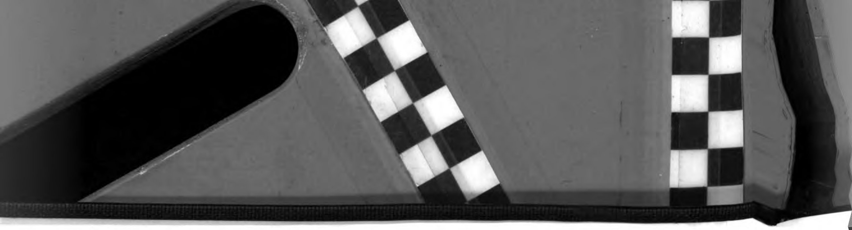
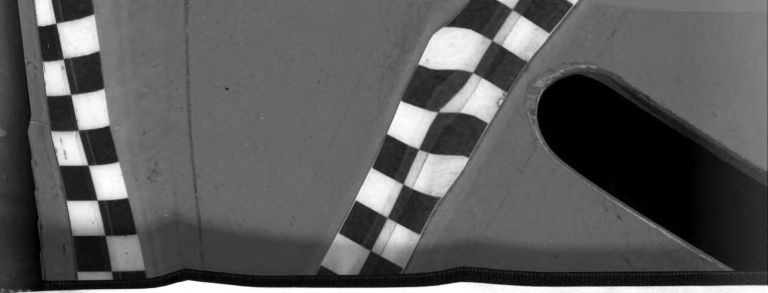




ABSTRACT

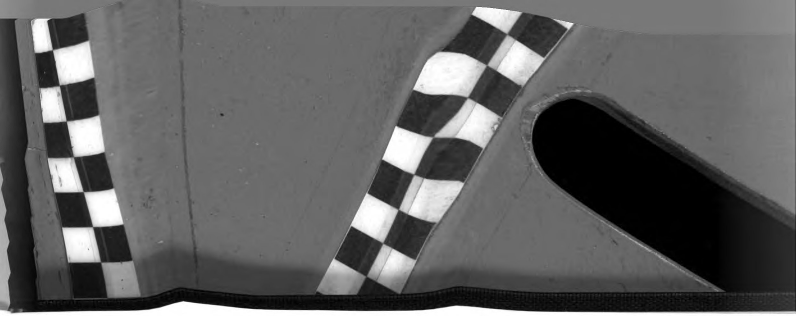
THE EFFECT OF THE CONTENT OF PREVIOUSLY ASKED QUESTIONS ON THE CONTENT OF THE RESPONSE TO A STANDARD QUESTION

by John P. Calicchia

Although some of the variables that affect responses in questionnaires have been from time to time theoretically defined and discussed, relatively seldom has the effect of these same variables been empirically investigated in an interview situation. The present research, carried out in an industrial research organization, was designed to explore the effect of one such variable, namely, the generality-specificity of the content of questions asked.

It was the intention of this research to determine the extent to which the content of a response was a function of the content of previously asked questions, and the following hypothesis was made concerning this relationship.

> The content of previously asked questions would establish a mental response set in the responding individual, and this mental response set would influence the subject's response to a subsequent question in such a way as to reflect the nature of the content of the previously asked questions.



Furthermore, it was of interest to test, in an interview situation, Parten's assertion concerning the order in which general and specific questions should be asked. She stated that if both general and specific question were to be used in the same interview schedule, the general ones should precede the specific ones, instead of the opposite; otherwise, subjects tended to answer the general ones in terms of the earlier specific ones.

To test the basic hypothesis and Parten's assertion, two interview schedules were available for use. The two types of interview schedules were semi-structured but differed in content. These interviews consisted of a series of specific questions. While the questions clearly indicated the idea or procedure to be discussed in the answer, the subjects had complete freedom in the content and manner of responding to each question.

One of the two interview schedules, the management interview, contained six major questions intended to reflect the subject's knowledge of company's procedures. The questions in this interview schedule were general in the sense that they asked for information about the management and accounting control procedures which were known to at least some extent by everyone interviewed. The second interveiw schedule, the project interview, contained ten major questions intended to reflect the subjects's understanding of a particular technical project or work area. The information asked

for in this interview was specific to a relatively restricted part of the company; such information would be known best by those working on the particular project or work area. The generality-specificity of the content in these questions made up the independent variables in this study.

The last question in both interviews was standard. The content of the response to this standard question constituted the dependent variable. This question simply asked the subject to list the changes perceived as instituted in the organization during the past year.

Seven interviewers interviewed approximately half the fifty-five engineers with only the management interview and approximately half the subjects with only the project interview.

A code book was developed to reflect the content of the response to the standard question. Two raters independently judged the generality-specificity of the categories in the code book. The reliability of judgments between the two raters was found, and the disagreements ironed out in discussion allowing for a common agreement as to which categories in the code book were general and which categories were specific.

The content of the responses to the standard question was then analyzed, and frequency counts were obtained of the number of general and specific units of information each response contained.

for in this interview was specific to a relatively restricted part of the company; such information would be known best by those working on the particular project or work area. The generality-specificity of the content in these questions made up the independent variables in this study.

The last question in both interviews was standard. The content of the response to this standard question constituted the dependent variable. This question simply asked the subject to list the changes perceived as instituted in the organization during the past year.

Seven interviewers interviewed approximately half the fifty-five engineers with only the management interview and approximately half the subjects with only the project interview.

A code book was developed to reflect the content of the response to the standard question. Two raters independently judged the generality-specificity of the categories in the code book. The reliability of judgments between the two raters was found, and the disagreements ironed out in discussion allowing for a common agreement as to which categories in the code book were general and which categories were specific.

The content of the responses to the standard question was then analyzed, and frequency counts were obtained of the number of general and specific units of information each response contained.

for in this interview was specific to a relatively restricted part of the company; such information would be known best by those working on the particular project or work area. The generality-specificity of the content in these questions made up the independent variables in this study.

The last question in both interviews was standard. The content of the response to this standard question constituted the dependent variable. This question simply asked the subject to list the changes perceived as instituted in the organization during the past year.

Seven interviewers interviewed approximately half the fifty-five engineers with only the management interview and approximately half the subjects with only the project interview.

A code book was developed to reflect the content of the response to the standard question. Two raters independently judged the generality-specificity of the categories in the code book. The reliability of judgments between the two raters was found, and the disagreements ironed out in discussion allowing for a common agreement as to which categories in the code book were general and which categories were specific.

The content of the responses to the standard question was then analyzed, and frequency counts were obtained of the number of general and specific units of information each response contained.

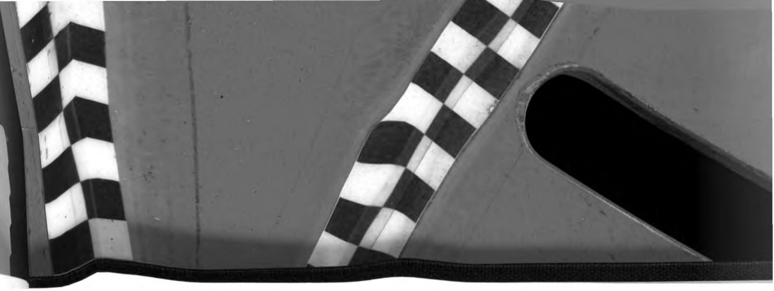
for in this interview was specific to a relatively restricted part of the company; such information would be known best by those working on the particular project or work area. The generality-specificity of the content in these questions made up the independent variables in this study.

The last question in both interviews was standard. The content of the response to this standard question constituted the dependent variable. This question simply asked the subject to list the changes perceived as instituted in the organization during the past year.

Seven interviewers interviewed approximately half the fifty-five engineers with only the management interview and approximately half the subjects with only the project interview.

A code book was developed to reflect the content of the response to the standard question. Two raters independently judged the generality-specificity of the categories in the code book. The reliability of judgments between the two raters was found, and the disagreements ironed out in discussion allowing for a common agreement as to which categories in the code book were general and which categories were specific.

The content of the responses to the standard question was then analyzed, and frequency counts were obtained of the number of general and specific units of information each response contained.



for in this interview was specific to a relatively restricted part of the company; such information would be known best by those working on the particular project or work area. The generality-specificity of the content in these questions made up the independent variables in this study.

The last question in both interviews was standard. The content of the response to this standard question constituted the dependent variable. This question simply asked the subject to list the changes perceived as instituted in the organization during the past year.

Seven interviewers interviewed approximately half the fifty-five engineers with only the management interview and approximately half the subjects with only the project interview.

A code book was developed to reflect the content of the response to the standard question. Two raters independently judged the generality-specificity of the categories in the code book. The reliability of judgments between the two raters was found, and the disagreements ironed out in discussion allowing for a common agreement as to which categories in the code book were general and which categories were specific.

The content of the responses to the standard question was then analyzed, and frequency counts were obtained of the number of general and specific units of information each response contained.

for in this interview was specific to a relatively restricted part of the company; such information would be known best by those working on the particular project or work area. The generality-specificity of the content in these questions made up the independent variables in this study.

The last question in both interviews was standard. The content of the response to this standard question constituted the dependent variable. This question simply asked the subject to list the changes perceived as instituted in the organization during the past year.

Seven interviewers interviewed approximately half the fifty-five engineers with only the management interview and approximately half the subjects with only the project interview.

A code book was developed to reflect the content of the response to the standard question. Two raters independently judged the generality-specificity of the categories in the code book. The reliability of judgments between the two raters was found, and the disagreements ironed out in discussion allowing for a common agreement as to which categories in the code book were general and which categories were specific.

The content of the responses to the standard question was then analyzed, and frequency counts were obtained of the number of general and specific units of information each response contained.

It was hypothesized that the questions in the management interview would create a general mental response set in the individual and this general response set would influence the subject's response to the standard question in such a way that its content also would be general in nature, that is, the content of the response would not be delineated and would refer to the whole organization. On the other hand, the questions in the project interview would create a specific mental response set, and would, therefore, influence the subject's response to the standard question in such a way as to reflect this specific mental response set, i.e. the content of the response would be rather detailed and refer to a particular job and not to the entire organization.

If the hypothesis were true, there should have been a statistically significant greater proportion of general categories counted in the responses to the standard question in the management interview than counted for the project interviews, and conversely, there should have been a statistically significantly greater proportion of specific categories counted in the responses to the standard question for the project interviews than counted for the management interviews.

The results of attempts to find inter-rater reliability indicated that such reliability was relatively low. A series of "t" tests were computed on the data obtained for each coder independently in order to test the hypothesis. The results of these "t" tests did not support the hypothesis. These results, however, did refute Parten's assertion, in an interview situation, that is, having specific questions precede a general question did not necessarily induce the subjects to answer the general question in terms of the earlier specific questions.

Although the findings concerning the basic hypothesis were essentially negative, the possibility of a relationship between the content of the question and the content of the response was indicated by a trend in the data. The experimenter suggested that, perhaps, refinements in the procedure used--as mentioned in the discussion--may help clarify the present uncertain relationship.

Approved: Frederic R. Wenkart

Date: 4-15-66

THE EFFECT OF THE CONTENT OF PREVIOUSLY ASKED QUESTIONS ON THE CONTENT OF THE RESPONSE TO A STANDARD QUESTION

By

John P. Calicchia

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Psychology

1966

To my parents,
Louis and Lena Calicchia,
who have made this possible,
and to my brothers,
Joseph and Louis
to whom I wish much success
in their own endeavors.

ACKNOWLEDGMENTS

I would like to express deepest appreciation to my committee chairman, Dr. Frederic R. Wickert. His patience, understanding and stimulating ideas were of immeasurable importance in the execution of this thesis.

Many thanks are also extended to Dr. James Phillips, and Dr. D. M. Johnson for their helpful suggestions and criticisms.

Thanks are due to Wallace Berger and Richard Larsen, graduate students, and my Aunt Margret Finelli for their aid in coding and data analysis and to those friends, especially Morris Spier, for their guidance and encouragement.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF APPENDICES

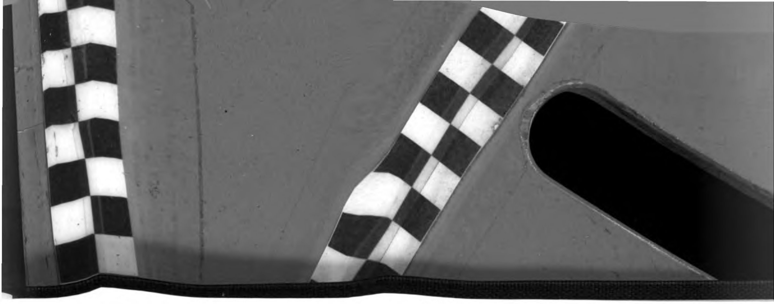
INTRODUCTION

This study dealt with mental response sets induced by a verbal context in an interview situation.

In reviewing the psychological literature, it was noticed that the hypothetical constructs of response style and response set were frequently interchanged and misused. It was unfortunate that this state of affairs existed because these two concepts are not synonymous and do not refer to the same phenomena. (Rorer, 1965)

Response style, or response bias, according to Rorer, usually referred to a tendency on the part of the individual to select some response category or activity a disproportionate number of times independently of the situational context, that is, neither the nature, structure, nor content of the stimulus situation influenced the response in any way. Phenomena such as "yea-saying" and constantly choosing false in a true and false examination could be cited as an example of the type of behavior usually referred to by the term response style.

Response set, on the other hand, according to Rorer, referred to the phenomenon in which a previous rather specific activity determined or influenced the present behavior, that is, where the nature, structure, or content of a previous or present stimulus situation



influenced the subjects' response in such a way that their responses reflected the previous or present stimulus situation. In this type of behavioral phenomenon the situational context was extremely important. The response depended a great deal on the context of the situation. Different contexts provoked different kinds of responses.

The following discussion focuses on some of the variables that could be involved in creating mental response sets.

The literature revealed many studies which have investigated the effect of mental sets on the content of the responses as induced by questions in questionnaires. The exact nature of the process by which such mental sets were induced was far from completely established, but the results of some of these studies have identified a few of the variables that were involved in creating these mental response sets.

The grammatical structure of questions was shown by Fries (1952) to be extremely important in influencing responses. He reported that questions with the highest degree of structure, that is, the highest degree of syntax, had the greatest influence on the content of the responses to these questions. Thus, the more implicit the sentence structure was in indicating the exact information desired, the greater was the extent to which the content of the response was congruent with the information called for.

Cronbach (1946) has shown that response sets have the greatest influence when the questions were ambiguous or unstructured. He reported that if the question was structured so that one knew the answer required, the response was made directly to the content of the question, and response sets were not created. But, on the other hand, if the content of the question did not indicate the topic to be discussed, the content of the responses given to this question was a function of a response set created by situational (preceding questions) and/or personality (motivation) variables.

While there seemed to be quite a bit of data on how mental response sets induced by the nature, structure, or content of questions affected the responses to questions on questionnaires, the literature revealed few, if any, studies investigating this same phenomenon in the interview situation; rather most of the writers simple assumed that these variables would have the same effect.

Selltiz, Johoda, Deutsch, and Cook (1964) did some hypothesizing in this area, and stated that question content was very important. They believed that the content of the response was likely to be influenced by the content of the preceding questions. For example, if previously asked questions created a favorable or unfavorable mental set toward the topic considered, the response to the subsequent question would reflect this attitude.

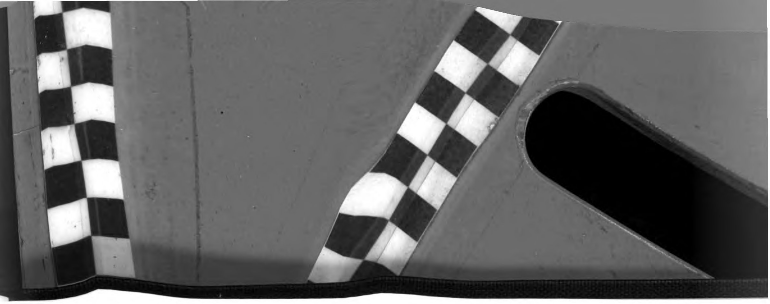
Parten (1950), another writer who was interested in both questionnaires and interviews, stated that the question, or questions, preceding a given question produced a "set" in the respondent and caused him to reply very differently from the way he might have if the preceding question or questions were different.

She also indicated that the order of the question was important because the content of the response could be influenced by the question arrangement. She stated that if both general and specific questions were to be used, the general ones should precede the specific; otherwise, subjects were likely to answer the general ones in terms of the earlier specific ones.

Parten cited as empirical evidence for this statement the study performed by Link (1947), one of the few people found who had done research in this area. He investigated the effect of question arrangement on the responses to two related questions. He reported that the order of asking the questions is instrumental in determining the response to the second of the two questions asked. For example, he found that when the first question asked was "Do you believe that workers and unions have the right to strike when wages and working conditions don't suit them?", and the second question asked was "Do you believe that businessmen have the right to shut down their factories and stores when labor conditions and profits don't suit them?", 65 percent of the 5,000 subjects said that the workers had the right to strike, but when the order was reversed only 61 percent of the subjects held this same view. The percentage who replied that business had the right to close down their shops was also greater when question one preceded question two. When question one came first, 52.3 percent approved of the right to close the establishment, but when question two was presented first, 46 percent believed in the employer's rights. Considering the fact that the N was 5,000, such numerically small differences in percentages were statistically significant.

Comments have been made on the nature of the process by which mental response sets could be established in terms of the favorableness or atmosphere of the content of the questions (Selltiz et al., 1964), the grammatical structure of the question (Fries, 1952), and the order in which the questions were asked (Link, 1947; Parten, 1950). No studies were found that investigated how the generality-specificity of the content of the questions asked created a mental response set and thereby influenced the content of the response.

The purpose of the present study was to experimentally define more clearly one of the variables that may affect the content of the responses in an interview situation, namely the generality-specificity of the content of the questions. More specifically, the present research tried to determine, in an interview situation, to what extent the generality-specificity of the content of a previously asked series of questions created a mental response set that influenced the content of a response to a standard question that followed the series. The results of this investigation would permit the experimenter to empirically deny or support Parten's assertion in interview situations concerning the order in which general and specific questions should be asked.



BACKGROUND OF THE PRESENT PROBLEM

In experimental studies which use an interviewing method calling for complex verbal responses, a common methodological problem, often encountered but seldom either studied or controlled, is the effect of the content of a preceding series of questions on the content of the responses given to a standard question that follows the series.

An opportunity to study such an effect arose in connection with a field study (Wickert, 1964-66) of changes in an industrial research organization. The subjects in this field study were a group of fifty-five engineers selected randomly from a larger group of engineers. The subjects generally filled both a management and project role in this research organization, that is, they were at the same time line research superivsors and members of one or possibly two project teams on which they may or may not have been project leader, but were always at least contributing engineers.

This field study was conducted in two phases. The first phase took place during a two-month period in 1964, and the second phase, during the same two-month period one year later, in 1965. During the time interval between the two phases the administration was supposed to institute organizational changes in an attempt to

improve communication within the engineering organization. The major change that was supposed to be induced was a series of improvements in the managerial control and accounting procedures in use, accompanied by a program of educating the engineers to make all accounting and managerial procedures, both the old and the improved ones, more meaningful and useful to them. Up to this point there was some evidence that the engineers tended not to take the management control procedures too seriously: they often gave the impression that they thought that these procedures hindered their work, were unimportant, and not part of their job. They seemed to feel that their job was to create and not to fill out papers. The engineers tended not to realize or to want to understand the function of accounting and managerial control procedures. In response to this situation the administration attempted to improve the managerial and accounting control procedures and to teach the engineers the roles these control procedures played in the company.

One of the purposes of Wickert's study that directly concerns the present study was to determine indirectly, through measuring communications in the organization, to what degree, if any, the administration had actually succeeded in improving the control procedures and in educating the engineers.

Then, in addition, by asking the subjects in a systematic way in 1965 what changes they had perceived during the last year, Wickert hoped to get supplementary information on the degree of

success the administration had in accomplishing their aim. This type of questioning, that is, asking the subjects what they perceived as the independent variable (changes induced by the administration), is seldom if ever done. When it is done, according to Orne (1962) it is usually done in a haphazard, unsystematic, and after-the-fact way. Usually, when an experiment gave unexpected results, the experimenter then attempted to discover what went wrong by asking the subjects what they thought the experiment was all about. The problem, in this field study, was in "manipulating" the experimental condition that defined the independent variables; there were many cross-currents--often the case in field studies--so that the experimenter was not sure what changes were induced between phase one and phase two. He knew only what the administration had told him. One example of such cross-currents was that the accounting procedures were instituted originally under an accounting-minded president, but during the time interval between phase one and phase two the accounting minded president left the company and was replaced by an engineering-minded president. Furthermore, during the time interval between phase one and phase two a massive layoff was instituted which was accompanied by a feeling of uneasiness. The experimenter had no idea of the effect of such changes on the independent variable. Since the subjects were knowledgeable and functionally involved in the company, the experimenter assumed that these men would have been generally aware of changes in the management control and accounting procedures and of any program for educating the engineers in the use of these control procedures. So, in order to determine what the subjects themselves perceived as the independent variable, the experimenter asked these engineers in a systematic way, as part of the study, what they perceived as the changes in the company during the past year.

Still another aspect of the Wickert study needs to be explained in order to make clear why the present study was done. This field study found in a preliminary investigation that there were two main types of communication in the company. One, which will be called management communication, flowed in a vertical direction, that is, up and down the hierarchical structure of the organization and reflected the management control communications already referred to as a concern of the company's management. In this type of communication, the engineers were supposed to tell management what they were doing and how they were spending their time, while management was to indicate what was expected of them. The other type of communication flowed in a more or less horizontal direction, that is, among peers on a particular engineering project, and dealt with the technical aspects of that project.

Since there were the two different types of communication, two different interview schedules had to be constructed. The two types of interviews were semi-structured but differed in content. These interviews consisted of a series of specific questions given in a standard, logical order; nevertheless, while the questions clearly indicated the idea or procedure to be discussed in the answer, the subjects were given quite complete freedom in the content and manner of their response to each question. In other words, the interviewees were free to respond to the questions in any way they saw fit. The content of the questions in these interviews sampled the content of the two types of communication, that is, the management interview, with its nineteen interrelated questions, intended to reflect the subject's understanding of the company's management control procedures such as forms used, managerial practices, etc. This interview asked for general information known and used to at least some extent by all the members of the organization. The project interview also included nineteen interrelated questions intended to reflect the subject's understanding of a particular technical project or work area. The information asked for in this interview was specific to a relatively restricted part of the company, for example, technical breakthroughs on a given project, or details of a newly developed process related to the project; such information would be known best by those working on the particular project or work area.

Since, as was mentioned earlier, many of the subjects had both a "management" and "project" role, it was assumed that they would be equally familiar with the content in both interviews. The

subjects were randomly assigned to one of three groups. One group (management group) was given only the management interview; the second group (project group) was given only the project interview; and the third group (management-project group) was a control group and got both the management and project interviews. The subjects were divided into these groups because the main purpose of the Wickert study was to determine which of the two types of communication was flowing the more smoothly, the communication up and down the hierarchical structure as compared with the communication among peers on a particular project. Communication was to be measured by finding out the extent to which immediate superior subordinate pairs in the hierarchy for each type of communication responded in the same way to the questions in the interview for their group. If agreement in one group for one type of communication was statistically significantly greater than in the other group for the other type of communication, the experimenter might conclude that the type of communication in the former group was better than the type of communication in the latter group.

In both of the two types of 1965 or second phase interviews, the last question in the series of questions asked was the standard question. This question was: "Think back on how things were in the Engineering Division early last Spring--about March of 1964. Now, what do you see as the important, the major changes in the administration

and management--and the general climate of the division since then--the few really big changes? Please try to list these."

It was desired in the Wickert study to consolidate the responses to this standard question asked immediately following both the management and project interviews so that both sets of answers could be used to indicate what the subjects perceived as the changes introduced in the company during the past year.

In an exploratory look at the data it appeared that the content of the responses reflected the content of the two different immediately preceding series of questions. So that combining might be justified, the purpose of the present research was to discover to what degree the content of the series of immediately preceding questions influenced the content of the responses given to the standard question at the end of the series.

Since the management interview contained a series of questions which asked for general (company-wide) information and since the project interview contained a series of questions that asked for relatively specific information, it was hypothesized,as an alternative to the null--no-effect--hypothesis, that the two different series of questions would establish two different mental sets and that these would influence the content of the responses to the standard question. The management interview would establish a general set by the nature of its content and would tend to elicit non-detailed responses that deal

with the entire organization. On the other hand, the project interview would establish a specific set and tend to elicit detailed responses that were specific to a particular project or work area; it would neglect to pick up changes that affected the entire organization.

If this alternative hypothesis was confirmed, it could be said that the content of the responses was a function of the content of the series of previously asked questions. An immediate practical implication was that the responses to the standard question in the Wickert study could not be conveniently combined but must be treated separately. The content of the series of previously asked questions for each of the groups was different, and consequently different mental sets may have been established which in turn may have affected the kind of answers given to the standard question. On the other hand, if the alternative hypothesis was not confirmed, that is, the null hypothesis was not rejected, the responses could be consolidated and treated as one mass. The responses would not have been influenced by the content of the precedingly asked questions. Judgment would then have to be withheld regarding the extent to which the content of a series of questions affects the content of the response to a particular question that follows the series.

The long-range implication of confirming the hypothesis would be that an experimenter using interviews containing a series of questions under circimstances similar to those prevailing in this

study would have to consider the effect of the content of previously asked questions on the content of the response to a question of interest. If the null hypothesis was not rejected, judgment would have to be withheld regarding the effect of the content of a series of questions on the content of the response to a particular question that follows the series.

It was the hope of the experimenter that the results of this and similar research would eventually be combined to form "norms" which could be referred to by any experimenter working with complex verbal material and wishing to have some idea for advance planning, about factors that should be taken into account because of their possible effects.

HYPOTHESES

The present research was designed primarily to investigate the extent to which the content of an immediately preceding series of questions influenced the content of the responses given to a standard question that followed the series.

The following general null hypothesis was given regarding the intent of this research.

> The content of the immediately preceding series of questions would have relatively no effect on the content of the responses given to a standard question that followed the series.

Upon rejection of this null hypothesis the following alternative hypothesis was suggested.

> The content of the immediately preceding series of questions would establish a mental response set in the responding individual predisposing him to respond to the standard question in such a way that the content of his response would reflect the content of the preceding series of questions.

In terms of the nature of the present research the alternative hypothesis was broken down into three specific aspects to be tested, and each aspect independently would have to be confirmed in order that the null hypothesis may be rejected. These three aspects to be tested were:

1. There would be no statistically significant difference between the proportion of general and/or specific statements found for

the responses to the standard question for either the management or project interviews. This statement assumed that, (a) there were just a certain number of units of information contained in each statement (response) and (b) these statements were accurately interpreted.

2. A greater proportion of general statements (as defined previously) would be found in the responses to the standard question for the management interviews than in the responses to the standard question for the project interviews. This statement assumed that a general mental response set was established by the content of the general questions in the management interview.

3. A greater proportion of specific (as previously defined) statements would be found in the responses to the standard question for the project interviews than in the responses to the standard question for the management interviews. This statement assumed that a specific mental response set was established by the content of the specific questions in the project interview.

METHOD

Subjects

The subjects in this study were 55 engineers, all employees of the same aerospace company in Michigan.

Materials

a) Interviews.--Two interview schedules, constructed for the Wickert field study previously referred to, were utilized. Both of the interview schedules, it will be recalled, had a similar structure but differed in content. One interview (management interview) asked about managerial control procedures while the other interview (project interview) asked about some particular project the subject was working on. Both interview schedules contained nineteen questions. The nineteen questions in the management interview schedule were divided into six major areas, and the nineteen questions in the project interview schedule were divided into ten major areas. The last question in each interview was standard and asked: "Think back on how things were in the Engineering Division early last Spring--about March of 1964. Now, what do you see as the important, the major changes in the administration and management--and the general climate of the division since then--the few really big changes? Please try to list these."

b) "Code Book". --A "code book" for the standard question was developed by categorizing the responses to this question. Two male graduate students acted as judges and independently read the responses made by the engineers to the standard question and developed categories, represented as codes in a code book, which expressed the unitary ideas that were found in the responses to the standard question.

Procedure

A representative sample of subjects, each having generally both a management and project role, were randomly assigned to one of three groups: a management group (composed of thirty engineers who received only the management interview); a project group (composed of twenty-nine engineers who received only the project interview); and a management-project group (composed of nine engineers who received both interviews).

Seven interviewers were randomly assigned to interview the engineers in all three groups. The interviewers, all male graduate students in psychology, took notes during these interviews and these notes were recorded on a dictaphone within two hours after the interview. The dictaphone belts were transcribed and these transcribed interviews were then coded.

The "code book" for the standard question was developed by two of the seven interviewers by categorizing the ideas expressed in the response to this question.

After the code book had been developed, it was given to two judges who had a good inderstanding of this project. These judges independently read the code book and indicated which categories they thought were general and which categories they thought were specific.

The instructions and rules by which such decisions were made were as follows:

> The criteria to be used in deciding which categories are general and which categories are specific are the (a) Generality-specificity of the statements. A general statement is one that pertains to the total or whole organization and does not contain any concrete example of changes perceived by the subjects. A specific statement is one that presents concrete examples of the changes perceived. (b) The referent of the statement, that is, whether the statement referred to the entire organization or just to his job, project or work area. These criteria were chosen because it was hypothesized that there would be a difference in the generality-specificity of the content of the responses to the standard question for the management and project interviews. The rules by which such decisions are to be made are as follows:
>
> a) If the statement is general in the sense that it does not present any concrete example of the perceived change, mark it general. For example, "Things are better now."
> b) If the statement mentions a concrete change, mark it specific. For example, "There is less paper work now."
> c) If the statement refers to the entire organization, mark it general. For example, "The company is more efficient."
> d) If the statement refers to the subject's perceived change in status concerning his job, project or work area, mark it specific. For example, "I've been promoted."
>
> In some categories both the elements of generality-specificity and entire organization--job, project and work area are present. The rule for deciding which categories are general and which are specific for these categories are as follows:
>
> a) If the statement refers to the total organization but is general in the sense that it does not present any concrete examples of the changes perceived, mark it general. For example, "The climate of the company has improved."
> b) If the statement refers to the entire organization and gives concrete examples, mark it specific. For example, "There is more R and D money available in the company."

c) If the statement refers to the individual's job, project, or work area, but is general in the sense that it does not contain any concrete perceived changes, mark it general. For example, "Working conditions are better in my department."
d) If the statement refers to the individual's job and gives concrete examples, mark it specific. For example, "I've got a new department head."

The judgments of the two judges were correlated to see to what extent there was reliability between these two judges on judging the generality-specificity of the categories. A phi coefficient computed on these data was .915.

		.492	.508	1.000	
Judge 2	S	.033	.426	.459	
	G	.459	.082	.501	φ = .915
		G	S		
		Judge 1			

According to Guilford, this would be a conservative estimate of the correlation between the two raters since this phi-coefficient underestimates the Pearson r when p is not .5 (Guilford, 1956). The categories disagreed on were ironed out, in discussion, allowing for a common agreement as to which categories were general and which were specific for the purposes of establishing one set of data for use in the next research operation. The categories in the "code book" were then marked general or specific according to this common agreement.

Coder selection was based on an assumption underlying the "classical" approach to content analysis. This assumption stated, in essence, that data which has to be coded into categories reflecting the content of the material can be analyzed by anyone without training (Berelson, 1952). Under this assumption the coders utilized happened to be a male graduate student, twenty-two years old, and a housewife of forty-five with two years of college education.

The materials needed to do the analysis were then given to the two different coders, who then independently coded the responses to the standard question for each interview. More specifically, these coders marked on a code sheet that contained all the categories in the "code book" the categories that they thought were expressed in the responses for each of the subjects.

To prevent the coders from associating the responses with the respondents and therefore with what type of interview they received, numbers were assigned to each response which were then taken out of the interview proper and copied on plain white paper. The coders used these copied responses to code from and not the original interview.

The instructions given the two coders were in part written and in part verbal.

The written instructions were:

> The coder should pay special attention to the generality or specificity of the interviewee's statements that he is coding because there is a plan to use the degree of generality or

> specificity as an experimental variables on this question. If an interviewee makes a vague, general, or global reference, his reference should be coded in a general category; if, on the other hand, he makes a specific statement, it should be coded as specific. If, however, he starts off, for example, by making a specific statement and then says that this is just an instance of something broader, or if he makes a broad statement and then gives specific examples, both general and specific codes should be used.

In addition, the experimenter gave a verbal explanation which consisted of essentially the same information contained in the written instructions. These verbal instructions were relatively consistent for both coders.

A master code, for which a third person arbitrated the disagreements between coder one and coder two, was developed so that there would be a single code expressing the ideas found in the responses to the standard question. Independent records were preserved for all three sets of codings.

RESULTS

Data Processing

To determine to what extent there was agreement between the two coders in the coding of the responses to the standard question, the experimenter correlated (product-moment correlation):

a) the number of "general" categories used by each coder to code each response to the standard question.

b) the number of "specific" categories used by each coder to code each response to the standard question.

c) the "total number" of categories used by each coder to code each response to the standard question (a + b = c).

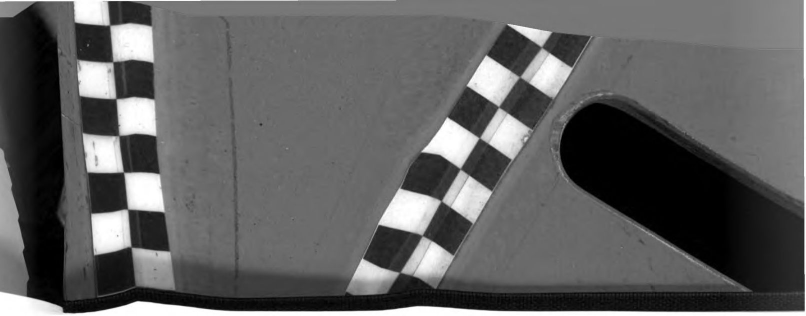
In addition, the experimenter obtained:

a) percentage of agreement $= \frac{n(A \cap B)}{n_A + n_B}$

b) average percentage of agreement $= \frac{\frac{n(A \cap B)}{n_A + n_B}}{N}$

Notation:
n = number of categories used by any one coder.
N = total number of categories used by both coders.
A = refers to the categories used by coder 1.
B = refers to the categories used by coder 2.

In order to test the hypothesis, independent 't' tests were performed:



a) between the Management and Project interviews on the proportion of (1) general categories found and (2) on the proportion of specific categories found in the responses to the standard question for coders 1 and 2 independently.

b) between the Management and Project interviews on the proportion of (1) general categories found and (2) on the proportion of specific categories found in the responses to the standard question for the Master Code.

Correlated 't' tests were performed:

a) between coder 1 and coder 2 on the proportion of general categories used to code the Management interviews and the proportion of specific categories used to code the Management interviews.

b) between coder 1 and coder 2 on the proportion of general categories used to code the Project interviews and the proportion of specific categories used to code the Project interviews.

The process of content analysis requires a coder to evaluate a response, or part of a response, from a personal point of view, and to interpret each statement in terms of one or more of the categories presented in a code book. To establish reliability generally, at least two coders should be used. The greater the degree to which there is agreement between the two coders, the higher is the probability that both coders interpret the statement using the same criterion as a frame of reference. In this study the criterion was the generality or specificity of the statements, and this frame of reference was created by the instructions given to the coders. Thus, the more reliable the two coders were in coding the response to the standard question, the more likely these coders interpreted the same statements as general or as specific and the more likely they would use the same number of categories to code the responses. Therefore, any significant statistical difference or lack of significant statistical

difference found between the management and project groups would have a firmer statistical basis because of this reliability check. Without such knowledge, it would not be known to what extent a found significance or lack of significance found was due to a true difference or a lack of a true difference between the populations or because the coders were using different criteria to evaluate and interpret the responses. The results may not be due to the generality or specificity of the response, but rather to some unknown factors.

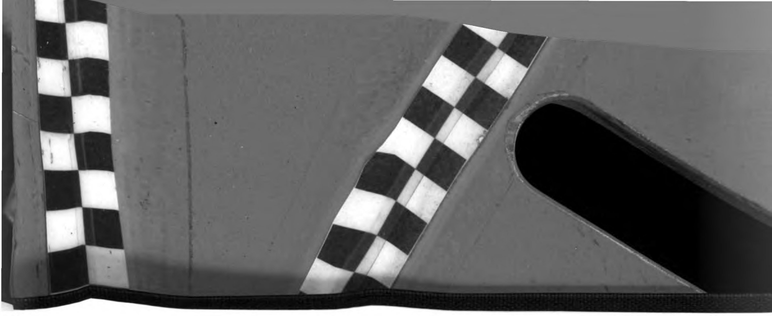
To determine how consistently the two coders were in coding--to what extent they agreed in the coding of each response, product moment correlations coefficients were computed. These inter-rater reliabilities were performed on:

a) the "total number" of categories used by the coders in coding each response to the standard question for all the interviews.

b) the number of "general" categories used by the coders in coding each response to the standard question for all the interviews.

c) the number of "specific" categories used by the coders in coding each response to the standard question for all the interviews.

The results of these calculations are shown in Table 1. It can be seen by looking at this table that there was more agreement between the coders with regard to the "total" number of categories and the number of "specific" categories used than for the number of "general" categories used by each coder in coding each response.



The table also shows that none of these correlation coefficients were high. Therefore, there was relatively low agreement between coders in the way they coded each response. The coders did not interpret the responses in the same way. They saw different units of information in the content of each statement.

Table 1.--Inter-rater correlations.

r	.57	.41	.56
	the total number of categories used by Coder 1 and Coder 2 for coding each response for all the interviews.	the number of general categories used by Coder 1 and Coder 2 in coding each response for all the interviews.	the number of specific categories used by Coder 1 and Coder 2 in coding each response for all the interviews.
	$p < .01$	$p < .01$	$p < .01$

An alternative procedure for determining the reliability of the two coders was to calculate the percentage of agreement between the coders for each response for all interviews. Using the TAT (Atkinson, 1958) method of obtaining percentage of agreement, the number of categories used by both coders in coding the response for each interview was divided by the sum of the total number of categories used by each of the two coders independently for each interview. These percentages are reported in Table 2.

An inspection of this table will reveal that out of 67 responses there were 7 responses in which there was absolutely no agreement between coders and the highest percentage of agreement

Table 2.--The percentage of agreement between Coder 1 and Coder 2 on each response for all the interviews.

Interview Number	% of Agreement	Interview Number	% of Agreement	Interview Number	% of Agreement	Interview Number	% of Agreement
1	31.7	18	16.6	35	12.5	52	27.3
2	28.6	19	20.0	36	0	53	23.1
3	33.3	20	20.0	37	28.6	54	25.0
4	28.6	21	20.0	38	0	55	35.7
5	14.4	22	28.6	39	0	56	30.0
6	22.2	23	12.5	40	20.0	57	16.6
7	37.5	24	37.5	41	14.4	58	20.0
8	22.2	25	0	42	20.0	59	16.6
9	33.3	26	22.2	43	37.5	60	22.2
10	20.0	27	11.1	44	50.0	61	28.6
11	20.0	28	25.0	45	16.6	62	25.0
12	37.5	29	11.1	46	16.6	63	33.3
13	33.3	30	33.3	47	33.3	64	10.0
14	33.3	31	0	48	0	65	--
15	0	32	36.4	49	28.6	66	33.3
16	11.1	33	40.0	50	20.0	67	33.3
17	14.4	34	33.0	51	16.6	68	41.6

Average percentage of agreement was 22.7.

between coders, 50 percent, occurred in one response. The average percentage of agreement was 22.7 percent for each response. The results of these calculations also indicated that there was little agreement between coders in coding each response.

A series of correlated 't' tests were performed to see whether any significant statistical differences could be found between the coders in coding the management interviews general and coding the project interviews specific, that is, between the proportion of general categories used by Coder 1 vs. the proportion of general categories used by Coder 2 in coding the management interviews, and the proportion of specific categories used by Coder 1 vs. the proportion of specific categories used by Coder 2 in coding the responses to the standard question in the set of project interviews.

Assuming that there were just a certain number of units of information contained in each response and that the coders interpreted the responses from the same frame of reference, that is, from the generality or specificity of the statements as defined previously, and in accordance with the alternative hypothesis, no statistically significant difference would be found between the proportion of general and the proportion of specific categories used by each coder to code the responses to the standard question for both the management and project set of interviews.

Tables 3 and 4 give the results of these tests. As indicated by the tables, significant statistical differences were found between coders for coding the management interviews (1) general and (2) specific at the .01 confidence level, and for coding the project interviews (1) general and (2) specific at the .01 confidence level. In three of the cases the mean proportion of categories used to code (1) the management interviews general (2) the management interviews specific, and (3) the project interviews general was greater for Coder 2 than for Coder 1. Coder 1 had a higher mean proportion than Coder 2 for coding the project interviews specific.

Since neither the reliability coefficients nor the percentages of agreement were high, and since the 't' test performed on the number of units of information contained in the responses indicated relatively little agreement, it was decided that in order to test the null hypothesis at all, independent two-tailed 't' tests would have to be computed on the data for each coder independently.

If the mental sets hypothesized were established, and if they affected the content of the responses in the predicted direction, there should be a significant difference between the management and project interviews in both the proportion of general categories used and in the proportion of specific categories used by each coder. More specifically, statistically significant differences should be found between the management and project interviews in the proportion of general categories used and in the proportion of specific categories used.

Table 3.--Mean difference, standard deviation of the difference, n, degree of freedom, and correlated 't' between Coder 1 and Coder 2 on coding the responses to the standard question in the management interviews. a) General, b) Specific

	Mean Difference	Standard Deviation of the Difference	n	Degree of Freedom	't'
		a) General			
Coder 1 vs. Coder 2	.259	.026	33	32	9.181
					p < .01
		b) Specific			
Coder 1 vs. Coder 2	.249	.024	33	32	10.375
					p < .01

Table 4.--Mean difference, standard deviation of the difference, n, degree of dreedom, and correlated 't' between Coder 1 and Coder 2 on coding the responses to the standard question in the project interviews. a) General, b) Specific

	Mean Difference	Standard Deviation of the Difference	n	Degree of Freedom	't'
		a) General			
Coder 1 vs. Coder 2	.254	.033	34	33	8.194
					p < .01
		b) Specific			
Coder 1 vs. Coder 2	.240	.023	34	33	9.230
					p < .01

According to the alternative hypothesis, there should be a greater proportion of general categories used in coding the management interviews than in coding the project interviews, and, conversely, there should be a greater proportion of specific categories used in coding the project interviews than in coding the management interviews.

The results of the two-tailed independent 't' tests performed to test this aspect of the hypothesis are shown in Tables 5 and 6. For Coder 1 (Table 5), no statistically significant difference was found between the proportion of general categories used to code the responses to the standard question for the management interviews and the proportion of general categories used to code the responses to the standard question for the project interviews. Neither was there any significant difference found between the proportion of specific categories used to code the responses to the standard question between the management and project interviews. This aspect of the alternative hypothesis was not supported by the data obtained for Coder 1.

The results for Coder 2 are shown in Table 6. Here, also, no statistically significant difference was found between the management and project interview in the proportion of general categories used to code the responses to the standard question in each group, but there was a statistically significant difference at the 1 percent level between the management and project interviews in the proportion of specific categories used. The mean proportion of specific categories used in the management interviews was greater than the mean proportion of specific

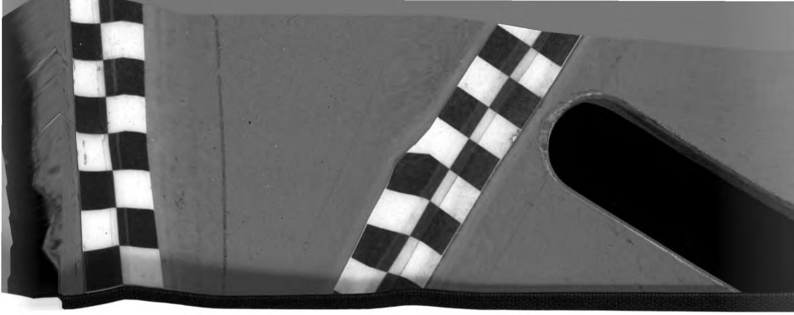
Table 5.--Mean proportion, standard deviation of the proportion, n, degree of freedom, and 't' between the management and project interviews for Coder 1 on the proportion of general and specific categories counted in the responses to the standard question.

	Mean Proportion	Standard Deviation of the Proportion	n	Degree of Freedom	't'
		General			
Management vs. Project	.520 .517	.061 .054	67	65	.051
		Specific			
Management vs. Project	.478 .469	.061 .054	67	65	.017

Table 6.--Mean proportion, standard deviation of the proportion, n, degree of freedom, and 't' between the management and project interviews for Coder 2 on the proportion of general and specific categories counted in the responses to the standard question.

	Mean Proportion	Standard Deviation of the Proportion	n	Degree of Freedom	't'
		General			
Management vs. Project	.541 .634	.122 .074	67	65	1.208
		Specific			
Management vs. Project	.556 .364	.122 .082	67	65	2.667

$p < .01$

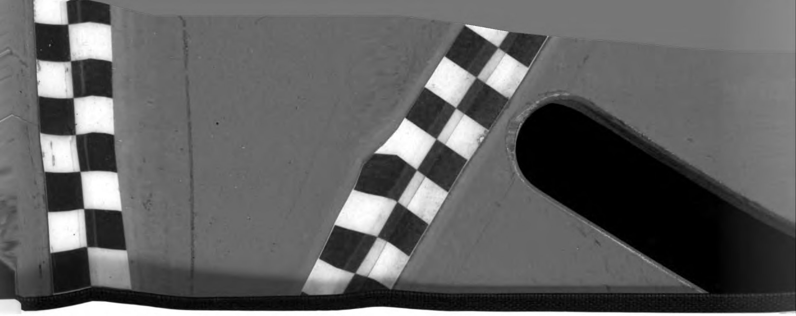


categories used in the project interviews. This was not in accord with the null hypothesis nor with the alternative hypothesis. If any difference should be found according to the alternative hypothesis, it should be the converse.

The results obtained for both coders did not allow for rejection of the null hypothesis and judgment had to be withheld as to what extent the content of a series of previously asked questions influenced the content of the responses to a following question.

Since an index of the changes perceived by the subjects was needed for Wickert's study, an attempt was made to develop a master code by having an arbitrator reconcile the disagreements between the coders in coding each response to the standard question. This was done, and the present experimenter then assumed the master code to be another possible criterion on which to test the hypotheses.

Two-tailed independent 't' tests were performed on the data to see if the responses to the standard question for the management group differed from the response to the standard question for the project group in the proportion of general categories found in these responses, and conversely, to determine if the responses to the standard question for the project group differed from the responses to the standard question for the management group in the proportion of specific categories found (Table 7). A 't' of 5.839, statistically significant at the .01 level, was found between the set of management and project interviews for the proportion of general categories found.



In accordance with the alternative hypothesis a greater proportion of general categories was used in coding the management interviews than was used in coding the project interviews. This difference, since everything else in the two groups was the same, was attributable to the general set established by the content of the questions previously asked. The mean proportion of general categories found in the response to the standard question for the management group was greater (statistically significant) than the mean proportion of general categories found in the responses to the standard question for the project interviews.

Table 7.--Mean proportion, standard deviation of the proportion, n, degree of freedom and 't' between the management and project groups for the Master Code on the proportion of general and specific categories found in the responses to the standard question.

	Mean Proportion	Standard Deviation of the Proportion	n	Degree of Freedom	't'
		General			
Management	.655	.053	66	64	5.839
vs. Project	.328	.048			
					p < .01
		Specific			
Management	.436	.045	66	64	1.981
vs. Project	.539	.050			
					p < .01

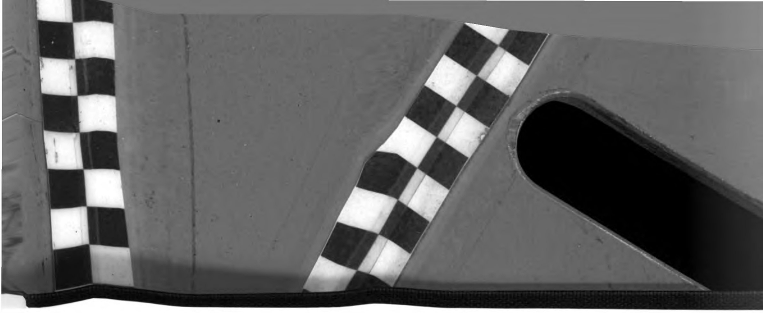
A 't' of 1.981, statistically significant at the .01 confidence level, was found between the management and project sets of interviews for the proportion of specific categories used. The significant 't' was

In accordance with the alternative hypothesis a greater proportion of general categories was used in coding the management interviews than was used in coding the project interviews. This difference, since everything else in the coding procedure was the same, was attributable to the general set established by the content of the questions previously asked. The mean proportion of general categories found in the response to the standard question for the management group was greater (statistically significant) than the mean proportion of general categories found in the responses to the standard question for the project interviews.

Table 7.--Mean proportion, standard deviation of the proportion, n, degree of freedom and 't' between the management and project groups for the Master Code for the proportion of general and specific categories found in the responses to the standard question.

	Mean Proportion	Standard Deviation of the Proportion	n	Degree of Freedom	't'
		General			
Management vs. Project	.655 .328	.051 .048	66	64	5.839
$p < .01$					
		Specific			
Management vs. Project	.436 .539	.045 .050	66	64	1.981
$p < .01$					

A 't' of 1.981, statistically significant at the .01 confidence level, was found between the management and project sets of interviews for the proportion of specific categories used. The significant 't' was also in accord with alternative hypothesis, that is, a greater proportion of specific categories was used in coding the project interviews because of the specific set established by the specific questions that were previously asked. The results from the master code supported the alternative hypothesis, that is, using these results as a criterion, the null hypothesis could be rejected.



SUMMARY OF THE RESULTS

1. The results of the correlated 't' tests between Coder 1 and Coder 2 on

a) the proportion of general categories found in the responses to the standard question for the management group,

b) the proportion of specific categories found in the responses to the standard question for the management group,

c) the proportion of general categories found in the responses to the standard question for the project group,

d) the proportion of specific categories found in the responses to the standard question for the project group

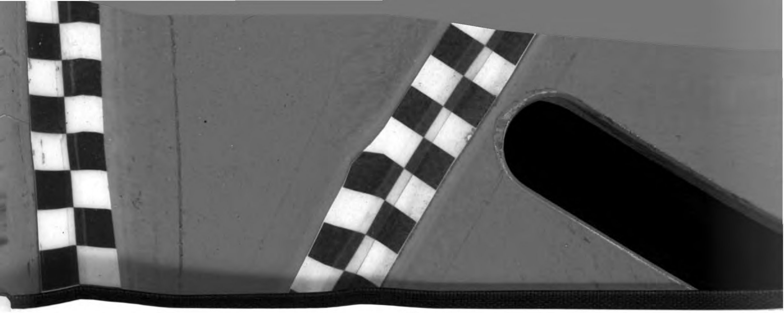
were as follows: There was a statistically significant difference found for all cases. In cases a, b, and c, Coder 2 had a higher mean proportion than Coder 1 and in case d Coder 1 had a higher mean proportion than Coder 2. According to the position taken by the experimenter regarding the number of units of information contained in each response, the coders would have used the same proportion of categories in their coding if they were coding reliably. Thus, there was little, if any, agreement between coders.

2. The results of 't' tests computed on the data obtained from each coder independently and used in comparing the management and project groups for the proportion of general categories and the proportion of specific categories used where: (a) No statistically

significant difference was found for Coder 1 in the proportion of general categories found in both the management and project interviews, nor was there any difference in the proportion of specific categories found in the responses to the standard question for both the management project groups. According to the alternative hypothesis a statistically significant difference would have been found--a greater proportion of general categories would have been found in the responses to the standard question for the management group, and a greater proportion of specific categories would have been found in the responses to the standard question for the project group. (b) No statistically significant difference was found for Coder 2 in the proportion of general categories used to code both the management and project interviews, but there was a statistically significant difference found for the proportion of specific categories used to code both the management and project interviews. Coder 2 used a greater proportion of specific categories to code the management interviews than to code the project interviews. This result was not in accord with the null hypothesis, nor with the alternative hypothesis. In fact, it was the converse.

None of the results obtained from treating the data of the coders independently supported the alternative hypothesis.

The results of the 't' tests performed on the master code between the management and project interviews with regard to, (a) the proportion of general categories, and (b) the proportion of specific categories found in the responses to the standard question were both



significant. A greater proportion of general categories was found in the management interviews than was found in the project interviews, and a greater proportion of specific categories was found in the project interviews than was found in the management interviews. These results rejected the null hypothesis and supported the alternative hypothesis.

Since none of the results obtained on the tests performed on the two coders independently supported the alternative hypothesis and the reliability of the master code could not be computed from the data collected, the experimenter reserved the right to withhold judgment as to what extent the content of a series of previously asked questions had on the content of the responses to a standard question that followed the series, but wished to comment that, in his opinion, such a trend was present in the data.

Table 8.--Summary table of results.

	Management Group		Project Group	
	General	Specific	General	Specific
	't'	't'	't'	't'
Coder 1 vs. Coder 2	9.181	10.375	8.194	9.230
	p < .01	p < .01	p < .01	p < .01

	Coder 1		Coder 2	
	General	Specific	General	Specific
	't'	't'	't'	't'
Management vs. Project	.051	.017	1.208	2.667
				p < .01

	Master Code	
	General	Specific
	't'	't'
Management vs. Project	5.839	1.981
	p < .01	p < .01

DISCUSSION

From the general observation of the conditions under which this study was made, it may be that the failure to support a number of the aspects of the hypothesis was due to some of the techniques and methodology used rather than to inadequacies of the hypothesis.

Keeping within the realm of the findings, however, the major, overall conclusion drawn from the investigation was that judgment should be withheld as to what extent the content of a series of previously asked questions affected the content of the response to a standard question that followed the series. The content of these questions may have had an effect, but because of some other variables that may have been operating or because the nature of the effect was not the one hypothesized, it was not possible to detect it. Because of these possibilities, it would not be justifiable to conclude that the content of the question had "no appreciable" effect on the content of the response to the standard question, but rather, to say judgment was suspended with regard to this question.

From the point of view of the larger study from which this study originated, this conclusion permitted the combination of the perceived changes from the management and project groups. The

combined index could be used to indicate the changes perceived by the individuals during the past year as was originally intended, instead of listing the changes reported by each group independently.

Moreover, Parten's assertion that the general questions should precede the specific questions or else the subjects would tend to answer the general questions in terms of the specific questions previously asked, did not seem plausible in light of the present research. If this statement were correct, a greater proportion of specific categories should be found in the responses to the standard question--which was relatively general-- for the project interviews since it was preceded by specific questions than should be found in the responses to the standard question for the management interview which was preceded by general questions. As was mentioned before, this was not found in the present research, but was indicated by the trends in the Master Code results.

Furthermore, the specific conclusions to be made on the basis of these findings must be considered tentative in view of the study's limitation (which shall be duscussed) and because of the positive trends indicated by some of the specific findings. These results indicated the desirability of further research.

The most meaningful results obtained in this research were those gained from the use of the Master Code. If these results were the sole criteria on which to judge the hypothesis, that is, disregarding the data of the two independent coders, there would have been more

evidence in favor of the alternative hypothesis than against it. The overall conclusion would have been a confirmation of the alternative hypothesis. But, since the master code was kind of a compromise on disagreed categories between coders, and no attempts do determine its reliability were made, and since none of the results obtained from the data of the two independent coders supported the alternative hypothesis, the experimenter felt that such a conclusion would not be justified. Nevertheless, the findings from the master code were, in the experimenter's opinion, indicative of what was actually happening, and if some of the technical and methodological limitations of the study could be reconciled, positive results might be found.

In the following paragraphs, the experimenter discusses some of the study's limitations and speculates as to why negative results were found.

Probably, the main contributing factor which influenced the results that were obtained in this experiment was the relatively low reliability between the two coders. Some of the factors that may have contributed to this relatively low reliability and/or may have influenced the outcome of this experiment regardless of the reliability found will be duscussed in the following paragraphs.

One such factor was the inequality of previous knowledge held by the coders regarding the project. One of the coders, Coder 1, knew quite a bit about the larger study, the nature of the company, its

products and terminology, and the nature of the present research. He was an interviewer for the larger study. These facts, themselves, may explain the great discrepancy between the coders in coding each response. The other coder, Coder 2, was completely naive, and often complained that some of the technical jargon used in the responses was baffling and that she could not determine whether or not certain units of information were general or specific, as defined by the code book. She did not know when a change reported was a change that affected the entire organization or just the respondent's job.

The ability to code seemed to be a function of the previous knowledge and experience the coders had with the subject matter. This finding contradicted Berelson's statement regarding the asset of not having to train coders when using the "classical" approach to content analysis.

It was also possible that because of this previous knowledge, each of these coders was using a different frame of reference in their coding, Coder 1, his previous knowledge and Coder 2, her intuition. Perhaps, this was why their data were so unreliable.

It was not the experimenter's opinion that the coders should be equally knowledgeable with reference to the content to be analyzed, but, rather, each should be as much of an "expert" as possible concerning the operations of the company in question. In this way the coders would know what a particular unit of information in a particular

response referred to and would not have had to speculate as to the category in which it should be coded.

The coder should not only have knowledge of the content of the responses, but he should also be trained in coding methodology. It has been shown time and time again that one of the greatest factors contributing to the unreliability of the coders was lack of training (Marsden, 1964). Training entails, essentially, the establishment of a working knowledge of the code book, thereby eliminating any confusion or mistakes that might arise because of failure to understand the basis on which the code book was devised. Lack of training often results in erroneous coding.

The next major factor influencing the outcome of the experiment was the code book itself. Maier, et al. (1961) commented that the relatively unstructured interview was a valuable data-gathering technique which could elicit each individual's complete, yet, uninfluenced response without the limitations of a structured interview, and provided an indication of their importance, but these advantages were purchased only at the expense of certain concurrent difficulties in analysis.

One of these problems, according to Wispe (1954), was category derivation. In a study such as this, i.e., a study concerned with the examination and interpretation of interview data, Wispe would hold that the categorization process was crucial, since all subsequent results depended upon the categories into which the responses were analyzed. Empirically derived categories, that is, categories that

were relatively inductively derived from the data to be analyzed, must not reflect every shade of meaning. Categories that did were pushed to their limit. They precluded analysis and were psychologically meaningless because the coder was reduced to listing isolated segments of a psychological process from which no generalizations could be drawn.

It was interesting to note that one of the coders reported that the categories were divided into so many minute subcategories that she had difficulty discriminating between them. She went on to say that maybe the people who composed the code book knew the difference between some of the categories, but she did not. Thus, when she was faced with a unit of information that could belong to one or more of the categories, she arbitrarily put it in any of them because of not knowing the difference between these seemingly identical categories.

To add to the confusion of the coders, oftentimes general categories were mixed in with specific categories which, in turn, were all subcategories under a larger specific category and vice versa (see Appendix C). This confusion might have provoked the coders to put a response, or part of a response, into the first category it fit regardless of whether the category was marked general or specific or whether the coder thought the statement was general or specific. If this kind of behavior occurred, the whole purpose of the research was defeated.

Ideally, the categories should be wide enough to be profitable and comprehensive, but not so broad as to become psychologically meaningless; nor should they be so narrow to be unanalyzable (Wispe, 1954).

Furthermore, it was not known by the experimenter to what extent the categories reflected the generality or specificity of the content of the responses. If these dimensions were not reflected in the code book, it would be impossible for the coders to code the responses in any meaningful way with regard to these dimensions. If this had been the case, it was understandable why the predicted result was not obtained.

Since placing a response in a general or specific category was a subjective cognitive judgment, a plausible explanation for the negative results may be the fact that the coders did not agree with the raters who originally decided which categories were general or specific, and thus, may not have abided by the guide lines established by the experimenter. Thus, what was observed may have been a purely phenomenological process.

It was also possible that a coder "set" may have been established as a result of coding the responses. After coding a number of similar responses into the same categories the coders may have been predisposed to use these categories, and therefore, tended to use them even when the data called for different categories. Along this same line, and also, contaminating the results, was the possibility that the previous experience of Coder 1 may have acted as a bias predisposing

Ideally, the categories should be wide enough to be profitable and comprehensive, but not so broad as to become psychologically meaningless, nor should they be so narrow to be unanalyzable (Wispe, 1954).

Furthermore, it was not known by the experimenter to what extent the categories reflected the generality or specificity of the content of the responses. If these dimensions were not reflected in the code book, it would be impossible for the coders to code the responses in any meaningful way with regard to these dimensions. If this had been the case, it was understandable why the predicted result was not obtained.

Since placing a response in a general or specific category was a subjective cognitive judgment, a plausible explanation for the negative results may be the fact that the coders did not agree with the raters who originally decided which categories were general or specific, and thus, may not have abided by the guide lines established by the experimenter. Thus, what was observed may have been a purely phenomenological process.

It was also possible that a coder "set" may have been established as a result of coding the responses. After coding a number of similar responses into the same categories the coders may have been predisposed to use these categories, and therefore, tended to use them even when the data called for different categories. Along this same line, and also, contaminating the results, was the possibility that the previous experience of Coder 1 may have acted as a bias predisposing him to react to the responses using the impressions be obtained from his interviewing experience.

Finally, the responses to the standard question not only contained information called for by the question but also the subject's comments. What were analyzed were not changes per se, but also the subject's opinions and evaluative comments about the perceived changes. The analysis of the information not called for by the question--opinions --may have counteracted any effect the mental sets established by the content of the questions had on the pertinent parts of the response.

At the expense of repeating myself, if the coders were trained and were experts regarding this research, thus minimizing such contamination, they would have been able to differentiate more easily the responses of interest and disregard the rest.

In concluding this discussion concerning the results of this research, some mention should be made of the possible psychological processes underlying the behavior displayed in this study, and these may help explain why negative results were found.

An article entitled "The question-answer process--a conceptualization and some derived hypotheses for empirical examination" by Getzels (1954) attempted to explain what was happening in the question-answer process. Parts of the author's explanation may be appropriate to this research and shed some light on its findings.

The following paragraphs contain what was essentially Getzel's understanding of Bruner's conceptualization of the psychological processes going on in an individual when he responded to a visual stimulus, reinterpreted to fit this study.

Little energy has been used for asking what exactly was represented in a respondent's answer to a question. How much of the answer reported the individual's spontaneous reactions, how much his ego-enhancing defences, how much the requirement of the particular situation within which the questions are asked?

While investigators in other fields of psychological functioning were focusing their experiments on the process intervening between a stimulus and observed response, investigators in the field of opinion and attitudes were content, for the most part, to focus their research on the observed response, i.e., the answer to the question, without probing into the underlying process represented by the observed response. Getzels stated that there was no _a priori_ reason why the process of responding to verbal stimuli should be considered any simpler, for example, than the process of responding to a visual stimulus. Indeed, since the former was more likely to involve social interaction, the expectation could have been that it was more complex.

The model for a preliminary formulation of the question-answer process could be borrowed from Bruner's recent theoretical and experimental work in the field of perception. A reaction to a

perceptual stimulus was conceived of as involving a three-step cycle. Perceiving, as formulated by Bruner, began with an already existing "hypothesis." The assumption was that individuals were never randomly set or eingestellt but were inevitably prepared for seeing, hearing, smelling, tasting, some particular thing or class of things. The second analytic step in the perceiving process was the input of information from the environment. The third step was a checking or confirming procedure. The new information was congruent with the operating hypothesis or was in varying degrees incongruent. If confirmation did not occur, the hypothesis shifted in a direction partly determined by internal factors and partly by the information factors in the unsuccessful information checking cycle.

If an individual was ready to answer a question at all, he was ready to answer it in a given way--he had a hypothesis. However, it could not be assumed that the question-answer sequence was a push-button affair; ask a question and an answer would automatically come out. Any question was embedded in a context--the topic of which was under investigation here--but, what was usually not considered was that the answer was embedded in an answerer. The relationship between question and answer was not uni-dimensional but multi-dimensional.

Using Bruner's formulation, a question tripped off a personal hypothesis. This was the first step of the question-answer process. But it was an internal reaction. It could sometimes become

manifested in a blush, a stammer, or block or so-called "spontaneous reaction" or an impulsive remark, but before it was ordinarily made verbal, two other factors entered into consideration: the situation of the questioning and the motivations of the individuals in the particular situation.

A question was not a stimulus in a vacuum; it had a situational context. A question asked by a therapist as to how one felt toward his family was one thing, by a neighbor another, by a stranger yet another. There were social expectations defining what was appropriate behavior and social norms defining responses that were congruent with appropriate behavior. The personal hypothesis tripped off as the immediate reaction to the question was checked against the requirement of the situation. Appropriate behavior in the case of threatening objects of inquiry could have permitted revelation of the personal hypothesis, or may have required censorship and distortion on the personal hypothesis, or may have required censorship and distortion of the personal hypothesis in light of the situational requirements in which the question was embedded. The second step then in the question-answer process was the assimilation of the question-stimulus to the situation context of the checking of the initially aroused personal hypothesis against the requirement of the situation. The third step was the formulation of a response to the question that would have facilitated or at least not threatened the respondent's adjustment of personal needs to situational demands.

manifested in a blush, a stammer, a block or so called "spontaneous reaction" or an impulsive response; but before it was ordinarily made verbal, two other factors came into consideration: the situation of the questioning and the requirements of the individuals in the particular situation.

A question was not a stimulus in a vacuum; it had a situational context. A question asked by a therapist as to how one felt toward his family was one thing, asked by a neighbour another, by a stranger yet another. There were social expectations defining what was appropriate behavior and social norms defining responses that were congruent with appropriate behavior. The personal hypothesis tripped off as the immediate reaction to the question was checked against the requirement of the situation. Appropriate behavior in the case of threatening objects of inquiry could have permitted revelation of the personal hypothesis, or may have required censorship and distortion on the personal hypothesis, or may have required censorship and distortion of the personal hypothesis in light of the situational requirements in which the question was embedded. The second step then in the question-answer process was the assimilation of the question-stimulus to the situation context of the checking of the initially aroused personal hypothesis against the requirement of the situation. The third step was the formulation of a response to the question that would have facilitated or at least not threatened the respondent's adjustment of personal needs to situational demands.

There was no reason to assume that the mere act of asking an individual a question obligated him to divest himself of his self interest and needs for ego-enhancement, interpersonal acceptance, and conformity to group norms.

The practiced clinician, psychiatrist, and personnel worker has learned that what an interviewee said about himself or about a controversial issue could be as much motivated by needs other than giving an accurate account of his feelings as by those for giving such an account. In a clash between accuracy of verbal report and self-interest adjustment, the former would by no means inevitably have been the victor. Exposing the personal hypothesis tripped off by the stimulus-question could have aided or hindered the subject's adjustment to situational requirements. The internal response was likely to be defended and censored. If certain kinds of perceptual reactions could be explained as distortion of information-stimuli by personal hypothesis, certain kinds of responses to questions could equally have been described as distortions of personal hypotheses by situational stimuli.

The personal hypothesis tripped off by the question--what are the changes you perceived during the past year--in the present research could have been, management is trying to find out something, what is it?, what do they expect me to say? Not knowing the interviewer, not knowing if the interviewer would report who said what to management, and knowing that the company recently had a large layoff, these

men responded in a way they thought was expected of them. In this way they would not be threatened--no trouble with management.

It was the experimenter's opinion that the nature of the content of the question could have easily provoked the controversial issue of the serious layoff which took place about the same time as the interviews. It could have aroused strong motivation on the part of the subjects to avoid any trouble for fear of reprisal, and this strong motivation overrode and hid any effect the content of the previously asked questions had.

Thus, a question may have not been responded to in a vacuum, but rather tended to be assimilated to the situation of the question and the questioner. The nature of the response may have been a function of not only the content of the question but also the situational stimuli. Perhaps, if the layoff had not been so near and so threatening to many of the subjects, the standard question would not have aroused uneasiness as noticed by the experimenter, and the effect of the content of the previously asked question might have been shown.

In conclusion, the experimenter wishes to express the opinion that the preceding highly theoretical explanation was only one of a number of possible explanations of the behavior displayed in this study. The behavior may have been simply due to the fact that the information called for by the standard question required the subjects to recall events of the past year while the rest of the questions in the

interviews required the subjects to think of on-going processes. This shift in frame of reference might have caused the apparent shift in set noticed by the experimenter.

SUMMARY AND CONCLUSIONS

Although some of the variables that affect responses in questionnaires have been from time to time theoretically defined and discussed, relatively seldom has the effect of these same variables been empirically investigated in an interview situation. The present research, carried out in an industrial research organization, was designed to explore the effect of one such variable, namely, the generality-specificity of the content of questions asked.

It was the intention of this research to determine the extent to which the content of a response was a function of the content of previously asked questions, and the following hypothesis was made concerning this relationship.

> The content of previously asked questions would establish a mental response set in the responding individual, and this mental response set would influence the subject's response to a subsequent question in such a way as to reflect the nature of the content of the previously asked questions.

Furthermore, it was of interest to test, in an interview situation, Parten's assertion concerning the order in which general and specific questions should be asked. She stated that if both general and specific questions were to be used in the same interview schedule, the general ones should precede the specific ones, instead of the

opposite; otherwise, subjects tended to answer the general ones in terms of the earlier specific ones.

To test the basic hypothesis and Parten's assertion, two interview schedules were available for use. The two types of interview schedules were semi-structured but differed in content. These interviews consisted of a series of specific questions. While the questions clearly indicated the idea or procedure to be discussed in the answer, the subjects had complete freedom in the content and manner of their response to each question.

One of the two interview schedules, the management interview, contained six major questions intended to reflect the subject's knowledge of company procedures. The questions in this interview schedule were general in the sense that they asked for information about the management and accounting control procedures which were known to at least some extent by everyone interviewed. The second interview schedule, the project interview, contained ten major questions intended to reflect the subject's understanding of a particular technical project or work area. The information asked for in this interview was specific to a relatively restricted part of the company; such information would be known best by those working on the particular project or work area. The generality-specificity of the content of the questions made up the independent variable in this study. The content of the response to the standard question constituted the

dependent variable. This question simply asked the subject to list the changes perceived as instituted in the organization during the past year.

Seven interviewers interviewed approximately half the fifty-five engineers with only the management interview and approximately half the subjects with only the project interview.

A code book was developed to reflect the content of the responses to the standard question. Two raters independently judged the generality-specificity of the categories in the code book. The reliability of judgments between the two raters was obtained and disagreements ironed out in discussion allowing for a common agreement as to which categories in the code book were general and which were specific.

The content of the responses to the standard question was then analyzed, and frequency counts were obtained of the number of general and specific units of unformation each response contained.

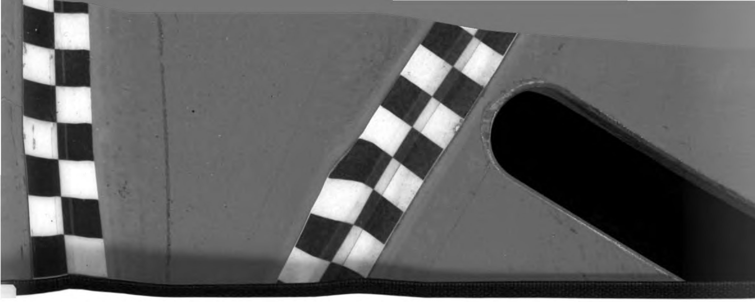
It was hypothesized that the questions in the management interview would create a general mental response set in the individuals, and this general response set would influence the subject's response to the standard question in such a way that its content also would be general in nature, that is, the content of the response would not be delineated and would refer to the whole organization. On the other hand, the questions in the project interview would create a specific mental response set, and would therefore, influence the subject's response to the standard

question in such a way as to reflect this specific mental response set, i.e., the content of the response would be rather detailed and refer to a particular job and not to the entire organization.

If the hypothesis were true, there should have been a statistically significantly greater proportion of general categories counted in the responses to the standard question for the management interview than counted for the project interview, and, conversely, there should have been a statistically significantly greater proportion of specific categories counted in the responses to the standard question for the project interview than counted for the management interview.

The results of attempts to find inter-rater reliability indicated that such reliability was relatively low. A series of 't' tests were computed on the data obtained for each coder independently in order to test the hypothesis. These results did not support the hypothesis. These results, however, did refute Parten's assertion, in an interview situation, that is, having specific questions precede a general question did not induce the subjects to answer the general questions in terms of the earlier specific questions.

Although the findings concerning the basic hypothesis were essentially negative, the possibility of a relationship between the content of the question and the content of the response was to be indicated by a trend in the data. The experimenter suggested that, perhaps, refinements in the procedure used--as mentioned in the discussion--may help clarify the present uncertain relationship.



REFERENCES

Atkinson, J. W. Motives in Fantasy, Action, and Society: A Method of Assessment and Study. Princeton, N. J.: Van Nostrand, 1958, 238.

Berelson, B. Content Analysis in Communications Research. Glencoe, Ill.: Free Press, 1952, 24.

Cronbach, L. I. "Response sets and test validity." Educ. psychol. Measmt, 1946, 6, 475-494.

Fries, C. C. The Structure of English. N. Y.: Harcourt and Brace, 1952, 124-127.

Getzels, J. W. "The question-answer process." Publ. Opin.quart., 1954, 18, 80-91.

Guilford, J. P. Fundamental Statistics in Psychology and Education. N. Y.: Mc Graw Hill Book Co., 1956, 335.

Link, H. C. "The psychological barometer of public attitude." J. appl. Psychol., 1947, 31, 129-138.

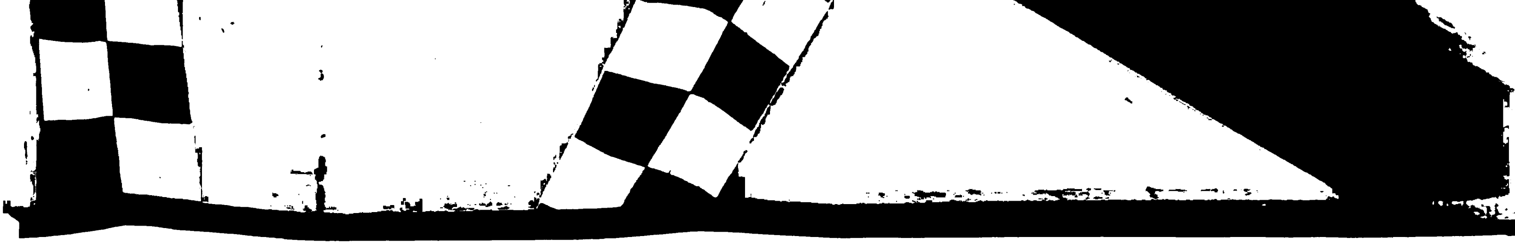
Maier, N. R. F., Hoffman, L. R., Hooven, J. J., & Read, W. H. "Superior subordinate communication in management." Amer. Mgnt. assn., Res. Stud. 1961, 52, 12.

Marsden, G. "Content analysis studies of therapeutic interviews." Psychol. Bull. 1965, 63, 298-322.

Orne, M. T. "On the social psychology of the psychological experiment." Amer. Psychologist, 1962, 17, 776-783.

Parten, M. Surveys, Polls and Samples. New York: Harper and Bros., 1950, 213-216.

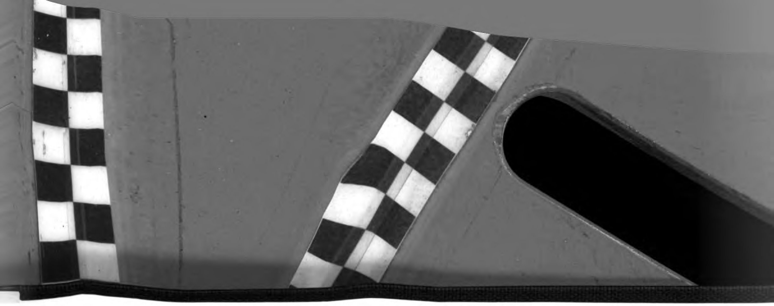
Rorer, L. G. "The great response style myth." Psychol. Bull., 1965, 63, 129-157.



Selltiz, C. Jahoda, M., Deutsch M., & Cook, S. W. Research Methods in Social Relations. N. Y.: Holt, Rinehart, Winston, 1964, 572.

Wickert, F. R. Interim Report, Communication Research Project, Unpublished Manuscript, 1965.

Wispe, L. G., and Thayer, P. W. "Some methodological problems in the analysis of the unstructured interview." Pub. Opin. quart., 1954, 18, 223-227.



APPENDIX A

L Si Project January 4, 1965

Add to all Management and Project Interview Guides this question (this question may be omitted only if the interviewee had been previously interviewed on a management or project interview during the 1965 round of interviews) (this question will be number 6 for management interviews and 10 for project interviews):

6. or 10. Think back on how things were in the Engineering Division early last Spring - about March of 1964. Now, what do you see as the important, the major changes in the administration and management - and the general climate - of the Division since then - the few really big changes? Please try to list these. (Instructions to the interviewer: do your best to keep the interviewee from reminiscing and rambling; try to limit him to listing the truly major changes he observed.)

January 13, 1965

Psychology 867

1965 Management Interview Introduction

(New) I. A. Introduce yourself. Then say: I am here to talk with you today about the management control and coordination system - the communication system - of the Engineering Division and closely related parts of the company here in Grand Rapids. You may have been through these same questions when we were here before: whether you have been or not, we are asking the same questions of a representative sample of management people (not as a check on your consistency but)* as a way of "taking the temperature" of the communication system here after a good deal of time has elapsed and quite a few changes have taken place.

(New) I. B. "Type of department"becomes "type of organization". Now (1965) use these categories: (1) Vice President, Engineering; (2) Technology; (3) Product; (4) Services; (5) Staff.

*Use only if you find that it is desirable to do so.

[illegible] Guide — [illegible] Control and Coordination [illegible]

I. [illegible] [illegible]. [illegible] yourself. [illegible] says: [illegible] talking with you today (or this time) about the management control and coordination systems of the Engineering Division and closely related organizations of the Company.

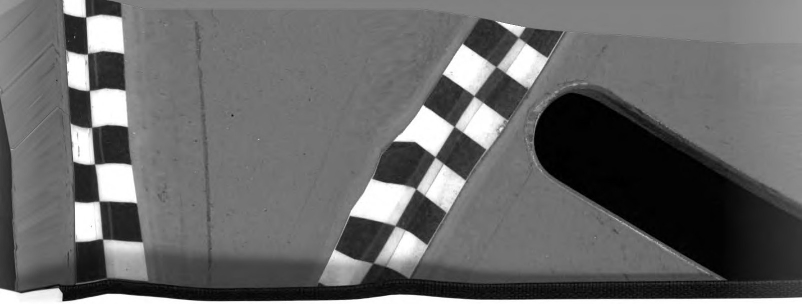
A. Identifying information: Name of the interviewee, level in the Division (e.g. [illegible]: division or assistant division manager, department manager (indicate line or staff), section manager (indicate line or staff), project [illegible], type of department (indicate one: general department (usually division staff), systems department, component or hardware department, service department).

II. Interview proper. The interviewer says: our plan is to ask you some questions which begin with the various chronological stages through which a project goes as it develops. Gradually we get into broader areas. There will not be time to go into all aspects of all the stages. We have carefully chosen questions which we hope will provide a representative sample of your understanding of the system as a whole.

The purpose of all this is to obtain data which should help give more insight into the Division's communication system and possibly eventually lead to its improvement. No communications system will ever be perfect.

Your answers to questions will not be identified in any reports prepared either for publication or general distribution. Instead, your answers will be combined with those of others. Reports will therefore take the form of statistical summaries.

A. Developing new projects and programs. [illegible], new projects and programs come into existence. 1.1 [illegible] the conditions



that, in your recent experience in the Division, foster and encourage the emergence of new projects and programs. (The interviewee may need to be urged to think in positive terms at this point; he may find it easier to talk about obstacles. He may be told that that topic comes next.) 1.2 Next, consider the obstacles that prevent possibly good ideas for new projects and programs from reaching the attention of and convincing those who are in a position to push the program along. Please list these.

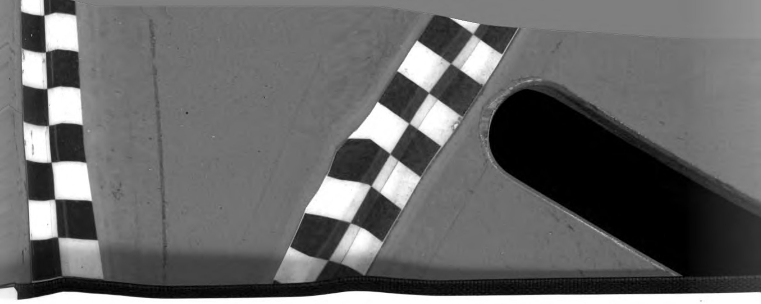
2. Once an idea has been formulated, one way of looking at what happens next is to say that a good deal of thinking and planning goes into establishing a new project or program. No one standard pattern is followed; too much depends on circumstances. Here is a question or two intended to sample your impressions in this broad area:

2.1 The OCR

2.11 What is an OCR? More specifically, what has the OCR meant in projects with which you are familiar? (The following questions may be used if the answers to them do not come out in answering 2.11. Otherwise they may be omitted.) 2.12 To what extent does an OCR in your experience cover all relevant items? 2.13 To what extent are the statements and figures quoted in an OCR of value to the project engineer assigned to work on the OCR?

To what extent do OCR's go unanswered?

3. Once a new project or program has been established, one way to look at what happens next is that actual development work begins. There are, broadly speaking, two ways that management has of controlling and guiding and coordinating each project: (1) controlling the project as a project and (2) controlling the



project in relation to other projects as part of the activity of an organization within the Engineering Division. Following are several questions intended to sample your impressions in both of these broad areas:

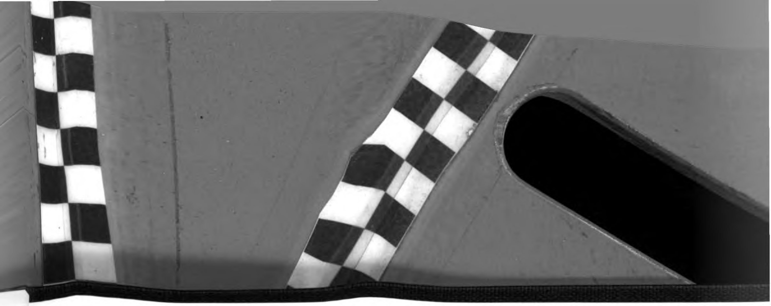
3.1 Controlling the project as a project. 3.11 Think of what ways the [illegible] is effective in helping the Project Engineer to control the project as a project. List these ways.

3.12 When low cost of production is especially important, list the steps a Project Engineer can take to keep down production costs on his project. Include among these steps the persons, or other resources he might turn to for help.

3.2 Controlling the project in relation to other projects. All the usual gripes about the Monthly Engineering Forecast aside, consider what this forecast, once it has been put together, tells the usual Project Engineer. (No answer is expected to 3.2; go on to 3.21.) 3.21 Please list the benefits a project engineer gets from the Monthly Engineering Forecast for a project to which he is assigned. (If you are not a project engineer yourself, think of some project engineer with whose work you are most familiar.)

3.22 Please list the benefits a project engineer gets from the total forecast picture (The Monthly Engineering Forecast that is based on a number of projects).

3.23 Now think in terms of the department manager. (If you are not a department manager yourself, think of some department manager with whose work you are most familiar.) Please list the benefits the department manager gets from the Monthly Engineering Forecast (The "total picture" type forecast only).



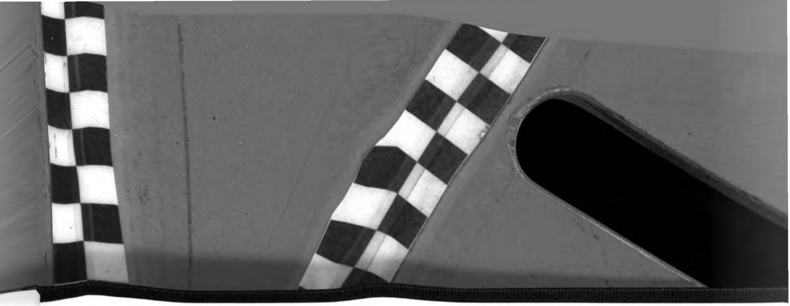
3.3 About how much money do you think the Engineering Division spent last month in the accomplishment of its engineering programs? Last month, what do you think was the approximate ratio between the amount of customer money (green money) spent and the amount of IBM money (red money) spent? (Don't look up these figures. Report only what you happen to remember. This is part of the game.)

4. A project or program can stop at any time, e.g., the contract may be cancelled. No questions.

5. Throughout all the above four stages of project controlling, there exist management control areas that are broader than projects and programs. These have to do with the management of (1) people as individuals and as collections of people and (2) organizations. Following are questions on several narrow aspects of these broad, management-control areas. 5.1 List the methods by which you have observed that an individual's work assignments are kept adjusted to his special qualifications and interests. 5.2 If you are a department manager (or if you are not, think in terms of the department manager with whom you are most familiar), consider those matters which you (he): (1) would like to feel free to decide for yourself (himself) but which at present you (he) has to refer up the line for a decision; and (2) would like to refer up the line for a decision rather than make the decision yourself (himself). 5.21 Now, list the matters that occur to you under (1) above. 5.22 Next, list the matters that occur to you under (2) above.

III. Close the interview. (Interviewer's name and the date of the interview).

December 20, 1963



APPENDIX B

January 13, 1965

Psychology 867

1965 Project Interview Introduction

(New) I.A. Introduction. Introduce yourself, Then say:
I am talking with you today because of your association with Project __________ (what project it is you should have found out from the list in Mr. Mellinger's office). (If an "old" project (a project existing in 1964) say, "you may have discussed this same project with us some time ago. We're going over the same questions again because there has been a great deal of change since we were here before. We are still concerned with communications, and talking with you helps work out how communications take place here." (If this is a "new" (a 1965 project) project, you may need only parts of this introduction - or even none of it.)) Then go on to part I. B. in the old guide.

Interview Guide - Projects-taken-one-at-a-time Questions

I. A. Introduction. Introduce yourself. Then say: We are talking with you today (or this time) because of your association with Project________.

B. Identification information: Name of the interviewee, Level in the Division (designate one: division or assistant division manager, department manager (indicate line or staff), section manager (indicate line or staff), project engineer), type of department (designate one: above department (usually division staff), system department, component or hardware department, service department).

C. Role in project: (designate one: project leader, immediate supervisor of project leader, an assigned member of the project, a "cognizant" person relative to the project).

II. Interview proper. The interviewer says: We should like to ask you some rather systematic questions about this project and its conduct and control as part of our study of the communications system of the Engineering Division.

Your answers to questions will not be identified in any reports prepared either for publication or general distribution. Instead, your answers will be combined with those of others. Reports will therefore take the form of statistical summaries.

1. What is your idea of the purpose of this {service project 1.1 from the point of view of the company, the division, and the department, 1.2 from a professional, scientific point of view?

2. To the best of your knowledge, how did this project get started? Where did the ideas come from that contributed to its development to date? What do you see as the engineering, customer, marketing and management climate that brought about this project?

3. 3.1 What do you see as your role with respect to this project? ~~3.2 About what proportion of your working day have you spent on this project during the past month? 3.3 About what proportion do you expect to spend during the coming month?~~ 3.4 What other persons or groups are involved in this project? 3.5 What are their respective roles?

4. 4.1 What in your opinion is company interest as well as division interest in this project? 4.2 In what concrete, specific ways have they been showing their interest in this project? 4.3 What is customer interest in this project, as you see it -- what is its marketing potential? 4.4 How well do company management and customers agree on the project's potential, do you think?

5. 5.1 What in your opinion was the most significant technical breakthrough on this project to date? 5.2 Why was this breakthrough so significant?

6. 6.1 What, if any, is now the most important remaining technical obstacle or block on this project? Please explain. 6.2 What in your opinion is needed to overcome this obstacle or block?

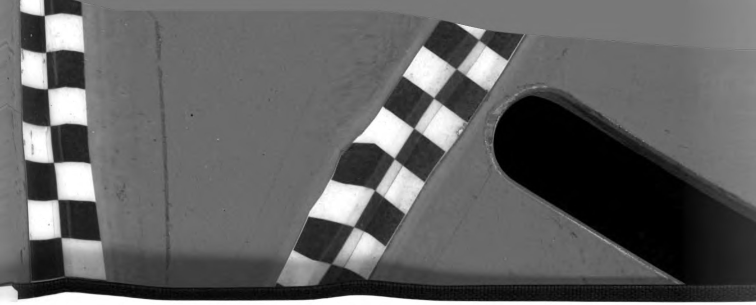
7. 7.1 How does this project stand with regard to its established schedule? 7.2 How do you account for this?

8. 8.1 How do you think the technical progress on this project compares with the dollars spent to date on it? (Make your judgment in the light of the various projects with which you are familiar.) 8.2 How do you account for this?

9. Additional remarks and observations not falling under any of the above.

III. Close the interview. (Interviewer's name and the date of the interview).

12-19-63



APPENDIX C

Code Book

Management (Q. 6) and Project (Q. 10) Interviews

1965 Series

Q. 6 or 10. The major changes in the administration and management--and the general climate--of the Division between about March 1964 and the present (mid-January to early March 1965)--an attempt to list the few really big changes.

<u>Special instructions to the coder</u>: The interviewees, you will find, tended to ramble and hardly limited themselves to the few big changes, as asked for above. Moreover, their remarks not only range from very specific to very general but often include a causality or time dimension that makes coding especially difficult. For example, regarding the causality or time dimension, they will talk about an event or influence that led to another event, to another, etc. Your task in coding is going to be to concentrate on the events that happened and <u>not</u> on causes or effects, even though the events are spaced out in time by the interviewee. You are to concern yourself with coding events-that-happened, regardless of their sequence. It is realized that we will lose some information through adopting this policy. However, any coding is a simplifying process in which some information is lost. We are mainly concerned, then, that you look for events-that-happened.

More than in coding other questions, you are going to have to consider the context in which remarks were made and use considerable ingenuity in working out in which one of the limited number of categories given below you think a remark should be coded. We must take some chances here on reliability. You are asked to think a remark through carefully, reinterpret the words somewhat if necessary, and come out with coding the remark in that category or categories it best fits. Several categories may be needed to reflect the events expressed even in one short but information-heavy sentence.

The purpose of these special instructions is to help get reliable, usable coding accomplished despite the wide-ranging answers to this very unstructured question.

<u>Another caution</u>: the coder should pay special attention to the generality or specificity of the interviewee's statements that he is coding because there is a plan to use the degree of generality or specificity as an experimental variable on this question. If an interviewee makes a vague, general, global reference, his reference should be coded in a general category; if, on the other hand, he makes a specific statement, it should be coded as specific. If, however, he starts off, for example, by making a specific statement and then says that this is just an instance of something broader, or if he makes a broad statement and then gives specific examples, both general and specific codes should be used.

The coder must code at least one code under 1. and one under 2.

M 1. Change(s) in the (usually economic or business) climate or environment in which the company exists and/or in the Engineering Division. (Changes coded under 1. should be differentiated from those coded under 2. Whereas 1.-type changes are changes in the surrounding climate, 2.-type changes are instituted changes--man has intervened and done something or taken some action.)

M 1.1 The climate has improved (March 1965 is better than March 1964).

S 1.11 The work load is up, the company is in a growth phase, the future looks better, there is more stability, more backlog, there was a market swing (in our favor), the pre-election political stall is over, etc.

S 1.12 Money is easier to get, there is more R. & D. money, now a manager can find funds to allocate as needs arise, etc.

S 1.13 The company is more aggressive and confident, is going out after more business, puts more emphasis on selling, has become a sharper competitor, etc.

M 1.14 Others

M 1.2 There has been little or no change in climate (although some say that there has been).

M 1.3 No comments on climate.

M 2. Change(s) in how the company and/or the Engineering Division functions; instituted rather than climate changes, or changes that just happened.

M 2.1 Beneficial changes

M 2.11 Management-instituted beneficial changes

M 2.111 Beneficial changes in formal organization

S 2.1111 Fewer layers of management; fewer persons reporting to the Vice-President for Engineering, the Vice-President for Engineering is easier to get to.

M 2.1112 The three divisions

S 2.1113 Engineering administration is centralized (with professional accountant heading it up).

S 2.1114 Functional and departmental reorganizations: departments with like functions are better grouped; more project-oriented task groups and less emphasis on departments; preliminary technology is removed from departments and is now in its own special area; smaller units have been merged into larger ones (e.g., A.G.E. into the Engineering Division).

S 2.112 Beneficial but less formal, more general organization changes: better definiton of goals, the company is run less like a product line and more like a business, more attention is paid to engineering, more centralized control with work loads better estimated, engineering is no longer such a step-child, more engineering-mindedness, engineers more trusted and given more say-so, more cost-mindedness.

S 2.113 Better administration of dollars, more realistic budgeting.

M 2.114 Better personnel assignments; technical personnel are assigned to technical areas.

M 2.115 The new president--some reasons why he is better and some excuses for the immediate past president.

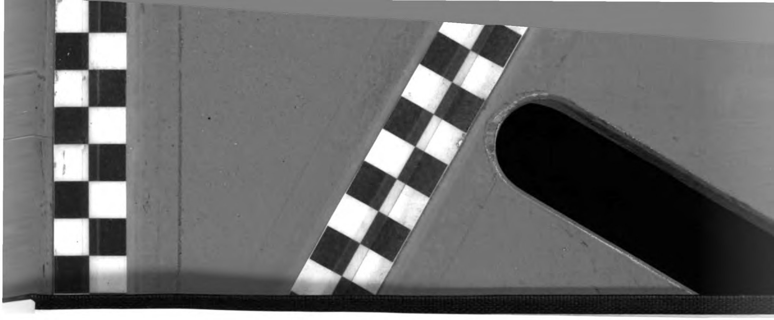
M 2.116 Others

M 2.12 Changes that just happened--sometimes possibly or in part traceable to management actions.

M 2.121 Greater efficiency: less redundancy, less duplication, less paper work

M 2.122 Improved inter-organizational relationships; less friction.

S 2.1221 Better relations between Engineering and Marketing, Manufacturing, and other important company organizations.



S 2.1222 The newly-instituted, lower-level meetings on the OCR's

S 2.1223 Master-projects control

S 2.1224 Others

M 2.123 Better teamwork: the company and/or the Engineering Division operates more as a single unit rather than as a series of separate units, is closer knit (after the layoffs).

M 2.124 Better quality personnel: technical proficiency is improved and have better engineers now; only better quality personnel is left after the layoff; much deadwood was cleaned out in the layoff.

M 2.125 Better morale among company and/or Engineering Division personnel. (Morale is better than last year when it was very low.) Greater security after the layoff (since only good quality personnel remain).

S 2.126 Can spend more time with customers

S 2.127 ~~Other~~ The layoff (mentioned only)

M 2.128 Other

M 2.2 Little or no change took place, or, if changes did take place, they have had little or no effect.

M 2.21 Efficiency has remained about the same.

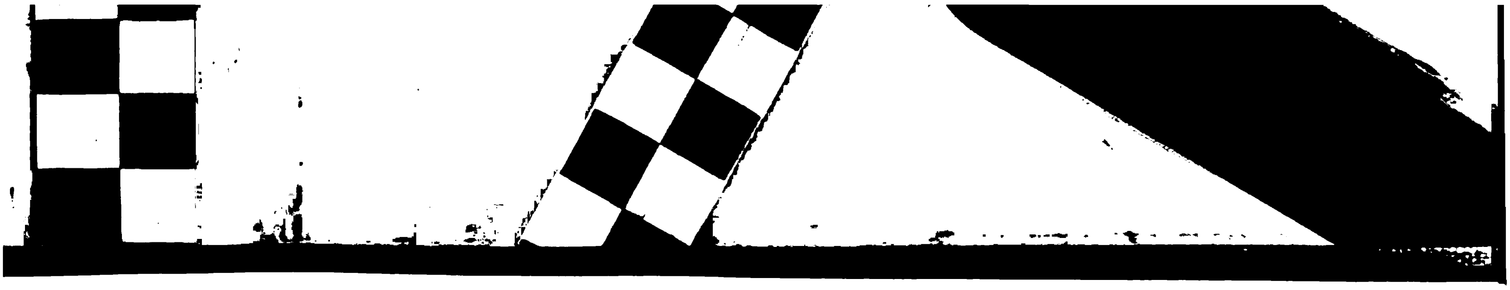
M 2.22 There have been many changes (from general to specific and any mixture), but they have had no effect.

M 2.23 There has been no change in morale; it is just the same--this, despite all the stories and rumors.

S 2.24 There has been no essential change in cost consciousness or management mindedness.

M 2.25 There have been few changes; if there were any, I don't know what they are; I really don't know what's going on; if there were changes, I wasn't affected; there were no real changes (in working conditions or company policy).

M 2.26 Other



M 2.3 Changes for the worse that have occurred.

- M 2.31 The company is generally less efficient now.
- M 2.32 More detailed changes that have hurt.
  - S 2.321 The layoff
    - S 2.3211 We are left short-handed; we lost good men that we can't replace; we lost good men in the manpower reduction; it is hard to get new prospects to come to Grand Rapids; there isn't enough money for raises for the present staff since the company has to pay more to new men to get them to come here.
    - S 2.3212 Morale is a problem, we lost faith in management, we lost security, we are more insecure, employee interest is low, we can't look forward to retirement, layoffs were badly handled (they told us they were over and then would layoff more the next day; we weren't told why--the layoffs just kept coming.)
  - S 2.322 Organizational structure changes; have moved from technical to procedural mindedness; there is more formality in the Engineering Division; management is less available now; management is less decisive now.
  - S 2.323 There is less cost consciousness now.
  - M 2.324 Undesirable personnel policy changes
    - S 2.3241 Forced vacation times are not liked
    - S 2.3242 Lack of money for pay increases (no reference to the layoff)
    - S 2.3243 Others
  - M 2.325 Others

M 2.4 Changes as such were mentioned but with no comment on their good or bad effects on the company or on morale.

- S 2.41 The new building next door--the accountants are closer.
- S 2.42 Personnel policy changes, e.g., the LEAP program was discontinued

S 2.43 Specific personnel reassignments were named.

M 2.44 Changes took place in more or less routine administrative procedures.

S 2.45 Changes took place in the company's business, e.g., product mix changes, more systems and less components emphasis.

S 2.46 Others