitude 5)	3	0.405	7.815	NS
C. Rotation of Classifi- cation Questions (Forms: Classification 1, Classification 2, Classification 3)	2	3.052	5.991	NS

in questionnaire response rates were found for the attitude or classification question rotations. However, rotation of fact questions resulted in a significant difference among questionnaire response rates, $p=.010$.

The number of item nonresponses was too small to conduct meaningful investigations and reach accurate conclusions. For this questionnaire and sample base, question nonresponse was minimal.

The first part of the hypothesis is tentatively accepted since the difference in questionnaire response rates was affected by question position for fact questions. However, further studies must be conducted, since the rotation of attitude and classification questions appeared to have no impact on questionnaire response rates. This is at sharp variance with the literature. The second part of the hypothesis needs further testing before any statements can be made.

HYPOTHESIS IIE

The arrangement of general and specific questions affects responses to a mail questionnaire. If specific questions are placed before general questions, responses to both will be affected.

This hypothesis was tested by comparing attitude responses among Forms A2, A4, and A5. In each of these forms, a general question (overall rating of business) and specific questions (beneficiality of practices, honesty, and so forth) were rotated. Figure II contains a fuller description of these forms.

Table 62, parts B and D, shows that the rotation of general and specific questions had no effect on the modal responses to the attitude series or to the overall form. Table 63, part C, reveals an order impact upon overall mean attitudes per respondent. F was 14.84 with a critical value (at .05) of 3.04. The level of significance was less than .01. Analysis of attitude answers above the mode by respondent showed no significant effect. However, the results were very close to significance, Table 63, part D.

Table 64 contains chi square analysis by individual question. Three questions, Overall Rating ($p=.015$), Honesty ($p=.025$), and Responsiveness ($p=.007$), were influenced by the rotation of general and specific questions.

Honesty and Responsiveness were the specific attitude questions influenced by the arrangement, from the group of six specific questions. A look at the binomial distribution ($p=.05$, $n=6$, $r=2$) shows that $P(=2)$ is .033. This was greater than a chance occurrence; therefore answers to specific attitude questions were significantly affected by placement either before or after the general attitude question.

Hypothesis IIE is accepted: the arrangement of general and specific questions affects responses to a mail questionnaire. If specific questions are placed before general ones, the responses to both will change. Overall mean attitudes were affected by the rotation of general and

Table 62

ANALYSIS OF VARIANCE OF GENERAL AND SPECIFIC ATTITUDE QUESTION
 ROTATION IMPACT UPON OVERALL FORM AND SERIES
 MODAL RESPONSES
 (USING FORMS: ATTITUDE 2, ATTITUDE 4, ATTITUDE 5)

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
A. <u>Fact Series</u>						
Form Effect	31.218	2	15.61	1.83	3.89	NS
Interaction Effect	102.542	12	8.55			
B. <u>Attitude Series</u>						
Form Effect	61.370	2	30.69	1.38	3.89	NS
Interaction Effect	266.680	12	22.22			
C. <u>Classification Series</u>						
Form Effect	13.710	2	6.86	0.80	3.89	NS
Interaction Effect	103.080	12	8.59			
D. <u>Overall Form</u>						
Form Effect	37.615	2	18.81	1.72	3.27	NS
Form-Series Effect	68.682	4	17.17	1.57	2.64	NS
Interaction Effect	393.758	36	10.94			

Table 63

ANALYSES OF GENERAL AND SPECIFIC ATTITUDE ROTATION IMPACT UPON
FACT AND ATTITUDE SERIES RESPONSES
(USING FORMS: ATTITUDE 2, ATTITUDE 4, ATTITUDE 5)

A. ANOVA for the mean number of correct fact answers per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	3.247	2	1.62	0.63	3.04	NS
Within Effect	500.713	193	2.59			
Total Effect	503.960	195				

B. χ^2 for the total number of correct fact answers per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of correct fact answers per respondent	8	7.522	15.507	NS

C. ANOVA for the overall mean attitude response per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	4.660	2	2.33	14.84	3.04	.01
Within Effect	28.362	181	0.16			
Total Effect	33.022	183				

D. χ^2 for the number of attitude questions answered above the mode per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of attitude responses above the mode per respondent	10	17.977	18.307	NS

Table 64

CHI SQUARE ANALYSIS OF GENERAL AND SPECIFIC ATTITUDE
QUESTION ROTATION IMPACT UPON RESPONSES
TO INDIVIDUAL ATTITUDE QUESTIONS
(USING FORMS: ATTITUDE 2, ATTITUDE 4, ATTITUDE 5)

<u>Attitude Questions</u>	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Overall Rating	6	15.823	12.592	.015
Number Most Beneficial	8	11.143	15.507	NS
Number Least Beneficial	8	9.012	15.507	NS
Type Most Beneficial	12	13.204	21.026	NS
Type Least Beneficial	14	12.906	23.685	NS
Honesty	8	17.539	15.507	.025
Responsiveness	8	21.050	15.507	.01
Effect on Environment	8	14.094	15.507	NS
Government Action	6	1.981	12.592	NS

specific questions. In addition, responses to the general question and a significant number of specific questions were influenced by order. The number of attitude questions answered above the mode per respondent was close to statistical difference among the forms.

Responses to both the general question and specific questions were affected by their placement in relation to the other.

HYPOTHESIS IIF

In a mail questionnaire, responses to questions involving product or idea advantages are affected by their order of presentation. The rate and intensity of responses are affected by whether advantages (likes) or disadvantages (dislikes) are asked first.

Responses to attitude question one, see Figure II, were gathered for forms A2 and A3. Parts a and b of the question, Most Beneficial and Least Beneficial Business Practices, were rotated. These responses were analyzed and the results of the tests are in Tables 61-68.

Chi square analysis of differences among responses to these two questions for forms A2 and A3, Table 65, demonstrated no rotation effects. No significant differences were found in the number of practices named as most beneficial or least beneficial. No significant differences were found among the types of practices named as most beneficial or least beneficial. In addition, none of the other attitude questions were affected by this sequencing change.

Table 65

CHI SQUARE ANALYSIS OF LIKE AND DISLIKE ATTITUDE
QUESTION ROTATION IMPACT UPON RESPONSES TO
INDIVIDUAL ATTITUDE QUESTIONS
(USING FORMS: ATTITUDE 2, ATTITUDE 3)

<u>Attitude Questions</u>	<u>DF</u>	<u>χ^2</u>	<u>Critical Level</u>	<u>Level of Significance</u>
Overall Rating	3	4.650	7.815	NS
Number Most Beneficial	4	7.046	9.488	NS
Number Least Beneficial	4	5.548	9.488	NS
Type Most Beneficial	6	5.520	12.592	NS
Type Least Beneficial	7	4.292	14.067	NS
Honesty	4	6.163	9.488	NS
Responsiveness	4	5.492	9.488	NS
Effect on Environment	4	6.892	9.488	NS
Government Action	3	0.393	7.815	NS

These results cause the hypothesis to be rejected. The null hypothesis cannot be rejected: in a mail questionnaire, responses to questions involving likes and dislikes are not affected, either in rate (number mentioned) or intensity (types mentioned), by the order of presentation of these questions.

Other interesting findings, not related to the acceptance or rejection of the hypothesis, were uncovered in the examination of this rotation. These findings follow.

Analysis of variance on these forms yielded F values which were the equivalent of t^2 values. One-tailed critical values were used in the evaluation of attitude questions, since the hypothesis would be that A2 obtained higher attitude responses than form A3. Two-tailed critical values were used in the evaluation of overall response behavior, since direction was not predicted.

The rotation of questions on likes and dislikes had no effect on modal attitude responses, one-tailed test. An overall form effect was uncovered, two-tailed test, for modal responses. $F (t^2)$ was 5.31 with a critical value (at .05) of 4.43. The level of significance was .036. These results are all in Table 66, part D.

In addition, attitude responses as well as overall responses were affected by this rotation when the percent of attitude answers above the modal category were computed for each question, instead of the percent in the modal category.

Table 66

ANALYSIS OF VARIANCE OF LIKE AND DISLIKE
ATTITUDE QUESTION ROTATION IMPACT UPON
OVERALL FORM AND SERIES MODAL RESPONSES
(USING FORMS: ATTITUDE 2, ATTITUDE 3)

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
A. <u>Fact Series</u> (Two-tailed t Test)						
Form Effect	34.887	1	34.89	5.62	5.99	NS
Interaction Effect	37.258	6	6.21			
B. <u>Attitude Series</u> (One-tailed t Test)						
Form Effect	26.610	1	26.61	1.98	3.78	NS
Interaction Effect	80.535	6	13.42			
C. <u>Classification Series</u> (Two-tailed t Test)						
Form Effect	10.290	1	10.29	0.59	5.99	NS
Interaction Effect	104.030	6	17.34			
D. <u>Overall Form</u> (Two-tailed t Test)						
Form Effect	65.376	1	65.38	5.31	4.43	.036
Form-Series Effect	6.402	2	3.20	0.26	3.57	NS
Interaction Effect	221.832	18	12.32			

This data is in Table 67. For the attitude series, F (one-tailed t^2) was 8.95 with a critical value of 3.78. The level of significance was .024. For the overall responses, F (two-tailed t^2) was 10.18 with a critical value (at .05) of 4.43. This level of significance was less than .01.

Table 68, part A, shows that the rotation of like and dislike questions had an impact on the overall mean attitude of respondents. F (one-tailed t^2) was 9.241 with a critical (at .05) of 2.75. The level of significance was less than .01. Chi square analysis of the number of attitude answers above the mode by respondent, Table 68, part C, showed no significant differences in response behavior.

Although the hypothesis was rejected, the rotation of like and dislike questions did have an impact upon response behavior. Overall mean attitudes were particularly influenced by this rotation, despite the responses to the like and dislike questions being unaffected.

HYPOTHESIS IIG

The arrangement of personal or difficult questions in a mail questionnaire affects the responses to these questions.

The first part of this hypothesis, the arrangement of personal questions, was tested by rotating classification questions for forms C1, C2, and C3. The question on gross annual income was the one determined most personal from the pre-test

Table 67

ANALYSIS OF VARIANCE OF LIKE AND DISLIKE ATTITUDE QUESTION
 ROTATION IMPACT UPON OVERALL FORM AND ATTITUDE
 RESPONSES BY PERCENT ANSWERING ATTITUDE
 QUESTIONS ABOVE THE MODE
 (USING FORMS: ATTITUDE 2, ATTITUDE 3)

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
A. <u>Attitude Series</u> (One-tailed t Test)						
Form Effect	85.511	1	85.51	8.95	3.78	.024
Interaction Effect	57.319	6	9.55			
B. <u>Overall Form</u> (Two-tailed t Test)						
Form Effect	112.373	1	112.37	10.18	4.43	.01
Form-Series Effect	18.311	2	9.16	0.83	3.57	NS
Interaction Effect	198.611	18	11.03			

Table 68

ANALYSES OF LIKE AND DISLIKE ATTITUDE QUESTION ROTATION
IMPACT UPON FACT AND ATTITUDE SERIES RESPONSES
(USING FORMS: ATTITUDE 2, ATTITUDE 3)

A. ANOVA for the mean number of correct fact answers per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	3.498	1	3.50	1.45	3.92	NS
Within Effect	310.542	129	2.41			
Total Effect	314.040					

B. χ^2 for the total number of correct fact answers per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of correct fact answers per respondent	4	4.030	9.488	NS

C. ANOVA for the overall mean attitude response per respondent by form

<u>Source of Variation</u>	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F</u>	<u>Crit. Value</u>	<u>Level of Sig.</u>
Form Effect	4.297	1	4.30	9.24	2.75	.01
Within Effect	56.211	121	0.47			
Total Effect	60.508	122				

D. χ^2 for the number of attitude questions answered above the mode per respondent by form

	<u>DF</u>	<u>χ^2</u>	<u>Critical Value</u>	<u>Level of Significance</u>
Number of attitude responses above the mode per respondent	5	5.520	11.070	NS

of this study. That question was placed in the first, third, and fifth positions in the classification series. Table 59, part C, shows that responses to this question were not affected by its placement in the series.

The second part of this hypothesis, the arrangement of difficult questions, was tested by rotating fact questions for forms F1, F2, and F3. The question determined most difficult was that dealing with business firms and business systems. This question received the most incorrect answers, measured by distance, of any fact question in this study. The question was placed in the second and fifth positions in the fact series. Table 54, part A, shows that responses to this question were not affected by its placement in the series.

The hypothesis is rejected. The null hypothesis cannot be rejected: the arrangement of personal or difficult questions in a mail questionnaire does not affect responses to these questions.

SUMMARY OF ANALYSIS

Several types of statistical analyses were employed in testing the question order hypotheses. These tests, described in Chapter VII, revealed the following results.

Hypothesis IIA was rejected. Responses to each type of question were not affected by its placement within a series. Responses to classification questions were not influenced at all by this rotation. Modal fact responses

were affected by fact question rotation. Overall mean attitudes and responses to individual attitude questions were affected by the arrangement of attitude questions.

Hypothesis IIB was accepted. The rotation of questions within any type of series did affect overall response behavior. The rotation of fact or classification questions had significant overall effects, while the rotation of attitude questions received differences in behavior close to the level of significance.

Hypothesis IIC was rejected. Changing the order of questions within any type of series did not affect responses to questions in other series. The rotation of fact or attitude questions had no effect on responses to questions in non-rotated series. The rotation of classification questions did have an impact on attitude responses, but not fact responses.

Hypothesis IID was partially accepted. Questionnaire nonresponse was affected by question rotation. However, only fact forms showed differences in response rates. Attitude and classification forms did not. Item nonresponse could not be measured since this problem was virtually non-existent in the current study.

Hypothesis IIE was accepted. The arrangement of general and specific questions did influence responses. Overall mean attitudes were affected by the rotation, as were responses to the general question and a significant number

of specific questions. The number of attitude questions answered above the mode by respondent received differences in responses which were close to significance.

Hypothesis IIF was rejected. The rate (number) and intensity (type) of responses to questions involving likes and dislikes were not affected by their order of presentation. The number and types of practices named as most and least beneficial by the respondents were not affected by their rotation. There was some evidence that overall mean attitudes, modal attitude responses, and overall modal responses were affected by this switch of questions, as well as the percent of attitude answers above the mode.

Hypothesis IIG was rejected. Responses to a personal question (income) were not influenced by the placement of this question within its series. Responses to a difficult question (statement on business firms and systems) were not affected by its placement in the series.

DISCUSSION OF CURRENT FINDINGS

The rejection of Hypothesis IIA was not unexpected. Only modal responses to fact questions were influenced by fact question rotation. Responses to attitude questions were affected by rotation, and this is consistent with previous findings. The influence of question order on classification responses was not measured previously, and the absence of such an influence in the present research was surprising.

Personal questions are sensitive and should elicit varying responses. However, the respondents in this study were willing to accurately answer these personal questions, since they were shown in a favorable light. The choice of another sample might reveal order effects for classification questions.

The acceptance of Hypothesis IIB was not expected. The rotation of attitude questions had an effect on overall behavior that was close to significant, while fact and classification rotations obtained significant overall effects. It was expected that only the attitude rotation would influence overall behavior.

Hypothesis IIC was rejected and this was consistent with the other findings in this study. Since questions in rotated series were only somewhat affected by rearrangement, questions in non-rotated series could not be expected to be affected. The only effect of this kind discovered was for attitude responses when classification questions were rotated.

Hypothesis IID was accepted, but not in the foreseen manner. Questionnaire response rates differed when fact questions were rotated, but not when attitude or classification questions were switched. The latter finding was anticipated, since these respondents were willing to answer demographic questions. The similarity of questionnaire response rates among forms with attitude question rotations was surprising. Placement of the attitude series seemed to have more influence on questionnaire response rates than the arrangement of specific attitude questions within the series.

Hypothesis IIE was validated and this was expected. This question rotation affected responses to overall attitudes, general attitudes, and specific attitudes. For this study, responses to the general question were dependent on the placement of specific questions; and the answers to specific questions were dependent on the placement of the general question. Respondents used the information gained in answering the first question(s) for their answers to later question(s). A primacy effect was in existence.

The rejection of Hypothesis IIF partially conflicts with the earlier cited findings of Gross (1964). Questions on most beneficial and least beneficial business practices were switched in the study. There were no changes in either the rates (number of practices named) or intensities (types of practices named) of response for these questions; and no other attitude questions were influenced. The result is consistent with other findings in this study: question-to-question order effects have been overstated in the literature, while tests showing aggregate order effects have not been discussed in the literature. These effects did exist for modal article response and overall modal responses.

Hypothesis IIG was refuted and this is consistent with other discoveries in the current study. Responses to personal and difficult questions were not influenced by the rotation of these questions. Since fact and classification questions were

relatively easy or non-threatening for this sample, the rotation of such questions had no impact on answers. Selection of a different sample might yield other statistics.

The findings cited above will be discussed in terms of the existing literature in the next chapter. Recommendations for questionnaire design of mail surveys and future research in this area also appear in the final chapter.

CHAPTER IX

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The "art of asking questions" has concerned man since the time of Aristotle. A questionnaire is the main tool used in the asking of questions; and various works have been written describing techniques for improving this tool. Some of the techniques have no foundation in fact, but in philosophy or common sense. Empirical studies have been conducted, but on a limited and simplistic basis.

One aspect of questionnaire design, order of presentation in a mail survey, was considered for this study. Literature in this area is more meager than in other parts of questionnaire design. As detailed in Chapter II, several books (Blankenship, 1943; Parten, 1950; Payne, 1951; and so forth) offer general rules for sequencing in a mail questionnaire. These rules pertain to series order (placement of groups of questions) and question order (arrangement of specific questions). Many of the rules were generated a quarter of a century ago and were not tested until this study. Only two empirical studies (Bradburn and Mason, 1964;

Ferber, 1966) dealing with series order effects in a mail survey were discovered; and both of these studies were limited in scope, testing a narrow range of hypotheses.

From the literature review on this topic, it was evident that "the art of asking questions" was still present and had not given way to "the science of asking questions." A determination was made that an integrated, interdisciplinary study on series and question order effects in a mail questionnaire would be a valuable piece of work for theorists and practitioners alike. The study would include: a broad base of hypotheses tested against one data bank; examination of generally accepted decision rules; investigation of the modern respondent's sensitivity to series and question rotation; eleven split-forms (substantially more than any other study uncovered) to measure sequencing effects; use of the best available computer programs; and recommendations for the improvement of future mail surveys.

In order to secure a large sample, with readily available demographic data, the publication Who's Who in the East, 1974-1975 was used as a population base. A random sample of 3080, 280 per split form, was selected from this population. The sample was well-educated and contained many high-salaried professionals.

A mail questionnaire was devised that would interest this sample and satisfy the constraints of this study.

Knowledge and attitudes about United States business practices were the topics included in the questionnaire. The form was divided into factual, attitudinal, and classification series. Within each series there were several questions.

Series order and question order hypotheses were developed, and they were tested through the rotations among the eleven forms. Upon completion of the mailing process, the data was coded and keypunched. A variety of statistical tests, explained in previous chapters, were then conducted at the .05 level of significance.

Examination of series order hypotheses revealed the following results. Hypothesis IC was accepted. Questionnaire response rates differed significantly when series order was rotated. Hypothesis IE was accepted. For demographic categories, when the category was affected by series rotation, each group within the category was affected. Only modal fact answers by income group satisfied the constraints of this hypothesis. Hypothesis IF was accepted. Switching of the second and third series in the questionnaire resulted in substantial differences for answers in the opening attitude series.

No other series order hypotheses were validated. Hypotheses IA and IB were rejected. Response behavior to questions in all types of series was not affected by series rotation. Variation in attitude responses caused by series

rotation was not greater than the variation in fact or classification answers.

Hypothesis ID was also rejected. Series order did not influence responses to all types within all classification categories: age, job title, highest degree earned, and income.

Part of Hypothesis IC could not be measured. Question nonresponse was too small in this study to be tabulated and analyzed for differences caused by series rotation.

Examination of question order hypotheses revealed the following results. Hypothesis IIB was accepted. The rotation of questions within any of the three series affected overall responses. Hypothesis IID was partially accepted. Questionnaire response rates differed among the rotated fact questionnaires, but not among attitude or classification forms. Hypothesis IIE was accepted. The rotation of general and specific questions affected overall mean attitudes and responses to the general and specific attitude questions, although overall form effects did not exist for modal responses.

No other question order hypotheses were validated. Hypotheses IIA and IIC were each rejected. Responses to all types of questions were not influenced by their order in a series; and altering the order of presentation for questions within one series did not have an effect on responses in other series.

Hypothesis IIF was rejected. The order of presentation did not have an impact on the rate and intensity of responses to questions involving likes and dislikes. Hypothesis IIG was also rejected. Responses to personal and difficult questions were not influenced by their placement in a series.

Of the thirteen hypotheses tested, seven were rejected. Only three of the remaining six hypotheses were completely accepted--those dealing with: rotation of the second and third series in a form; question rotation effects on overall responses; and the rotation of general and specific questions. The remaining three hypotheses, dealing with questionnaire response rates and order effects within each group of a demographic category, were accepted on less satisfactory terms.

CONCLUSIONS

This section will be divided into two parts. First, the findings compiled in this study, and summarized in the last section, will be discussed as they relate to the literature on the topic. Second, the conclusions arising out of the hypotheses testing conducted for this work will be detailed.

Current Findings and the Existing Literature

Chapter II contained the literature detailing various general recommendations and specific studies on the effects of order in questionnaires. In this study, data was generated and examined to test many of these and other propositions for the mail survey.

Figure I (Chapter II) included a number of general rules for series and question sequence decisions (American Marketing Association, 1937; Blankenship, 1943; Boyd and Westfall, 1972; Gallup, 1947; Hobart, 1950; Oppenheim, 1966; Parten, 1950; Payne, 1951). Several of these rules were evaluated in the present study. Opening questions were varied in the study. Questionnaire response rates differed and answers to general questions were affected when series and questions were rotated. Responses to specific questions were also affected by placement in the opening position. Rules 7-11 stated that opening questions must: create rapport, be general and non-directive; and be easy. These rules were only partially validated.

Rules 13, 14 and 18 were validated: serial questions can be employed; fold-over questions are useful; cues given early in the questionnaire influence later responses. Rules 19 and 20 were not upheld. The placement of personal or difficult questions within a series had no impact on responses.

The general guidelines described in Chapter II appear to be somewhat overrated, according to the results of this

study. Too much weight has been given to these guidelines. The rotation of series order only affected questionnaire response rates. Question responses were not significantly altered by series rotation. When specific questions were rearranged, the effects were significant for attitude and fact questions, but not for classification questions. There was some influence on questionnaire response rates and question answers, but the differences were small compared to the forecasts made in the general literature.

The primacy-recency controversy was described in Chapter II (Lund, 1925; Hovland and Mandell, 1952; Miller and Campbell, 1959; Lana, 1961, 1963a, 1964a; Insko, 1964; Luchins and Luchins, 1970; and so forth). In the current study, the impact of recency-primacy was small. Except for the differences noted above, response behavior was virtually unaffected by the first or last placement of series and questions. This could be attributed to either of two reasons: the order of questions had little influence on response behavior, or respondents were affected by order and skipped around in their answering, thus negating the order effects.

The former conclusion is proven in almost all the statistical tests, since responses were not affected by order. However, the latter conclusion may be a possible explanation for the surprising acceptance of Hypothesis IF. In the testing of this hypothesis, the second (fact questions) and third (classification questions) series were rotated, while the first (attitude questions) series remained

constant. Yet the responses to attitude questions were the ones affected by the rotation. Since the attitude series appeared first in the questionnaire, skipping behavior is a possible logical explanation for differences in responses. This hypothesis should be tested again.

Studies dealing with series sequencing were enumerated in Chapter II. The findings of Cohen (1965) and Klosner and Gellman (1973), using personal surveys, were validated for a mail questionnaire. Series order had little influence on response behavior. The results of the mail study conducted by Bradburn and Mason (1964) were reaffirmed. Bradburn and Mason discovered no series order effects. Item nonresponse was not a factor in this study, and the conclusions of Ferber (1966) could not be tested. Further work in the area of item nonresponse should be undertaken.

Research into question order effects was detailed in Chapter II, and several of the results were examined in the current study. Payne (1949) stated that questions had to be short and simple to maintain independence. For this study rotation of questions with varying length and complexity had little impact on behavior. Drayton (1954) found that switching general and specific questions affected answers to the general question. This was duplicated in the present study.

Gross (1964) rotated questions on product advantages and disadvantages, and concluded that the rotation affected

responses. In this study, questions on most beneficial and least beneficial business practices were switched. The rate and intensity of responses to these and other individual attitude questions was not affected by the rotation of these questions. This conflicts with the question by question analysis of Gross. However, there was some evidence that overall mean attitudes, modal attitude responses, and overall modal responses were affected by this rotation.

O'Dell (1962) found no evidence of respondents skipping questions or changing answers to previous questions. As mentioned before, skipping behavior is a possible explanation for the results obtained in testing Hypothesis IF (second and third series switched).

Brenner and Berger (1968) discovered no question order effects for school examinations. Data for the current study also shows that the number of correct responses to factual questions, by respondent, are not influenced by question order. Cohen (1965) and Flaughner, Melton, and Myers (1968) stated that question order effects do exist for certain types of questions. These experiments were validated; because the rotation of fact and attitude questions did cause some changes in response behavior during the present research.

Huck and Bowers (1972) examined order effects in a test situation, and they discovered no changes in behavior when rotation occurred. Bean and McCroskery (1973) discovered

no differences in response behavior when the middle items were switched in a serial learning program. Both of these findings were substantiated in this study for the number of correct fact answers per respondent.

Analysis of the hypotheses in this mail questionnaire study has been useful. Several general rules have been substantiated or proven lacking. This is the first time many of these rules have been tested for a mail survey.

Various prior studies have been upheld as well as disputed. Almost all of the previous studies on sequence effects dealt with the personal interview and used question by question analysis. With some exceptions, the results of the current research are consistent with those obtained using personal interviews and with the few experiments employing a mail questionnaire. However, the impact of series and question rotation has been overstated.

Question order effects are present when expressive or attitudinal questions are involved. Question order effects are less when fact questions are involved, and do not exist for classification questions. Response rates are also affected by order. Additional work is still needed in some areas.

A contribution has been made for sequencing decisions in a mail survey. Hypothesis testing has been conducted on a broad base against a single data file using

question by question, series, and overall form analyses. For this research and this sample, order effects have been overrated in the literature.

Conclusions Based Upon the Results of his Study

Several conclusions are available from this study:

1. The major effect of series rotation is upon questionnaire response rates. Among Forms F1-A1-C1, Form F1 provided the greatest response rate. This format (fact, attitude, classification series) was straightforward and had an easy first question, definition of laissez faire.

Form C1 received the next greatest questionnaire response rate. This format (classification, fact, attitude series) seemed attractive to the well-educated, high-income sample which was willing to answer the introductory classification questions.

Form A1 received the lowest questionnaire response rate. This format (attitude, classification, fact series) presented the most difficult introduction, because respondents were immediately asked to evaluate the overall performance of U.S. business.

2. Series order rotation (Forms A1, A2) did present some signs of respondents skipping questions and returning to answer them. In both forms, the attitude series appeared first and only the fact and classification series were rotated in the second and third positions. Yet responses to

attitude questions were affected while fact and classification responses were not. Since the answers in the lead-off series were influenced, skipping behavior seems to be one possible conclusion.

If skipping did occur, this might explain the lack of evidence for series order effects (i.e., the rejection of Hypotheses IA, IB, ID); or, perhaps Mischel (1972) is correct and attitudes cannot be accurately measured. Further testing of this type should be conducted.

3. Except for the findings noted above, series order effects were not exhibited. In all cases, including the comparison of Forms A1-A2, no differences in response behavior were found for fact and attitude questions. And, among Forms F1-A1-C1 no evidence of response differences for attitude questions was found.

Whether the lack of response differences across the various forms (F1, A1, C1) was due to skipping effects or to a real lack of sequence impact, the general conclusion is the same. Series order was important only for return rates in a mail questionnaire, since question responses were the same regardless of the explanation.

Use of the Form F1 yielded the highest response rate and no changes in answer behavior. Form C1 yielded a lower response rate than F1. Forms A1, A2 yielded a lower response rate and changes in response behavior.

4. The rotation of specific questions led to greater differences in response behavior. Attitude and fact (somewhat) responses were affected by various rotations, while classification questions were not affected.

Overall responses were affected by individual question rotation. Fact and classification question rotation had significant effects on overall behavior, while attitude question rotation evoked differences in overall behavior which were close to significant.

5. Questionnaire response rates were affected by question rotation, but not as much as expected. The arrangement of attitude questions had no influence on response rates. It appears that the type of question (series order) appearing first in the questionnaire affects response rates, while the specific attitude question appearing first does not influence questionnaire return rates.

6. Answers to a general attitude question and overall mean attitudes were influenced by their placement in the series. Specific attitude questions also appeared to be affected. Early placement of a general question does not provide the respondents with much information about the specific questions, and therefore has little influence on answers to later individual questions. Early placement of specific questions does influence the responses to a general question by providing the respondent with information about the latter.

The placement of personal and difficult questions was unimportant in this study. Respondents were not threatened by the difficult or personal questions. Substantial knowledge and high standing in the demographic categories precluded position effects for these questions.

Responses to questions on most and least beneficial business practices were not affected when these questions were switched, although overall attitudes were influenced. These two questions were independent for this sample. High levels of education and knowledge about business practices may have reduced the impact of question order.

7. The results generated in this study are applicable to surveys that utilize a similar type of sample, well-educated and high income. For this sample, the number of correct fact responses per respondent and all classification responses are virtually unaffected by order. The arrangement of attitude questions has some influence on responses to these questions.

For this type of sample and survey, effort should be expended sequencing attitude questions; less care and time should be exhibited in the arrangement of fact and classification questions. The benefits of care would be exceeded by costs.

8. Three limitations of the study are noted. One, not all possible rotations were conducted. Future testing of rotation might explain the findings discussed in 2.

Two, item or question nonresponse rate effects could not be measured. Hypotheses IC and IID were only partially evaluated because item nonresponse was minimal in this research. Three, the results of this study are not necessarily applicable to a sample with different characteristics. A less-educated, lower-salaried sample might be more sensitive to order.

RECOMMENDATIONS

The following recommendations are derived from the results of this study. These recommendations apply to future survey design and research:

1. For a well-educated and high income sample, mail questionnaires should contain a series order of fact, attitude, and classification questions. This provides the largest questionnaire rate of return, and question answers are least biased by the sequence. The questionnaire should deal with a topic of interest and knowledge for the selected sample.

2. Once the procedure described above is enacted, the arrangement of fact and classification questions within their respective series should be conducted in the simplest, most inexpensive, manner, since these arrangements have little impact on responses. Only one recommendation is made for these types of questions: the introductory fact

question should be easy to build self-confidence in the respondent, which is reflected in an increased rate of return.

The sequencing of attitude questions must be undertaken more carefully. General questions should be placed before specific questions to minimize the interdependence of answers, and the amount of information provided to respondents.

3. For this study, recommendations 1 and 2 were most fully satisfied by Form 1. This form is pointed out as a guide for sequence decisions in the construction of future surveys.

No other decision rules which were tested yield improved questionnaire design, and therefore they are not recommended. Order effects are not as great as indicated throughout the general literature.

4. Further testing of the hypotheses enumerated in this study should be conducted with a different sample and questions on a dissimilar topic. Additional recommendations might be generated. If they are, then questionnaire design is dependent on the individual sample and survey and no general rules can or should be offered. If the results of further testing are same as those discovered in this study, then series and question order rules should only consist of 1 and 2 above, and not a long list of caveats.

In either case, recommendations based on empirical testing of sequence effects in a mail survey have been offered. Questionnaire design, while still an art, has moved closer to incorporating elements of reality, and not just logic, into its construction.

APPENDICES

APPENDIX A

Questionnaire and Related Documents

Cover Letter

Questionnaire Form

Results of the Study Letter

BARUCH COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK

17 Lexington Avenue
New York, N. Y. 10010

May 1974

Dear Fellow Citizen:

You have been randomly selected from among a variety of leading Americans to assist us in a valuable piece of academic research. We are conducting a survey on general business knowledge and attitudes in order to obtain greater insights into these areas.

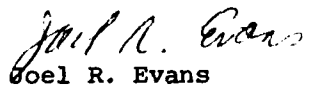
It would be a great help if you would take a few minutes to complete the questionnaire that is enclosed. As you can see, the questionnaire is short and to the point so that your time will not be wasted.

The completed questionnaire will be kept confidential and anonymous. It will be used for academic purposes only. If you would like a copy of the final summary results, simply request them under separate cover, to maintain anonymity, and they will be sent to you.

Your cooperation is very much appreciated and will enable us to perform valuable academic research.

Thank you for your help.

Very truly yours,



Joel R. Evans
Marketing Department
Box 293
Tel. 725-3298

P.S. Enclosed is a stamped return envelope for your convenience. Once again, thank you for your assistance.

Questionnaire Form

On the following three pages, a copy of one of the eleven split-forms (F1) used in this study is presented. The rotations indicated below transform this form into any of the eleven used in this study:

- F1 See the next page
- F2 Same series order as F1, place Fact question 4 in the first position of the series
- F3 Same series order as F1, place Fact question 4 in the first position of the series and place c first

- A1 Attitude, Classification, Fact series, Order of questions within series same as F1
- A2 Attitude, Fact, Classification series, Order of questions within series same as F1
- A3 Same series order as A2, switch Attitude questions IB and IC
- A4 Same series order as A2, place Attitude question IC in the first position
- A5 Same series order as A2, place Attitude question 1 last

- C1 Classification, Fact, Attitude series, Order of questions within series same as F1
- C2 Same series order as C1, place Classification question 5 in the third position
- C3 Same series order as C1, place Classification question 5 in the first position

FACT QUESTIONS

1. In the past, many firms have operated under "laissez faire" conditions. What does laissez faire mean? Please check one answer.

Government intervention
 Freedom from government intervention
 Fair trade
 High tariffs on imports
 Limits on corporate campaign spending

2. Which of the following statements about business firms and business systems is true? Please check one answer.

Consumer freedom reduces productivity.
 Firms encounter the same problems in all economic systems.
 The only objective of most large American companies is to maximize short-run profitability.
 A system cannot function under government regulation.
 The business process and its component activities become more complex as consumers enjoy greater freedom of action.

3. Fortune magazine annually publishes a listing of the largest 500 U.S. industrial companies by sales. Below are five companies from the 1974 listing. Please rank these companies from 1 to 5. Let 1 = the largest company and 5 = the smallest company. Please answer in the space provided.

Exxon
 Goodyear
 General Motors
 International Business Machines (IBM)
 United States Steel

- 4a. The Sherman Antitrust Act was the first major legislative restriction placed on business practices in the U.S. During what time period was the Act passed into law? Please check one answer.

1760s
 1800s
 1840s
 1880s
 1920s
 1960s

- 4b. With regard to mergers, the Federal Trade Commission is concerned with which of the following? Please check one answer.

Only with mergers between manufacturers producing the same products.
 Only with mergers between retailers selling the same products.
 Only with mergers between American and foreign companies.
 With all types of mergers.

- 4c. Led by consumer activists such as Ralph Nader, the consumerism movement has employed "class action" suits. What is a class action suit? Please answer in the space provided.
-

5. What is the usual automobile industry practice of annually introducing new improvements and styles called by its critics? Please check one answer.

Planned obsolescence
 Product planning
 Diversification
 Product segmentation
 Competition

ATTITUDE QUESTIONS

1a. How would you rate the overall performance of American business?
Please check one answer.

<u>Very</u> Poor	<u>Poor</u>	<u>Below</u> Average	<u>Average</u>	<u>Above</u> Average	<u>Good</u>	<u>Very</u> Good
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1b. What American business practices are most beneficial to life in the United States? Please answer in the space provided.

1c. What American business practices are least beneficial to life in the United States? Please answer in the space provided.

2. How would you rate the honesty of American business? Please check one answer.

<u>Very</u> Poor	<u>Poor</u>	<u>Below</u> Average	<u>Average</u>	<u>Above</u> Average	<u>Good</u>	<u>Very</u> Good
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3. How would you rate the responsiveness of American business to consumer demands, desires and complaints? Please check one answer.

<u>Very</u> Poor	<u>Poor</u>	<u>Below</u> Average	<u>Average</u>	<u>Above</u> Average	<u>Good</u>	<u>Very</u> Good
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4. How would you rate the effect of American business on the environment? Please check one answer.

<u>Very</u> Negative	<u>Negative</u>	<u>Slightly</u> Negative	<u>No Effect</u>	<u>Slightly</u> Positive	<u>Positive</u>	<u>Very</u> Positive
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5. What level of government intervention into American business affairs do you think is necessary? Please check one answer.

<u>None</u>	<u>Very</u> Passive	<u>Passive</u>	<u>Neutral</u>	<u>Active</u>	<u>Very</u> Active	<u>Total</u>
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CLASSIFICATION QUESTIONS

1. What is your age? Please check one answer.

- 20 and under
 21-30
 31-40
 41-50
 51-60
 61 and over

2. What is your sex? Please check one answer.

- Male
 Female

3. What is your current job title or profession? Please answer in the space provided.

4a. What is the last level of education that you have completed? Please check one answer.

- Less than High School
 High School
 College (1-3 years)
 College (4 years degree)
 Post-Graduate (1 course or more completed)

IF COLLEGE (4 YEARS) OR POST-GRADUATE WAS CHECKED ABOVE, PLEASE COMPLETE PART b. IF NOT, PLEASE DO NOT GIVE ANY FURTHER RESPONSE TO THIS QUESTION.

4b. What college degree(s) (undergraduate and graduate) have you earned? For each degree, please specify the following in the space provided: college or university name, major field of study, and date received.

5. What is your total annual gross family income (before taxes and deductions)? Please check one answer.

- | | |
|--|--|
| <input type="checkbox"/> Under \$10,000 | <input type="checkbox"/> \$50,000-\$59,999 |
| <input type="checkbox"/> \$10,000-\$19,999 | <input type="checkbox"/> \$60,000-\$69,999 |
| <input type="checkbox"/> \$20,000-\$29,999 | <input type="checkbox"/> \$70,000-\$79,999 |
| <input type="checkbox"/> \$30,000-\$39,999 | <input type="checkbox"/> \$80,000-\$89,999 |
| <input type="checkbox"/> \$40,000-\$49,999 | <input type="checkbox"/> \$90,000 and over |

BARUCH COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK

17 Lexington Avenue
New York, N. Y. 10010

Marketing Department

September 1974

Dear Participant:

Thank you for your help in our recent study on business knowledge and attitudes. Below are some of the more significant findings.

Fact Questions - 93% correctly defined laissez faire as freedom from government intervention; 59% correctly answered that business activities become more complex as consumers enjoy greater freedom of action; 71% correctly identified General Motors as first in annual sales; 48% correctly identified Exxon as second; 38% correctly identified IBM as third; 36% correctly identified U.S. Steel as fourth; 83% correctly identified Goodyear as fifth; 56% correctly chose 1880's as the period of initial government legislation toward business; 70% were correct that the FTC is concerned with all types of mergers; 82% correctly defined class action suit; 92% correctly identified planned obsolescence as the critics charge against the yearly automobile industry practice of model change.

Attitude Questions - 78% rated overall business performance as good and bad to very good; the following practices were identified as most beneficial: standard of living (47%), technology and productivity (36%), high employment (29%), diversity of products (28%), free competition (26%), social concern (16%), low prices (13%); the following practices were identified as least beneficial: poor use of resources (47%), over-emphasis on profit (40%), exploitation of consumers (19%), poor quality products (17%), lack of competition (17%), political power (13%), high prices (11%); 80% rated responsiveness to consumer as slightly bad to very good; 77% rated effect on the environment as very bad to good and bad; 83% desired government activity from neutral to very active.

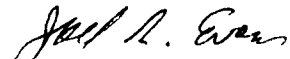
Classification Questions - 98% of the respondents were 31 to 61+ years of age; 93% of the respondents were male; the most common job title areas were: accounting, engineering, architecture (6.5%); management (34%); arts (4.5%); economics, law, medicine, psychology (17%); education, religion, library, social work (24.5%); marketing, sales (4%); mathematics, natural sciences (4%); retired (4%); other (1.5%); 80% of the respondents had a 4 year college degree plus some graduate work (8% 1-3 years college or less; 23% - bachelor's degree, 23% - master's degree, 8% law degree, 38% doctor's --excluding law--degree).

- 2 -

I hope the above results provide you with some valuable insights. The data is presented in a general format to stimulate the most interest among those requesting it. Many further tests are presently being conducted and will take some time.

Once again, thank you for your assistance. If you have any questions, please write to me at the above address.

Very truly yours,


Joel R. Evans

APPENDIX B

Pre-Test Materials

Questionnaire Form

Table 1 - Answers to Fact Questions

Table 2 - Answers to Attitude Questions

Table 3 - Answers to Classification Questions

QUESTIONNAIRE FORM

On the following three pages, a copy of the pre-test form is presented. This copy is condensed for purposes of this report. The original pre-test was conducted with 8 1/2 by 14" paper. The copy is unabridged.

FACT QUESTIONS

1. In the past, many firms have operated under laissez faire conditions. What does laissez faire mean? Please check one answer.

(a) Government intervention
 (b) Freedom from government intervention
 (c) Fair trade
 (d) High tariffs on imports
 (e) Limits on corporate campaign spending

2. Which of the following statements about business firms and business systems is true? Please check one answer.

(a) Consumer freedom of choice reduces productivity.
 (b) Firms encounter the same problems regardless of the economic system.
 (c) The only objective of most large American companies is to maximize short-run profitability.
 (d) A system cannot function under government regulation.
 (e) The business process and its component activities become more complex as consumers enjoy greater freedom of action.

3. Fortune magazine annually publishes a listing of the largest 500 U.S. industrial companies. Below are five companies from this listing. Please rank these companies from 1 to 5. Let 1 = the largest company and 5 = the smallest company. Please answer in the spaces provided.

(a) Exxon
 (b) Goodyear
 (c) General Motors
 (d) International Business Machines (IBM)
 (e) United States Steel

- 4a. The first major legislative restrictions of business practices began to appear in the U.S. during which time? Please check one answer.

(a) 1760s
 (b) 1800s
 (c) 1840s
 (d) 1880s
 (e) 1920s
 (f) 1960s

- 4b. With regard to mergers, the Federal Trade Commission is concerned with which of the following? Please check one answer.

(a) Only with mergers between manufacturers producing the same products.
 (b) Only with mergers between retailers selling the same products.
 (c) Only with mergers between American and foreign companies
 (d) With all types of mergers.

- 4c. Led by consumer activists such as Ralph Nader, the consumerism movement has employed "class action" suits. What is a class action suit? Please check one answer.

(a) A single consumer brings suit against a group of firms.
 (b) A lawyer representing a group of consumers brings suit against a firm.
 (c) A suit bypasses lower courts and goes immediately to a superior court.
 (d) Cease and desist orders are the only penalties for offending firms.

5. What is the usual automobile practice of annually introducing new improvements and styles called by its critics? Please check one answer.

(a) Planned obsolescence
 (b) Product planning
 (c) Competition
 (d) Product segmentation
 (e) Competition

ATTITUDE QUESTIONS

- 1a. How would you rate the overall economic and social performance of American business? Please check one answer.

<u>Extremely</u> Bad	<u>Very</u> Bad	<u>Slightly</u> Bad	<u>Both Good</u> and Bad	<u>Slightly</u> Good	<u>Very</u> Good	<u>Extremely</u> Good
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- 1b. What aspects of American business are most beneficial to life in the United States? Please answer in the space provided.

- 1c. What aspects of American business are least beneficial to life in the United States? Please answer in the space provided.

2. How would you rate the honesty of American business? Please check one answer.

<u>Extremely</u> Bad	<u>Very</u> Bad	<u>Slightly</u> Bad	<u>Both Good</u> and Bad	<u>Slightly</u> Good	<u>Very</u> Good	<u>Extremely</u> Good
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3. How would you rate the responsiveness of American business to consumer demands, desires, and complaints? Please check one answer.

<u>Extremely</u> Bad	<u>Very</u> Bad	<u>Slightly</u> Bad	<u>Both Good</u> and Bad	<u>Slightly</u> Good	<u>Very</u> Good	<u>Extremely</u> Good
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4. How would you rate the effect of American business on the environment? Please check one answer.

<u>Extremely</u> Bad	<u>Very</u> Bad	<u>Slightly</u> Bad	<u>Both Good</u> and Bad	<u>Slightly</u> Good	<u>Very</u> Good	<u>Extremely</u> Good
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5. What level of government activity into American business affairs do you think is necessary? Please check one answer.

<u>None</u>	<u>Very</u> Passive	<u>Passive</u>	<u>Neutral</u>	<u>Active</u>	<u>Very</u> Active	<u>Total</u>
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CLASSIFICATION QUESTIONS

1. What is your age? Please check one answer.

- | | |
|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> Under 20 | <input type="checkbox"/> 41-50 |
| <input type="checkbox"/> 21-30 | <input type="checkbox"/> 51-60 |
| <input type="checkbox"/> 31-40 | <input type="checkbox"/> 61 and over |

2. What is your sex? Please check one answer.

- Male
 Female

3. What is your total annual gross family income (before taxes and deductions)? Please check one answer.

- | | |
|--|--|
| <input type="checkbox"/> Under \$10,000 | <input type="checkbox"/> \$50,001-\$60,000 |
| <input type="checkbox"/> \$10,001-\$20,000 | <input type="checkbox"/> \$60,001-\$70,000 |
| <input type="checkbox"/> \$20,001-\$30,000 | <input type="checkbox"/> \$70,001-\$80,000 |
| <input type="checkbox"/> \$30,001-\$40,000 | <input type="checkbox"/> \$80,001-\$90,000 |
| <input type="checkbox"/> \$40,001-\$50,000 | <input type="checkbox"/> \$90,001 and Over |

4. What is your current job title or profession? Please answer in the space provided.

5a. What is the last level of education that you have completed? Please check one answer.

- Less than High School
 High School
 College (1-3 years)
 College (4 years)
 Post-Graduate

IF COLLEGE (4 YEARS) OR POST-GRADUATE WAS CHECKED ABOVE PLEASE COMPLETE PART b. IF NOT, PLEASE DO NOT GIVE ANY FURTHER RESPONSE TO THIS QUESTION.

5b. What college degree(s) (undergraduate and graduate) have you received? For each degree, please specify the following in the space provided: college or university name, major field of study, and date received.

Table 1

FACT QUESTIONS

1. Definition of laissez faire

Answer	Group I		Group II		Group III		Group IV		Group V	
	#	%	#	%	#	%	#	%	#	%
a	0	0	0	0	0	0	0	0	0	0
b	14	93	24	92	14	100	12	80	15	94
c	0	0	2	8	0	0	3	20	0	0
d	0	0	0	0	0	0	0	0	0	0
e	1	7	0	0	0	0	0	0	0	0
NR	0	0	0	0	0	0	0	0	0	0
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

2. Statements about business firms and business systems

a	1	7	0	0	0	0	1	7	1	6
b	3	20	7	27	2	14	2	13	2	13
c	2	13	6	23	3	21	3	20	2	13
d	0	0	0	0	1	7	0	0	0	0
e	9	60	13	50	8	58	8	53	9	55
NR	0	0	0	0	0	0	1	7	2	13
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

Table 1 (continued)

3. Sales Ranking

Group I

Answer	1		2		3		4		5		NR		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
a	1	7	2	13	4	26	6	40	1	7	1	7	15	100
b	0	0	0	0	2	13	2	13	10	66	1	8	15	100
c	8	53	2	13	1	7	1	7	2	13	1	7	15	100
d	1	7	6	41	4	26	3	20	0	0	1	7	15	100
e	4	26	4	26	3	21	2	13	1	7	1	7	15	100
NR	1	7	1	7	1	7	1	7	1	7	-	-	-	-
	15	100	15	100	15	100	15	100	15	100				

Group II

a	3	11	3	11	9	35	7	18	4	15	0	0	26	100
b	0	0	0	0	1	4	6	22	19	74	0	0	26	100
c	16	63	4	15	5	18	1	4	0	0	0	0	26	100
d	3	11	10	39	2	8	8	31	3	11	0	0	26	100
e	4	15	9	35	9	35	4	15	0	0	0	0	26	100
NR	0	0	0	0	0	0	0	0	0	0	-	-	-	-
	26	100	26	100	26	100	26	100	26	100				

Group III

a	2	14	3	21	4	29	3	21	1	7	1	8	14	100
b	0	0	0	0	0	0	3	21	10	72	1	7	14	100
c	9	65	3	21	1	7	0	0	0	0	1	7	14	100
d	0	0	5	37	4	28	4	30	0	0	1	5	14	100
e	2	14	2	14	4	29	3	21	2	14	1	8	14	100
NR	1	7	1	7	1	7	1	7	1	7	-	-	-	-
	14	100	14	100	14	100	14	100	14	100				

Group IV

a	2	13	2	13	1	7	6	40	4	27	0	0	15	100
b	0	0	0	0	1	7	5	33	9	60	0	0	15	100
c	9	60	5	33	1	7	0	0	0	0	0	0	15	100
d	1	7	3	20	7	47	2	13	2	13	0	0	15	100
e	3	20	5	34	5	32	2	14	0	0	0	0	15	100
NR	0	0	0	0	0	0	0	0	0	0	-	-	-	-
	15	100	15	100	15	100	15	100	15	100				

Group V

a	1	6	4	25	7	44	1	6	1	6	2	13	16	100
b	1	6	0	0	0	0	1	6	12	75	2	13	16	100
c	9	56	2	13	1	6	1	6	1	6	2	13	16	100
d	4	25	4	25	4	25	3	19	0	0	1	6	16	100
e	0	0	4	25	2	13	8	50	0	0	2	12	16	100
NR	1	7	2	12	2	12	2	13	2	13	-	-	-	-
	16	100	16	100	16	100	16	100	16	100				

Table 1 (continued)

4a. Year of First Legislation

Answer	Group I		Group II		Group III		Group IV		Group V	
	#	%	#	%	#	%	#	%	#	%
a	0	0	0	0	0	0	0	0	0	0
b	0	0	0	0	0	0	0	0	0	0
c	0	0	4	15	1	7	2	13	0	0
d	8	53	6	23	6	43	2	13	6	38
e	4	27	13	50	4	29	10	67	6	38
f	3	20	3	12	1	7	1	7	2	12
NR	0	0	0	0	1	7	0	0	2	12
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

4b. FTC and Mergers

a	1	7	2	8	1	7	2	13	7	44
b	0	0	2	8	1	7	1	7	1	6
c	0	0	0	0	0	0	1	7	0	0
d	14	93	21	80	12	86	11	73	7	44
NR	0	0	1	4	0	0	0	0	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

4c. Definition of Class Action Suit

a	1	7	4	16	1	7	2	13	1	6
b	14	93	21	80	12	86	10	67	13	82
c	0	0	0	0	0	0	1	7	1	6
d	0	0	0	0	0	0	2	13	0	0
NR	0	0	1	4	1	7	0	0	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

5. Definition of Planned Obsolescence

a	9	60	15	58	11	79	6	40	9	56
b	1	7	2	8	0	0	3	20	2	13
c	3	20	5	18	1	7	1	7	0	0
d	0	0	3	12	1	7	1	7	1	6
e	2	13	1	4	1	7	4	26	3	19
NR	0	0	0	0	0	0	0	0	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

Table 2

ATTITUDE QUESTIONS

1a. Overall Performance of American Business

Answer	Group I		Group II		Group III		Group IV		Group V	
	#	%	#	%	#	%	#	%	#	%
VP	0	0	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	2	13
BA	1	7	1	4	1	7	1	7	1	6
A	3	20	5	19	0	0	6	40	2	13
AA	7	47	6	23	2	14	1	7	4	25
G	2	13	12	46	7	50	4	27	6	37
VG	2	13	1	4	3	22	1	7	0	0
NR	0	0	0	0	1	7	2	12	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

1b. Most Beneficial American Business Practices

Competition	2	13	4	15	4	28	1	7	1	6
Standard of Living	3	20	11	42	5	36	7	46	2	13
Technology	6	40	8	31	3	22	1	7	3	19
Other	1	7	0	0	0	0	0	0	0	0
NR	3	20	3	12	2	14	6	40	10	62
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

1c. Least Beneficial American Business Practices

Collusion/Monopoly	4	26	7	26	2	14	3	20	2	13
Deceptive Practices	4	27	2	8	4	28	3	20	2	13
Environment	2	13	3	12	3	22	1	7	1	6
Prices/Prof	2	13	5	19	1	7	0	0	0	0
Weapons	1	7	1	4	0	0	0	0	0	0
Other	1	7	0	0	1	7	1	7	0	0
NR	1	7	8	31	3	22	7	46	11	68
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

Table 2 (continued)

2. Honesty of American Business

Answer	Group I		Group II		Group III		Group IV		Group V	
	#	%	#	%	#	%	#	%	#	%
VP	1	7	3	12	0	0	3	20	1	6
P	0	0	2	8	2	14	7	47	2	13
BA	4	26	11	42	2	14	1	7	4	25
A	9	60	9	34	5	36	2	13	6	38
AA	1	7	1	4	3	22	2	13	1	6
G	0	0	0	0	2	14	0	0	1	6
VG	0	0	0	0	0	0	0	0	0	0
NR	0	0	0	0	0	0	0	0	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

3. Responsiveness of American Business to Consumers

VP	0	0	0	0	0	0	1	7	0	0
P	0	0	2	8	0	0	2	13	4	25
BA	6	40	9	35	1	7	4	27	0	0
A	4	26	7	26	4	29	5	33	2	13
AA	3	20	5	19	7	50	0	0	7	43
G	1	7	2	8	2	14	2	13	2	13
VG	1	7	1	4	0	0	1	7	0	0
NR	0	0	0	0	0	0	0	0	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

4. Effect of American Business on the Environment

VN	1	7	1	4	1	7	3	20	1	6
N	6	40	14	54	4	29	3	20	3	19
SN	3	20	2	8	1	7	3	20	6	38
NE	0	0	0	0	2	14	0	0	0	0
SP	3	20	7	26	3	22	2	13	2	13
P	2	13	2	8	2	14	1	7	3	18
VP	0	0	0	0	1	7	2	13	0	0
NR	0	0	0	0	0	0	1	7	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

5. Necessary Level of Government Intervention

N	0	0	0	0	0	0	0	0	1	6
VP	1	7	0	0	0	0	0	0	1	6
P	0	0	2	8	2	14	2	13	1	6
N	3	20	7	26	1	7	2	13	4	25
A	8	53	12	47	11	79	5	33	5	32
VA	3	20	4	15	0	0	4	27	3	19
T	0	0	0	0	0	0	1	7	0	0
NR	0	0	1	4	0	0	1	7	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

Table 3

CLASSIFICATION QUESTIONS

1. Age

Answer	Group I		Group II		Group III		Group IV		Group V	
	#	%	#	%	#	%	#	%	#	%
Under 20	2	13	5	19	3	21	0	0	0	0
21-30	12	80	21	81	11	79	12	80	14	88
31-40	1	7	0	0	0	0	3	20	2	12
41-50	0	0	0	0	0	0	0	0	0	0
51-60	0	0	0	0	0	0	0	0	0	0
61 and over	0	0	0	0	0	0	0	0	0	0
NR	0	0	0	0	0	0	0	0	0	0
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

2. Sex

Male	10	67	21	81	10	71	13	87	12	75
Female	5	33	5	19	4	29	2	13	4	25
NR	0	0	0	0	0	0	0	0	0	0
	<u>15</u>	<u>100</u>	<u>26</u>	<u>199</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

3. Total Annual Gross Family Income

Under \$10,000	6	40	9	34	1	7	2	14	1	6
\$10,001-\$20,000	6	40	10	38	11	79	7	46	7	44
\$20,001-\$30,000	1	7	3	12	1	7	5	33	7	44
\$30,001-\$40,000	0	0	2	8	0	0	0	0	0	0
\$40,001-\$50,000	1	7	1	4	1	7	1	7	0	0
\$50,001-\$60,000	0	0	0	0	0	0	0	0	0	0
\$60,001-\$70,000	0	0	0	0	0	0	0	0	0	0
\$70,001-\$80,000	0	0	0	0	0	0	0	0	0	0
\$80,001-\$90,000	0	0	0	0	0	0	0	0	0	0
\$90,001 and over	0	0	0	0	0	0	0	0	0	0
NR	1	7	1	4	0	0	0	0	1	6
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

Table 3 (continued)

4. Job Title

Answer	Group I		Group II		Group III		Group IV		Group V	
	#	%	#	%	#	%	#	%	#	%
Accountant	1	7	0	0	0	0	1	6	1	6
Economist	0	0	0	0	0	0	0	0	1	6
Manager	0	0	0	0	0	0	1	6	1	6
Marketer (Sales)	4	27	4	15	5	36	6	40	6	38
Student	8	53	15	58	9	64	1	7	5	31
Other	2	13	4	15	0	0	3	22	2	13
Unemployed	0	0	0	0	0	0	2	13	0	0
NR	0	0	3	12	0	0	1	6	0	0
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

5a. Last Level of Education

Less than HS	0	0	0	0	0	0	0	0	0	0
HS	0	0	0	0	0	0	0	0	0	0
College (1-3 yrs.)	15	100	26	100	13	93	0	0	0	0
College (4 yr. degree)	0	0	0	0	0	0	8	53	10	62
Post-Graduate	0	0	0	0	0	0	5	34	6	38
NR	0	0	0	0	1	7	2	13	0	0
	<u>15</u>	<u>100</u>	<u>26</u>	<u>100</u>	<u>14</u>	<u>100</u>	<u>15</u>	<u>100</u>	<u>16</u>	<u>100</u>

APPENDIX C

Codebook

CODEBOOK FOR SEQUENCE STUDY

Only one IBM card was used for each completed questionnaire. Below are the instructions used in punching the cards.

Questionnaire Identification Numbers (Columns 1-12)

Columns 1-4

0100-0199 = Form 1
0200-0299 = Form 2
0300-0399 = Form 3
0400-0499 = Form 4
0500-0599 = Form 5
0600-0699 = Form 6
0700-0799 = Form 7
0800-0899 = Form 8
0900-0999 = Form 9
1000-1099 = Form 10
1100-1199 = Form 11

Columns 5-6

01 = Card number 1

Columns 7-10

Blank

Columns 11-12

01-42 = Response dates (June 1=01 and July 12=42) -
number of days after mailing

Factual Questions (Columns 14-25)

Column 14 - Definition of laissez faire

1 = Government intervention
2 = Freedom
3 = Fair Trade
4 = Import tariffs
5 = Spending limits
9 = Multiple response
0 = No response

Column 15 - Statements on business firms and business systems

- 1 = Consumer freedom reduces productivity
- 2 = Consumer problems are the same in all systems
- 3 = Profit is the sole objective in the U.S.
- 4 = Business cannot work under gov't. regulation
- 5 = Consumer freedom leads to increased complexity
- 9 = Multiple response
- 0 = No response

Column 16 - Sales rank of Exxon

- 1-5 = Sales ranking
- 9 = Multiple response
- 0 = No response

Column 17 - Sales rank of Goodyear

- 1-5 = Sales ranking
- 9 = Multiple response
- 0 = No response

Column 18 - Sales rank of General Motors

- 1-5 = Sales ranking
- 9 = Multiple response
- 0 = No response

Column 19 - Sales rank of IBM

- 1-5 = Sales ranking
- 9 = Multiple response
- 0 = No response

Column 20 - Sales rank of U.S. Steel

- 1-5 = Sales ranking
- 9 = Multiple response
- 0 = No response

Column 21 - First year of government legislative restrictions on business

- 1 = 1760
- 2 = 1800
- 3 = 1840
- 4 = 1880
- 5 = 1920
- 6 = 1960
- 9 = Multiple response
- 0 = No response

Column 22 - The merger responsibilities of the FTC

- 1 = Only with manufacturers
- 2 = Only with retailers
- 3 = Only with American and foreign countries
- 4 = All types
- 9 = Multiple response
- 0 = No response

Column 23 - Definition of a class action suit

- 1 = Correct
- 2 = Incorrect
- 3 = Don't know
- 0 = No response

Column 24 - Critics description of annual model changes in the Automobile Industry

- 1 = Planned obsolescence
- 2 = Product planning
- 3 = Diversification
- 4 = Product segmentation
- 5 = Competition
- 9 = Multiple response
- 0 = No response

Column 25

Blank

Attitudinal Questions (Columns 26-50)**Column 26 - Overall rating of American business**

- 1 = Extremely Bad
- 2 = Very Bad
- 3 = Slightly Bad
- 4 = Both Good and Bad
- 5 = Slightly Good
- 6 = Very Good
- 7 = Extremely Good
- 9 = Multiple response
- 0 = No response

Column 27 - Number of most beneficial U.S. business practices

0-8 = Number of practices named

Column 28 - Most beneficial practice, free competition

1 = Response
0 = No response

Column 29 - Most beneficial practice, diverse and new products

1 = Response
0 = No response

Column 30 - Most beneficial practice, high level of employment

1 = Response
0 = No response

Column 31 - Most beneficial practice, low prices

1 = Response
0 = No response

Column 32 - Most beneficial practice, social concern and contributions

1 = Response
0 = No response

Column 33 - Most beneficial practice, high standards of living

1 = Response
0 = No response

Column 34 - Most beneficial practice, technology and productivity

1 = Response
0 = No response

Column 35 - Most beneficial practice, other

1 = Response
0 = No response

Column 36 - Number of least beneficial U.S. business practices

0-8 = Number of practices named

Column 37 - Least beneficial practice, exploitation of consumers

1 = Response
0 = No response

Column 38 - Least beneficial practice, high prices

1 = Response
0 = No response

Column 39 - Least beneficial practice, monopoly or lack of competition

1 = Response
0 = No response

Column 40 - Least beneficial practice, political power of business

1 = Response
0 = No response

Column 41 - Least beneficial practice, poor allocation of resources

1 = Response
0 = No response

Column 42 - Least beneficial practice, overemphasis on profit motive

1 = Response
0 = No response

Column 43 - Least beneficial practice, proliferation of poor products

1 = Response
0 = No response

Column 44 - Least beneficial practice, other

1 = Response
0 = No response

Column 45 - Honesty of U.S. business

1 = Extremely Bad
2 = Very Bad
3 = Slightly Bad
4 = Both Good and Bad
5 = Slightly Good
6 = Very Good
7 = Extremely Good
9 - Multiple response
0 = No response

Column 46 - Responsiveness of U.S. business to consumers

- 1 = Extremely Bad
- 2 = Very Bad
- 3 = Slightly Bad
- 4 = Both Good and Bad
- 5 = Slightly Good
- 6 = Very Good
- 7 = Extremely Good
- 9 = Multiple response
- 0 = No response

Column 47 - Effect of U.S. business on the environment

- 1 = Extremely Bad
- 2 = Very Bad
- 3 = Slightly Bad
- 4 = Both Good and Bad
- 5 = Slightly Good
- 6 = Very Good
- 7 = Extremely Good
- 9 = Multiple response
- 0 = No response

Column 48 - Necessary level of government action

- 1 = None
- 2 = Very passive
- 3 = Passive
- 4 = Neutral
- 5 = Active
- 6 = Very active
- 7 = Total
- 9 = Multiple response
- 0 = No response

Columns 49-50

Blank

Classification Questions (Columns 51-68)

Column 51 - Age of respondents

- 1 = 20 and under
- 2 = 21-30
- 3 = 31-40
- 4 = 41-50
- 5 = 51-60
- 6 = 61 and over

Column 52 - Response to age question

- 1 = Correct
- 2 = Incorrect
- 0 = No response

Column 53 - Sex of respondent

- 1 = Male
- 2 = Female

Column 54 - Response to sex question

- 1 = Correct
- 2 = Incorrect
- 0 = No response

Column 55 - Job areas of respondents

- 1 = Accounting, Engineering, Architecture
- 2 = Administration, Ownership, Management
- 3 = Arts
- 4 = Economics, Law, Medicine, Psychology
- 5 = Education, Religion, Library, Social Work
- 6 = Marketing, Sales
- 7 = Mathematics, Natural Sciences
- 8 = Retired
- 9 = Other

Column 56 - Response to job area question

- 1 = Correct
- 2 = Incorrect
- 0 = No response

Column 57 - Last level of education completed

- 1 = Less than high school
- 2 = High school
- 3 = College (1-3 years)
- 4 = College (4 year degree)
- 5 = Post-Graduate (1 course or more completed)

Column 58 - Response to level of education question

- 1 = Correct
- 2 = Incorrect
- 0 = No response

Column 59 - Highest degree earned

- 1 = Bachelors
- 2 = Masters
- 3 = Law
- 4 = Doctors
- 5 = Other
- 6 = Not applicable

Column 60 - Response to highest degree earned question

- 1 = Correct
- 2 = Incorrect
- 0 = No response

Column 61 - Major field for highest degree

- 1 = Architecture, Engineering
- 2 = Business, Economics
- 3 = Education, Religion
- 4 = Law
- 5 = Mathematics, Natural Sciences
- 6 = Medicine, Psychology
- 7 = Social Science, Arts
- 8 = Other
- 9 = Not applicable

Column 62 - Response to major field question

- 1 = Correct
- 2 = Incorrect
- 0 = No response

Column 63 - Year respondent received highest degree

- 1 = 1910-1919
- 2 = 1920-1929
- 3 = 1930-1939
- 4 = 1940-1949
- 5 = 1950-1959
- 6 = 1960-1969
- 7 = 1970-1974
- 8 = Not applicable

Column 64 Response to year degree received question

- 1 = Correct
- 2 = Incorrect
- 0 = No response

Column 65 - Location of school of highest degree

- 1 = East, Northeast
- 2 = Mideast
- 3 = Midwest
- 4 = Southeast
- 5 = Southwest
- 6 = West, Northwest
- 7 = Abroad
- 8 = Not applicable

Column 66 - Response to school location question

- 1 = Correct
- 2 = Incorrect
- 0 = No response

Columns 67-68 - Gross yearly family income

- 01 = Under \$10,000
- 02 = \$10,000 - \$19,999
- 03 = \$20,000 - \$29,999
- 04 = \$30,000 - \$39,999
- 05 = \$40,000 - \$49,999
- 06 = \$50,000 - \$59,999
- 07 = \$60,000 - \$69,000
- 08 = \$70,000 - \$79,999
- 09 = \$80,000 - \$89,999
- 10 = \$90,000 and over
- 11 = Multiple response
- 00 = No response

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