This dissertation has been microfilmed exactly as received

Mic 60-4097

HOUSE, Robert James. AN EXPERIMENT IN THE USE OF SELECTED METHODS FOR IMPROVING THE EFFECTIVENESS OF COMMUNICATION TRAINING FOR MANAGEMENT.

The Ohio State University, Ph. D., 1960
Economics, commerce-business

University Microfilms, Inc., Ann Arbor, Michigan
AN EXPERIMENT IN THE USE OF SELECTED METHODS
FOR IMPROVING THE EFFECTIVENESS OF
COMMUNICATION TRAINING FOR MANAGEMENT

DISSERTATION
Presented in Partial Fulfillment of the Requirements
for the Degree Doctor of Philosophy in the
Graduate school of the Ohio State University

By
ROBERT JAMES HOUSE, B. S., M.B.A.

The Ohio State University
1960

Approved by

[Signature]
Adviser
Department of Business Organization
ACKNOWLEDGMENTS

I would like to express my sincere appreciation to my wife, Pat, for her patience and encouragement, without which this dissertation could not have been completed. Also I would like to thank the members of my dissertation committee, Dr. Michael Jucius, Dr. William Schlender, and Dr. Carroll Shartle, for their constructive criticism and advice.

I would like to express my sincere appreciation for the cooperation and encouragement given me by members of North American Aviation, Inc., Columbus Division. Specifically, the members of the management training section, William W. Nichols, and Robert Bertsch. I would also like to thank Robert Kibele for his suggestions and encouragement concerning the elevation of course standards. Without his guidance and fostering a significant portion of the dissertation findings would have been impossible. Frank Norton also deserves a note of gratitude for his generous editorial assistance. I would also like to thank Tom Willke for his assistance and instruction concerning statistical procedure and analysis.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td></td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td></td>
</tr>
<tr>
<td>BACKGROUND</td>
<td>1</td>
</tr>
<tr>
<td>IMPORTANCE OF MANAGEMENT TRAINING</td>
<td>2</td>
</tr>
<tr>
<td>STATUS OF TRAINING EVALUATION</td>
<td>4</td>
</tr>
<tr>
<td>BACKGROUND CONCERNING THE SPECIFIC OBJECTIVES OF THIS DISSERTATION</td>
<td>6</td>
</tr>
<tr>
<td>SPECIFIC OBJECTIVES OF THE STUDY</td>
<td>10</td>
</tr>
<tr>
<td>ORDER OF PRESENTATION</td>
<td>11</td>
</tr>
<tr>
<td>II</td>
<td>12</td>
</tr>
<tr>
<td>SCOPE, METHODS AND LIMITATIONS OF STUDY</td>
<td>12</td>
</tr>
<tr>
<td>THE FOLLOW UP PROGRAM</td>
<td>12</td>
</tr>
<tr>
<td>THE PLAN FOR ELEVATING COURSE STANDARDS</td>
<td>15</td>
</tr>
<tr>
<td>LIMITATIONS OF THE SCOPE OF THIS DISSERTATION</td>
<td>17</td>
</tr>
<tr>
<td>III</td>
<td>20</td>
</tr>
<tr>
<td>METHOD OF EVALUATING TRAINING EFFORTS</td>
<td>20</td>
</tr>
<tr>
<td>WHAT EFFECTS SHOULD BE MEASURED</td>
<td>20</td>
</tr>
<tr>
<td>METHODOLOGY OF MEASUREMENT</td>
<td>23</td>
</tr>
<tr>
<td>REQUIREMENTS FOR EFFECTIVE MEASUREMENT OF BEHAVIORAL CHANGE</td>
<td>26</td>
</tr>
<tr>
<td>BASIC PRINCIPLES OF EVALUATION</td>
<td>27</td>
</tr>
<tr>
<td>CHAPTER SUMMARY</td>
<td>29</td>
</tr>
<tr>
<td>Chapter</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>IV</td>
<td>HISTORICAL PERSPECTIVE</td>
</tr>
<tr>
<td></td>
<td>SURVEY EVALUATIONS</td>
</tr>
<tr>
<td></td>
<td>THE EXPERIMENTAL EVALUATIONS</td>
</tr>
<tr>
<td></td>
<td>SUMMARY AND CONCLUSIONS CONCERNING PREVIOUS EVALUATIONS</td>
</tr>
<tr>
<td>V</td>
<td>THE FOLLOW-UP EXPERIMENT</td>
</tr>
<tr>
<td></td>
<td>BACKGROUND</td>
</tr>
<tr>
<td></td>
<td>PROCEDURAL STEPS</td>
</tr>
<tr>
<td></td>
<td>STEP ONE: DEVELOPING COURSE CONTENT</td>
</tr>
<tr>
<td></td>
<td>STEP TWO: PREPARING UPPER MANAGEMENT FOR THE EXPERIMENT</td>
</tr>
<tr>
<td></td>
<td>STEP THREE: INSURING PARTICIPANT REQUIREMENTS</td>
</tr>
<tr>
<td></td>
<td>STEP FOUR: SELECTING THE SAMPLE</td>
</tr>
<tr>
<td></td>
<td>STEP FIVE: DEVELOPING AND TESTING THE QUESTIONNAIRE</td>
</tr>
<tr>
<td></td>
<td>STEP SIX: CLASSIFYING THE QUESTIONS</td>
</tr>
<tr>
<td></td>
<td>STEP SEVEN: INVITING THE PARTICIPANTS</td>
</tr>
<tr>
<td></td>
<td>STEP EIGHT: SUBMITTING THE QUESTIONNAIRE</td>
</tr>
<tr>
<td></td>
<td>STEP NINE: CONDUCTING THE TRAINING PROGRAM</td>
</tr>
<tr>
<td></td>
<td>STEP TEN: CONDUCTING THE FOLLOW-UP PROGRAM</td>
</tr>
<tr>
<td></td>
<td>STEP ELEVEN: SUBMITTING THE SECOND QUESTIONNAIRE</td>
</tr>
<tr>
<td>Chapter</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>VI EVALUATION PROCEDURE</td>
<td>79</td>
</tr>
<tr>
<td>ASSUMPTION OF EXPERIMENTAL DESIGN</td>
<td>80</td>
</tr>
<tr>
<td>METHOD OF EVALUATION</td>
<td>79</td>
</tr>
<tr>
<td>EXPLANATION OF THE NULL HYPOTHESIS</td>
<td>82</td>
</tr>
<tr>
<td>SELECTING OF STATISTICAL TESTS</td>
<td>86</td>
</tr>
<tr>
<td>EXPLANATION OF SIGNIFICANT DIFFERENCE</td>
<td>86</td>
</tr>
<tr>
<td>COMPUTATION OF SCORES</td>
<td>86</td>
</tr>
<tr>
<td>VII QUANTITATIVE FINDINGS</td>
<td>89</td>
</tr>
<tr>
<td>SAMPLE STRUCTURE</td>
<td>89</td>
</tr>
<tr>
<td>ANALYSIS OF GROUP SCORES</td>
<td>90</td>
</tr>
<tr>
<td>ANALYSIS OF THE DIFFERENCE BETWEEN GROUPS</td>
<td>95</td>
</tr>
<tr>
<td>INTERGROUP ANALYSIS OF CLASSIFICATION SCORES</td>
<td>97</td>
</tr>
<tr>
<td>INTRAGROUP ANALYSIS OF CLASSIFICATION SCORES</td>
<td>100</td>
</tr>
<tr>
<td>ANALYSIS OF INDIVIDUAL SCORES</td>
<td>105</td>
</tr>
<tr>
<td>CHAPTER CONCLUSIONS</td>
<td>108</td>
</tr>
<tr>
<td>VIII CONFEREE OPINIONS</td>
<td>110</td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>111</td>
</tr>
<tr>
<td>EVALUATION OF COURSE CONTENT</td>
<td>112</td>
</tr>
<tr>
<td>SIGNIFICANCE OF CONTENT EVALUATION</td>
<td>116</td>
</tr>
<tr>
<td>EVALUATION OF THE INSTRUCTOR</td>
<td>116</td>
</tr>
<tr>
<td>Chapter</td>
<td>Page</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>QUALITATIVE SIGNIFICANCE OF INSTRUCTOR EVALUATION</td>
<td>120</td>
</tr>
<tr>
<td>SUMMARY OF CONFEREE OPINIONS</td>
<td>121</td>
</tr>
<tr>
<td>CHAPTER CONCLUSIONS</td>
<td>122</td>
</tr>
<tr>
<td>IX EFFECTS OF RAISING COURSE STANDARDS</td>
<td>124</td>
</tr>
<tr>
<td>TRADITIONAL MANAGEMENT TRAINING PHILOSOPHY</td>
<td>125</td>
</tr>
<tr>
<td>THE NEED FOR HIGHER COURSE STANDARDS</td>
<td>126</td>
</tr>
<tr>
<td>EFFECTS OF ELEVATING COURSE STANDARDS</td>
<td>128</td>
</tr>
<tr>
<td>CHAPTER CONCLUSIONS</td>
<td>130</td>
</tr>
<tr>
<td>X SUMMARY, CONCLUSIONS AND RECOMMENDATIONS</td>
<td>131</td>
</tr>
<tr>
<td>SCOPE OF STUDY</td>
<td>131</td>
</tr>
<tr>
<td>METHODS AND LIMITATIONS OF STUDY</td>
<td>132</td>
</tr>
<tr>
<td>EXPERIMENTAL FINDINGS</td>
<td>133</td>
</tr>
<tr>
<td>OPINIONS OF PARTICIPANTS</td>
<td>136</td>
</tr>
<tr>
<td>CONCLUSIONS</td>
<td>137</td>
</tr>
<tr>
<td>RECOMMENDATIONS</td>
<td>145</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>150</td>
</tr>
<tr>
<td>APPENDIXES</td>
<td>156</td>
</tr>
<tr>
<td>APPENDIX A - THE COMMUNICATION COURSE TRAINING MANUAL</td>
<td>157</td>
</tr>
<tr>
<td>APPENDIX B - THE QUESTIONNAIRE</td>
<td>189</td>
</tr>
</tbody>
</table>
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Control Group Scores by Classification of Question for Each Participant.....</td>
<td>92</td>
</tr>
<tr>
<td>II</td>
<td>Experimental Group Scores by Classification of Question for Each Participant...</td>
<td>94</td>
</tr>
<tr>
<td>III</td>
<td>Post Experiment Score Minus Pre Experiment Score for Experimental and Control Groups, and the Two Compared...............</td>
<td>96</td>
</tr>
<tr>
<td>IV</td>
<td>Means, t-Scores and Confidence Levels by Classification of Communication Behavior</td>
<td>99</td>
</tr>
<tr>
<td>V</td>
<td>t-Scores and Confidence Level for Difference Between Pre Experimental Score and Post Experimental Score by Classification of Communication Behavior for Control Group....................</td>
<td>102</td>
</tr>
<tr>
<td>VI</td>
<td>t-Scores and Confidence Level for Difference Between Pre Experimental Score and Post Experimental Score by Classification of Communication Behavior for Experimental Group.........................</td>
<td>104</td>
</tr>
<tr>
<td>VII</td>
<td>Comments Concerning Pertinence of Course to Development of Participants........</td>
<td>113</td>
</tr>
<tr>
<td>VIII</td>
<td>Specific Changes in Participant Performance as a Result of the Course..........</td>
<td>117-118</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

BACKGROUND

Significant changes have taken place in the industrial society of the United States during the last half century. In the early part of this century the owner represented only himself, while today the manager is a trustee representing the best interests of suppliers, community, customers and employees. He must achieve the objectives of these groups by guiding the firm to economic accomplishments in the form of products or services.

The accomplishment of such an important and complex task requires that the men performing it have a broad social outlook as well as a deep knowledge of the affairs of commerce. They must be receptive to new suggestions and be able to evaluate them in the light of technological, sociological and economic considerations. They must have skill in human relations, an appreciation of the technical problems of their organization, and a sound knowledge of administration.
To ensure the acquisition of knowledge and refinement of skills in these areas industry has increasingly turned to formal education for today's managers. Since such schooling is expensive, it must be conducted effectively. To be certain that such educational programs will be effective requires an evaluation of the educational principles and practices involved. It is, therefore, the area of the evaluation of management education with which this study is concerned.

Before describing the particular borders of this study, however, some specific comments on the importance of management training and the status of training evaluation are desirable.

IMPORTANCE OF MANAGEMENT TRAINING

The recognition of the need to provide for management teams, educated to meet the demands of the job of tomorrow's executive, has brought about increased emphasis in the formal training of management people, both at universities and within the firms themselves. Dr. Floyd Mann of The Survey Research Center of the University of Michigan has described the growth of Human Relations Training since the late forties
in terms of "wholesale adoption" of training program.¹

Dr. Kenneth R. Andrews, Professor of Industrial Management at The Harvard Graduate School of Business, with other faculty members, has undertaken a five-year research program for the purpose of determining whether Management Training is effective.² In an article dealing with the effectiveness of Management Training he stated: "The growth of educational programs for practicing executives both at universities and in their own company has been one of the most conspicuous developments in business education since 1946."³

Further evidence of the importance of the growth of Management Training efforts has been well summarized by The American Management Association in its Research Report #26. This report reviews what business and industry are doing to meet their need for trained managers and also what results are being obtained from the programs. The survey includes data from 460 companies with 2,484,200

¹ Floyd Mann, Research in Industrial Human Relations, Industrial Relations Research Association, Publication Numbers 17 (1957), p. 149
³ Ibid., p. 85.
employees and more than 252,000 management personnel. About seventy-five per cent of the companies surveyed were doing something to develop managers. One hundred and sixteen, or 25 per cent, stated that they have neither regular activities nor systematic plans, programs, or methods for developing managerial or supervisory people. In the companies which do report management development efforts there is a hodgepodge of practice and programs that defy evaluation of effectiveness or measurement of results.

This apparent lack of scientific evaluation of management training strongly indicates a need for continued research in this field. Only with the aid of scientific methodology can a full understanding and evaluation of the nature and effects of Management Training be achieved.

STATUS OF TRAINING EVALUATION

If it is to be proven effective or improved training, like any other function, should be evaluated. Yet, to date, there have been very few scientific evaluations of management training efforts. The present status of evaluation has been summarized in the following statements:

Much has been written about the need for and the difficulty of measuring the value of training and development programs in industry. Yet remarkably few evaluation studies have been reported,
considering the numerous programs now under-
way. Our contention is that evaluation of
these programs should be undertaken. The
problems encountered in conducting evaluation
studies are by no means insurmountable, and
the results more than compensate for the ef-
fort required...

A review of the literature on the evalu-
ation of training and a study of the evalua-
tion provisions contained in a large number
of supervisory development programs indicate
that little has actually been done to measure
supervisory training in terms of its effect
upon the productive efficiency and the per-
formance of an organization.4

A review of the management and psychological litera-
ture since 1950 reveals that evaluation of the effective-
ness of management training is still largely experimental
in nature.

If one reflects on the content of current articles
published on the subject, the following facts become clear:
(1) The current literature holds few general principles
whose application has been proved; (2) most of the articles
dealing with training evaluation are concerned with case
studies reporting new attempts and problems rather than an
integration of findings into a theoretical framework;
(3) the nature, content and purpose of experiments differ
widely, indicating that even the gaps in our present knowl-
edge have not yet been identified so that effort can be

4 C. G. Moon and Theodore Hariton, "Evaluation and
Appraisal on Feedback Training Program," Personnel
(November-December, 1958), p. 36.
concentrated where it is most needed; (4) the majority of articles present hypotheses and challenge for future researchers, but little consistency can be found in the type of appeal made to potential or perspective investigators; (5) what research we do have has been conducted primarily by universities rather than industrial firms.

BACKGROUND CONCERNING THE SPECIFIC OBJECTIVES OF THIS DISSERTATION

In the light of the current status of the evaluation of training efforts it is obvious that much needs to be done in this area. The purpose of this study, therefore, is to make a contribution to this aspect of management training. Before stating the first objective of this study, however, it is desirable to review generally the pertinent findings of previous research on which this objective was selected.

The consistent conclusions reached on the basis of available quantitative studies is that the effectiveness of Management Training efforts is determined by the
leadership climate in which the trainee works. In these experiments, however, no attempt was made to condition the trainee's work climate so that the training efforts would have a greater probability of being effective. Neither has any attempt been made to induce the superior to coach the participant in the job applications of the principles taught in the training classes.

It is with these particular aspects of management training that the first objective of this study is concerned, namely, to develop and to evaluate a follow-up program designed to (a) condition the leadership climate within which the trainee works so that he may better practice on the job what he has learned in the course, and (b) encourage the superior of the course participants to coach them in the job applications of the course content.

---

5 This conclusion is reached in the following quantitative studies:
The second objective of this study was not selected on the basis of previous research findings but rather on the basis of a training problem which existed in the particular plant in which the follow-up experiment took place. Before stating the second objective it is desirable to review the problem which existed and the general prevalence of this problem in industry.

This writer was fortunate to gain the cooperation of The Columbus Division of The North American Aviation Inc. for purposes of conducting the experiment for this dissertation. In this plant the members of supervision looked upon Management Training with apathy and considered it as an unimportant staff function. As a result of this lack of interest in management training the following difficulties existed: (1) it was difficult to get many supervisors to take the courses; (2) course attendance was very poor; (3) frequently there were few present at the time the classes were scheduled to begin; (4) many classes were cancelled for lack of attendance; (5) and consequently the conference room was seldom filled to capacity.

In an effort to remedy this problem a new training plan was introduced. The new plan included: (1) tighter attendance requirements; (2) more compact course schedules; (3) more authoritative teaching methods than had been in use at the time; and (4) a final examination (exams had
never been given for management training previous to this experiment). The purpose of this new plan was to make the courses more challenging to members of supervision by raising the course standards and, thereby, increase attendance. Thus, the second objective of this dissertation was to evaluate quantitatively, the degree to which the new training plan met its objectives.

The significance of this objective is based on the fact that the evaluation of the new training plan constitutes an evaluation of the traditional training philosophy which is currently held by many staff specialists. According to this traditional training philosophy, the justification for the existence of the training function can be, and usually is, evaluated by the popularity of the training staff and the courses. Consequently, the courses are often designed to meet the approval of the line personnel rather than to assist in the solving of their problems or meeting their training needs. Many times course acceptance is achieved at the expense of sound course content and proper teaching techniques. This is true because the courses will often be designed to be interesting at the expense of important educational content, and permissive teaching methods will be used in order not to offend the participants.6

---

6 This statement is based on the writer's observation of industrial training practices and his experience as a member of training departments in three large firms.
As a result of this traditional philosophy and the emphasis which it places on designing courses for acceptance of the line personnel, the quality of management training is often lowered to the point where it is considered an unimportant and even burdensome staff function. The second objective of this dissertation, to evaluate the plan for raising course standards, thus constitutes a test of the traditional philosophy stated above since many of its characteristics were present before the new plan was effected.

SPECIFIC OBJECTIVES OF THE STUDY

In summary then, the objectives of this dissertation are first, to evaluate, quantitatively, the effects of a follow-up program designed to (a) condition the leadership climate within which the trainee works so that he may better practice the course teachings on the job, (b) encourage the superior of the course participants to coach them in the job applications of the course content; and, second, to evaluate the effects of a training plan designed to increase enthusiasm and attendance in a management training program.

This viewpoint has not yet been recognized in the training literature because of the lack of research in this field to date.
ORDER OF PRESENTATION

In this dissertation the experiments which were conducted to accomplish the above objectives will be reported in the following order. In Chapter II the scope, methods and limitations of the study will be developed specifically. In Chapter III the contemporary theory of evaluation of behavioral change will be examined. Previous research pertinent to this particular problem will be reviewed in Chapter IV, and the relationships between previous findings and this experiment will be discussed. Chapter V will be devoted to describing the experiment which was conducted to evaluate the follow-up program, as well as a detailed step-by-step description of the problem and procedures used to collect and evaluate data. A description of the procedure followed in the evaluation of the follow-up program will be given in Chapter VI. Chapter VII will deal with the detailed quantitative conclusions and their significance. The qualitative evaluation based on the participants' opinions will be given in Chapter VIII. Chapter IX will be devoted to a detailed description of the experiment in which the course standards were elevated, and the effects of this experiment. Finally in Chapter X the findings of the complete experiment will be summarized and such conclusions and recommendations that are warranted by the findings will be presented.
CHAPTER II

SCOPE, METHODS AND LIMITATIONS OF STUDY

In this chapter, the specific variables to be evaluated will be described and the methods of evaluation will be stated. In addition, the limitations of the problem in terms of scope and data will be discussed. Since there are two separate variables which constitute the subject of this dissertation, they will be discussed separately under their following respective headings:

1. The Follow-up Program
2. The Plan to Elevate Standards

Following the discussions of each of the above, the limitations of the scope of this dissertation will be discussed under a separate heading.

THE FOLLOW-UP PROGRAM

The follow-up program was designed, and conducted in an effort to bring about an integration of principles and practices taught in the Management Communications course. In the follow-up program, the instructor visited the immediate superior of the course participants and encouraged the superior to integrate the course content with the
performance of his subordinates by means of on-the-job counseling and coaching.

Method of Evaluation

A controlled experiment was conducted to determine the effects of the follow-up program. As part of the controlled experiment, one group of supervisors received the communication course, while another group of supervisors received the communication course plus the follow-up program.

The joint effects of the conventional training program plus the follow-up program on one group of supervisors were compared with the effects of the conventional training program on the other group. Thus the supervisors who took the follow-up program served as an experimental group, while those who participated in the conventional program served as a control group. Through analysis of the effects of the variables on each group and comparison between groups, it was possible to determine the effects of the conventional training program alone, the follow-up program, and the difference between the two.

---

See Chapter III for a detailed explanation of the controlled experimentation.
Sources of Information

The amount of change in communication behavior which took place as a result of the experiment was measured by means of questionnaires completed by the subordinates of those participating in the experiment. The same questionnaire was completed twice, once at the beginning of the communications course and again seven weeks after the course ended. From the two questionnaires it was hoped to determine what kind and how much change took place on the part of each participant.

Limitations of Data

One of the limitations to the effectiveness of this method of evaluation is the fact that the quantitative evaluations are based on information obtained by use of questionnaires. The fact that the questionnaire requires answers to short written questions presents a barrier of semantics. To ensure that the questions were easily understood the questionnaire was pretested for clarity and conciseness.

The second limitation to the data is that the quality of reply is difficult to control. Not only does quality of reply depend on the format of the questionnaire, but also on the amount of thought which the respondent gives to the
question before answering. To offset this second limitation the questionnaire form was designed to include several question about each classification of communication behavior. The evaluation was conducted in terms of individual performance, group performance, and changes in classification of communication behavior. By this method of cross checking, the risk of attaching too much significance to casual replies was reduced. In addition to minimizing the negative effects of poor quality of reply, the consistency of reply was ensured by including alternative answers for each question on the questionnaire. This allowed the respondent to check the answer which he felt most appropriate and thus ensure that the answers were comparable.

THE PLAN FOR ELEVATING COURSE STANDARDS

As the reader will recall from Chapter I, the plan for elevating course standards was designed and conducted to increase supervisory interest and thus bring about better attendance at the Management Training classes. It was hoped that higher course standards would accomplish this by presenting a challenge to the supervisors. The new plan included strict attendance requirements, a final examination, more compact course schedules, and more authoritative teaching methods than had been in use at the time.
Method of Evaluation

The new plan was evaluated by several methods, first, the attendance record for the Communication Course before the installation of the new plan was compared with the attendance record of the course after the new plan was installed; secondly, the number of people who voluntarily requested to attend additional courses previous to the new plan was compared with the number of requests after the new plan was introduced; thirdly, the promptness of the conferees under the new and the old training plan was compared, and, finally, the number of classes which had to be cancelled as a result of poor attendance was computed for both plans and compared.

Limitations of Data

Although the plan to elevate course standards was evaluated in terms of operational results, the method did not include a control group and therefore is subject to the question of whether or not the changes which came about after the new plan was installed were really caused by the new plan or by some other variable.

Since this plan was introduced to correct an operational problem and, as such, was not a primary part of the dissertation, no controls were set up to answer this question. Due to this limitation of method, one can only
hypothesize about the causes of the changes which came about. By use of logic, however, the number of hypotheses can be narrowed down, and thus indicate where further research would be valuable.

LIMITATIONS OF THE SCOPE OF THIS DISSERTATION

Having reviewed the objectives of this study, the methods of evaluation, and the limitations of data; a discussion of the limitations of the scope of this dissertation is now pertinent. It is contended here that the two training methods being tested in this experiment are generally of importance to the entire field of management training and of specific importance to the area of Management Communication. Since management training and communication are important managerial tools, an understanding of methods for their use is important to Management knowledge.

It must be pointed out, however, that these methods are being experimented with in a single firm under conditions which may be peculiar to that firm alone. Unless the findings of this experiment shed light on the results of previous studies and indicate additional areas of fruitful research, this experiment cannot be considered a contribution to management knowledge.

It is contended here that there is little question of the importance of the methods being tested. The question
which must be considered then, is whether or not the findings concerning these methods constitute additional knowledge which can be applied to other situations.

This question will be answered in the final chapter after the previous studies to which this experiment is related and the findings and conclusions of this dissertation are presented.

Another limitation to the data is the small size of the sample. The total sample was comprised of twenty-eight supervisors. Eleven were members of the experimental group and seventeen were members of the control group.

The sample was small because of the stringent requirements set up to ensure the basic assumption of the experimental design was valid throughout the experiment. The experimental design method of research involves the assumption that any variable which affects the behavior of members of the sample affects members of both groups approximately the same. To maintain the validity of this assumption, constant observation was made of the environment in which the research took place. Whenever a variable was observed which would affect only part of the total sample, the members of the sample who were affected by the variables were dropped from the experiment. The original sample consisted of sixty supervisors, thirty in each group.
The attrition of thirty-two supervisors was due to such factors as organizational changes, realignment of projects, changes in the immediate superiors of the participants, or changes in a large number of the immediate subordinates of the participants.

To offset the disadvantages of the small sample, not only were rigid sample requirements established and adhered to, but the statistical tests were selected on the basis of the sample nature and size. And as the concluding chapter of this dissertation will show the limitations of the small sample were minimized to the point where evaluation could be made adequately and with a high degree of confidence.
CHAPTER III

METHOD OF EVALUATING TRAINING EFFECTIVENESS

To date very little has been done to evaluate the effects of training on management behavior. Social science research has developed, however, to the point where the methodology of experimental design and statistical analysis can be applied to the problem. It is the purpose of this chapter to review the fundamentals of social science research as they apply to the evaluation of management training. These fundamentals will be discussed under the following headings:

1. Effects To Be Measured
2. Methodology of Measurement
3. Requirements for Effective Measurement of Behavioral Change

WHAT EFFECTS SHOULD BE MEASURED?

A review of the literature suggests four approaches to measurement. These approaches concern evaluation of the following effects:

1. The reaction of trainees. How do trainees feel about the training? Did they like the
Leader? Was the subject pertinent to their needs? Do they believe the training was significant to their professional management development?

2. Learning. What did Trainees learn in the form of facts, philosophy or techniques?

3. Change in behavior. Did the trainees change their job behavior? Are they using the techniques they were taught? Is this behavioral change apparent to others? What are they doing now that they were not doing prior to the training?

4. Final operational results. Was there an increase in production because of the training? Are costs lower than they were? Have materials been reduced? Have absenteeism and tardiness been decreased or has quality improved?

As one moves from the first approach, evaluation of the reaction of trainees, to the fourth, final operational results, the problem of evaluation increases in difficulty and complexity.¹

For purposes of complete objectivity, an evaluation of the effects of training on final operational results

would be most desirable, were it possible. However, it is impossible to separate the various other factors which also affect operating results. This inability to separate causal factors has been frequently cited as a limitation on our current research methodology. Following are opinions which further explain the nature, persons for, and importance of this limitation.

Follow-up and evaluation of executive training programs are particularly difficult because it is almost impossible to determine which results of executive efforts are attributable to training and which to other causes.2

Everyone has seen examples of persons who know the information but who don't practice it on the job. This means that at the second evaluation stage, learning, does not necessarily insure on the job performance. Hence, it becomes important to evaluate to see whether or not the training has changed the behavior of the trainees.3

The foregoing statements indicate that training which is directed at management practice might for better results be evaluated in terms of behavioral change rather than the final results which such behavioral change eventually produces. Therefore, this dissertation will be

3 Kirkpatrick, op. cit., p. 68.
concerned with an evaluation of the effects of behavioral change.

METHODOLOGY OF MEASUREMENT

Having considered what should be measured in the training evaluation, the next step is to consider how evaluation should be conducted.

The methods of measuring behavioral change may be grouped into three broad classifications for ease of discussion. First, there is the common-sense evaluation. The evaluator in a "common sense approach" looks around for evidence which may include reported facts such as number of promotions made, inferences, or impressions.

This type of evaluation carries little scientific weight because of the lack of accuracy and validity of the conclusions drawn by the evaluator. The majority of common-sense evaluations are based on subjective opinions of the participants of the program. The opinions are not usually collected until after the program is completed. The participant usually states whether he "liked" the course content and the instructor in such evaluations; there is no predetermined or comparative standard against which to measure the effects of the training program.
Another type of opinion collected for this class of evaluation is the statement of certain actions the participant took since the course began which were caused by the training program. The participant may be asked to give an opinion about how he would have performed in the same situation if he had not taken the training program. Obviously, such opinions cannot be validated. To expect a participant to know whether he did or did not take a certain action as a result of a specific training program is as absurd as expecting him to be able to psycho-analyze himself. His actions are determined by an accumulation of many factors and experiences.

The primary, and for that matter, sole value of this type of evaluation apparently is that it does shed some light on the adequacy of the instructor and his techniques. Also to the extent that the participants of the program are capable of judging the value of the course content, the common-sense evaluation assists the instructor in evaluating his efforts. If the course content and the instructor are satisfactory to the participants, such an evaluation only reveals that there are no serious problems in these areas. However, if the participants judgments are accurate and if the subject matter is not applicable to the work of managing, then this type of
evaluation does serve to provide a warning signal to the instructor. The last sentence contains two "ifs" which carry with them highly questionable assumptions. While it is impossible to know how much evaluation actually falls into the common sense category, it certainly predominate\(^4\).

The second method of measuring behavior change is the survey method. Under this more precise method, the type of evidence to be collected is decided upon in advance of training. Methods are used which permit quantification. Judgment, opinions or inferences are collected systematically.

It is contended here that there is some merit in such an approach to the evaluation of training. Even though many of the survey evaluations are reported in terms of specific kinds (rather than degree) of change or simple percentages rather than sophisticated statistical results, it would be remiss not to consider survey findings in an over-all analysis of the effectiveness of management training. It is further contended that such systematic methodology should be used when more thorough methods are impractical or impossible.

---

The third method of evaluation is the experimental method of evaluation. By means of this method data for experimental evaluation are collected under certain controlled conditions. This type of evaluation requires the use of a controlled group and an experimental group. Here the aim is first to equalize the conditions and then to introduce a variable which affects the experimental group only. If changes are observed in the experimental but not in the control group it follows that these are effects of the added variable.

REQUIREMENTS FOR EFFECTIVE MEASUREMENT OF CHANGE OF BEHAVIOR

Having reviewed the effects of management training which have been measured and the measurement methodology used to date, the ideal procedural requirements which should be met in the measurement process can be specified.

Based on a survey of the relevant research literature, the following requirements were determined essential for the success of any scientific experiment:

---

First, a systematic appraisal of the behavior of trainees prior to the program.

Secondly, a systematic appraisal of post training behavior of the trainees. 6

Thirdly, criteria - quantifiable indexes of the change or changes in behavior which the program was designed to accomplish. 7

Fourthly, a statistical analysis of the difference between pre-training and post-training behavior of both the control and experimental groups. 8

Fifthly, a comparison of the change in behavior of the two groups to determine the effect of the training on each group and the difference between groups. 9

BASIC PRINCIPLES OF EVALUATION

To insure that this experiment was based on sound research fundamentals, a survey of the literature in the behavioral sciences was made. Following is a summary of

6 Kirkpatrick, op. cit., p. 69.
9 Goodacre, op. cit., p. 535.
the basic principles which apply to measurement of behavioral change, as revealed by the survey.

1. Programs based on specific needs can be more easily evaluated.

2. Variables should be isolated and taken into consideration.

3. Evaluation requires clear cut operational definition of the conditions, the methods, the program, and the purposes of the training activity.

4. Provision should be made for evaluation during the planning stages of the training programs.

5. Evaluation should be continuous, systematic and comprehensive.

6. Results of the evaluation should be expressed in terms that are understandable to those involved.

7. Evaluation should be for purposes of improving the quality and character of training activity and not for purposes of determining whether or not training is a justified activity. If the training program is designed to meet specific needs, there can be little doubt of the need for a training program. Directors and management training people should not be forced to justify their existence on the basis of evaluating their programs. This should be justified on the basis of need which should be originally determined or approved by line management, and not by the training staff. However, the training staff should be continuously required to justify the quality and character of its contribution to the economy and effectiveness of the operation.
These constitute the basic social science principles of behavioral change evaluation. These principles appear repeatedly in the literature either in the form of a principle, or a requirement of an effective training program.10

CHAPTER CONCLUSION

The pertinent aspects of social science research were reviewed in this study to ensure that the research conducted in this dissertation was performed scientifically. The research procedure for this study was designed on the basis of these fundamentals.

The experimental method of evaluation was chosen to measure the effects of the follow-up program. The survey method of evaluation was used to measure the effects of the plan to elevate course standards. All of the principles stated in this chapter were adhered to in conducting the experiments, with the exception of the principle which states that evaluation programs should be continued. This principle was not followed because the nature of this experiment was intermittent rather than continuous.

See Kirkpatrick, op. cit.; Goodacre, op. cit.; Green, op. cit.; also the Bibliography Section of this study.
CHAPTER IV

HISTORICAL PERSPECTIVE

In this chapter, the history of management training evaluation will be reviewed within the framework established in the preceding chapter. The results of previous studies will be discussed under the headings: (1) survey evaluations (2) experimental evaluations and (3) conclusions concerning previous evaluations.

SURVEY EVALUATIONS

Survey evaluations have been made by individuals and groups. One of the earliest individual studies was conducted by Hersey\(^1\) who reported in 1947 the effects of management training in terms of quantified, but non-statistically treated, results. He reports that "roughly sixty per cent of the supervisors improved in the performance of their duties as shown by reduction of employee grievances and better operating records. Cooperation between departments improved noticeably and lower

supervision became more management-minded."

In 1949, Decker\(^2\) reports that new methods which increased output from 17 per cent to 259 per cent were the apparent results of a course in methods training given to all levels of Management personnel, including line, staff, and technical personnel.

These two studies are pertinent here because they represent the earliest efforts toward comparing operational statistics before and after the training program. However, it cannot be determined how much of the change was caused from the training or from other factors.

Studies by the Psychological Corporation

In the category of group surveys is the study reported by Mahler and Monroe\(^3\) in 1952. This is the only existing study of training effectiveness which has considered a large number of company training practices. The methodology used is reported as follows:

Questionnaires were mailed to 253 selected companies to obtain information on their methods of evaluating their training programs. Responses were obtained from 150 companies (60 per cent).


\(^3\) Mahler and Monroe, op. cit., p. 2.
Visits were made to 30 companies who made most use of research methods and numerous case histories were obtained. The number of precise studies was too small to make statistical analysis profitable...4

The results of the survey indicated that "not more than one company in forty has actually studied the relative merits of various training methods or aids. The effectiveness of training was evaluated primarily by subjective judgement rather than by research methods."5 Only two of the evaluations reported by Mahler and Monroe were of the survey classification. These will be discussed here.

Concerning a work simplification program it was reported:

A record was kept of each improved method actually put into operation. The realized saving was limited to the estimated savings for the first year minus prorated cost of installation. Each estimate had to stand up under scrutiny of the Industrial Engineering Department. The purpose of the estimate is not to prove value of training but to provide justification for requests to install the new method. During a period of four years, these savings have amounted to more than twice the total cost of the training.6

---

4 Ibid.
5 Ibid.
6 Ibid.
This study and Decker's are the only studies which report successful methods training for management in the literature reviewed. Although only these two reports are available from which to draw conclusions, it seems plausible that the specific and tangible nature of the course content lends itself to training, the results of which can be easily perceived in operational changes. Less tangible aspects such as human relations or organization training do not result in such marked changes which can be as easily attributed to the course.

A more thorough evaluation of a supervisory training program is also reported in the same study7 as follows:

... a large Mid-Western insurance company used a four-fold approach, one of which was a comprehensive rating system used to compare the efficiency of trained and untrained supervisors.

The purpose of this investigation was to evaluate the Supervisory Training Program and to obtain a measure of present supervisory efficiency.

Several measurement techniques were used in an effort to evaluate the effectiveness of the Supervisory Training Program. One of these was the subjective rating of supervisors by both subordinates and superiors. Second, the use of a supervisory opinion questionnaire given before and after the training.

The superiors of the first-line supervisors rated the trained supervisors as being superior

7 Ibid.
to the untrained on all factors. It may be due to the fact that the superior believes, perhaps unconsciously, that trained supervisors must be better. His knowledge of those who have been subjected to training would consequently affect his evaluation of the subordinate.

Results of the subordinates' ratings of supervisors are as follows:

<table>
<thead>
<tr>
<th>Factors</th>
<th>Rating Before Training</th>
<th>Supervisors with 1 unit of Training</th>
<th>Supervisors with 2 units of Training</th>
<th>Supervisors with 3 units of Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Personality</td>
<td>4.6</td>
<td>4.5</td>
<td>4.5</td>
<td>4.6</td>
</tr>
<tr>
<td>2. Order-giving</td>
<td>4.3</td>
<td>4.1</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>3. Instruction</td>
<td>4.2</td>
<td>4.1</td>
<td>3.9</td>
<td>4.1</td>
</tr>
<tr>
<td>4. Standards</td>
<td>4.5</td>
<td>4.4</td>
<td>4.3</td>
<td>4.4</td>
</tr>
<tr>
<td>5. Help given</td>
<td>4.4</td>
<td>4.3</td>
<td>4.4</td>
<td>4.4</td>
</tr>
<tr>
<td>6. Suggestions</td>
<td>4.5</td>
<td>4.2</td>
<td>4.3</td>
<td>4.7</td>
</tr>
<tr>
<td>7. Recognition</td>
<td>3.9</td>
<td>3.6</td>
<td>3.9</td>
<td>4.0</td>
</tr>
<tr>
<td>8. Over-all</td>
<td>4.2</td>
<td>4.0</td>
<td>4.1</td>
<td>4.9</td>
</tr>
</tbody>
</table>

It is significant to note for the purpose of this dissertation, that there is a change of subordinates' ratings of supervisors. Supervisors with one unit of training tend to be rated lower than those supervisors who had not participated in the training program. However
after supervisors have taken two units, the subordinates tended to give a higher rating. This seems to be a recurring phenomenon in supervisory training. This phenomenon is reported by Mahler and Monroe as "somewhat recurring" in the cases which they studied.

Although the above sundry findings were not reported statistically, the methodology appears to have been systematic and logical. All conclusions are based on a comparison of pre-training and post-training measurement. It is contended here that the methodology was sufficiently sound to make the results at least worth consideration in a broad perspective of management training evaluations. These findings should be viewed together with the results of more scientific studies.

Following is a discussion of such studies and their significance.

THE EXPERIMENTAL EVALUATIONS

The Detroit Edison Study

One of the first evaluations made quantitatively and treated statistically is the "Evaluation of a Human Relations Training Program" begun in 1948 at Detroit Edison,
conducted by the University of Michigan Survey Research Center. The purpose of this experiment was to measure the effects of a human relations training program in terms of employee satisfaction with their supervisors. This project was designed to provide an evaluation through the use of experimental and control groups. This experimental group received human relations training, while the control group received none. Measurements were taken in September, 1949, and again one year later.

Attitudinal measures of both supervisors and employees of the experimental and control groups were taken immediately before the training course in September, 1949. The training in human relations was continued from September, 1949 through June of 1950. A post-training attitudinal measure of both supervisors and employees was obtained in September, 1950—three months after the conclusion of the training course.

The course content which was directed toward changing the attitudes of supervisors included the following types of subject material: democratic leadership; causation in behavior; principles of individual differences, placement

---

8 This discussion is based on the report made by Mahler and Monroe, op. cit., pp. 108-115. This is the only available report on this study.
of employees; merit rating; nature of attitudes, frustration and its effect on behavior and attitudes; morale and group structure; motivation and work; fatigue and boredom; employee contacts, interviews and counseling; and sources of satisfaction and dissatisfaction.

Prior to giving the first line supervisors and their superiors the Human Relations Training Course, the company had exposed their top management to the content of the training course. This was accomplished in the following manner:

1. A pilot group consisting of top management representatives selected by members of the Company Council (the highest operating Committee in the Company) were given the program. The "appreciation" group, consisting of a dozen men, felt that the program was worth continuing. Eleven of the twelve recommended to the Council that the program be adopted.

2. Dr. Norman F. Maier of The Survey Research Center, then met with the Council, which was divided into two groups, for six to eight meetings. They were also given an appreciation session of the Human Relations Training Program.

3. Next, executives of the department head level were
given the complete course. Twelve two-hour sessions were held with this group. The members of this group decided that all supervisors below them should be given the course.

Results

The results of this experiment are reported in terms of the effect on employees and on foremen as follows:

1. Employee Satisfaction with Supervision

   In the experimental divisions, it was found that there was a significant increase in employee satisfaction with supervision in one group, while in the other group there was a decrease. On the basis of an over-all comparison between the responses of employees in the experimental and control groups the hypothesis that training foremen in human relations would result in increased employee satisfaction with supervision was not substantiated. Also, where increased satisfaction with supervision was found, there appeared to be no transfer of satisfaction to other areas, e.g., the job itself, wages, promotions, etc.

2. Effect Upon Foremen

   It was found that the data did not reveal any
consistent change in responses of either the experimental or control foremen. Foremen in both groups tended to give favorable attitudinal responses to items concerning their supervisory behavior on both the pre-training measurement and the post-training measurement.

The conclusions drawn from this experiment based on statistically significant differences as reflected in the questionnaire responses are:

a. Training foremen in new human relations techniques will be most effective in bringing about improvements in employee attitudes toward the foremen when the foremen are motivated to change and when the "climate" within which the foremen operate is conducive to change.

b. A necessary condition for having an effective human relations training program is that the attitudes and practices of higher levels of supervision be consistent with the course content. Where this is not so, the program will be ineffective in bringing about any real gain in employee satisfaction with supervision.

c. It is imperative that training programs of this sort be instituted at the top of the organizational unit and only extended down the line when
there is evidence that the top is wholeheartedly behind the program and will support it not only verbally but through their actions as well.

d. Attitudinal and behavioral changes in foremen can be determined by measuring changes in the perceptions of their subordinates toward the foremen. This is an independent measure of change and, as such, is more acceptable than changes in the responses of the foremen themselves.

These conclusions represent the first of three experimental findings which corroborate each other. The remaining two studies will be reviewed subsequently. Until these studies are considered, discussion of the significance of the conclusions of the Detroit Edison experiment will be deferred.

**The Canter Tyler Studies**

Another early experimental evaluation was conducted by Canter\(^9\) in 1949. A human relations training course was given to eighteen first line supervisors in the home offices of a large insurance company. The objectives of the

program were (1) to establish facts and principles concerning psychological aspects of behavior and group functioning to enable supervisors to become more confident in their knowledge and understanding of human relations; (2) to increase supervisors' capacity for observing human relations behavior; and (3) to present personality adjustment concepts to aid in integration of achievements made in the first two objectives. Behavioral change was not the objective of this course. Such changes were to be sought at a later time.

The training took place in the conference rooms of the company. Canter himself was the trainer. The course was presented in ten, weekly sessions of two hours each. The trainees were eighteen supervisors whose superiors had participated in a preliminary run for executives. The experimental design method of evaluation was used. Two groups of eighteen supervisors participated. One group was a control group which did not receive training. The participants were tested before and after to determine levels of knowledge of subject matter. The test results at the end of the training indicated that the training resulted in a higher level of knowledge in the area of human relations concepts and principles.
Tyler\textsuperscript{10} designed a follow-up study to measure changes in employee morale which might be attributed to this training. Morale surveys indicated improvement in employee morale scores for both the experimental and control departments. Tyler reports that "Undoubtedly, the difference in change in morale between the control and the experimental groups is not large enough to be significant."\textsuperscript{11}

The use of Tyler's perceptual and employee morale measures in conjunction with Canter's attitudinal and cognitive measures permits an evaluation of the course effectiveness at two levels: the supervisor's intent, and his on-the-job performance. Concerning this study, Mann states: "The findings from the combination of studies make it obvious that classroom learning does not guarantee the translation of such learning into the job performance."\textsuperscript{12}

This conclusion is corroborated by findings of The International Harvester Study which will be discussed shortly.

It should be remembered, however, that Canter did not

\textsuperscript{10} B. D. Tyler, "A Study of Factors Contributing To Employee Morale" (Masters thesis, The Ohio State University, 1949).

\textsuperscript{11} Ibid., p. 47.

\textsuperscript{12} Mann, et al., op. cit., pp. 152-153.
set out to change supervisors' skills and practices, but only their understanding of human relations concepts and ideas, and that it was the original intent of the course to establish a foundation upon which supervisory skill and practice courses could be conducted.\(^{13}\)

**The Hariton Study**

In 1951, Hariton\(^{14}\) evaluated the over-all effects of training and investigated the conditions influencing the effects of training foremen in new human relations principles. Employee attitude toward and satisfaction with supervision was used as the criterion for judging the success of a human relations training program for supervisors. Hariton found that employee attitudes toward the supervisor were not particularly affected by the human relations training.

He also found that favorable results depend on a number of conditions. Behavioral change varied positively with the adaptability and security of the foremen. Also

\(^{13}\) Canter, loc. cit.

\(^{14}\) Hariton, op. cit.
those who anticipated getting more from the course improved more than those who had no such anticipation.

The primary findings concerning conditions which determine training effectiveness, other than the foremen themselves, are: first, the climate in which the foremen work must be conducive to change; secondly, attitudes and practices of higher supervision must be consistent with the course content; thirdly, human relations training programs must be actively supported from the top. These findings support the conclusions reached from the Detroit Edison study. Further corroboration of these conclusions will be seen in the following study.

The International Harvester Studies

In 1955, Fleishman, Harris and Burtt of The Ohio State University report on the effects of a Human Relations Training program conducted at International Harvester, Inc. The program was designed to train foremen in leadership. Evaluation methodology was designed "to determine whether the effects were permanent, how they were influenced by the actual work situation in which a foreman operates, or the results such effects had on the over-all
efficiency of the industrial enterprise."\textsuperscript{15}

The program involved three evaluations taken at different times and considering different variables. Two of the three evaluations were undertaken as doctoral projects in the field of industrial psychology. Because the findings of these projects are reported in a consolidated form in the above cited research monograph, the following discussion will be based on findings reported in that monograph.

A two week course conducted at the Central School of the company was the subject of the first evaluation. This, and subsequent courses which were evaluated, concerned principles and practices of Human Relations. The primary purpose of this program was not merely to impart factual information but to improve the attitudes and behavior of men holding supervisory positions.

The Experimental Design

A pre-training and post-training measurement was taken of three matched experimental groups of foremen and a

\textsuperscript{15} Edwin A. Fleishman, Edwin F. Harris, and Harold E. Burtt, op. cit., p. 58
matched control group of untrained foremen. The three experimental groups had taken the course at different times.

The measuring instruments were devised to describe, first, their attitudes about how work groups should be supervised; secondly, the behavior of their own boss toward them; and, thirdly, how they thought their boss expected them to supervise the work groups. The behavior and attitudes of the foremen's own bosses were used as indexes of "leadership climate" under which different foremen operated.

The major analysis consisted of, first, comparing the attitudes and behavior of the untrained and trained groups of foremen; secondly, comparing the attitudes and behavior of foremen who operate under different leadership climate; and thirdly, comparing the attitudes and behavior, at different periods since completion of the program, of foremen who operate under different leadership climates. In addition to these investigations, a pre-and post-training evaluation of the effects of a one week refresher program was also made.
Results

A before and after measurement of attitudes of the trained foremen taken on the first and the last days of training showed a statistically significant increase in "consideration" (the extent to which the supervisor was considerate of the feelings of employees); and an even greater decrease in "initiating structure" (the extent to which the supervisor defined or facilitated group interactions toward goal attainment).

The on the job effects of the training did not produce any kind of permanent change in either the attitudes or behavior of the trained foremen.16 The employees under the trained foremen actually saw them as less considerate than the subordinates of the untrained foremen.

This statistically significant finding indicates that the human relations approach stressed in the course was understood at least well enough to be registered as an opinion change on the questionnaire. However, it was not

---

evident in what trained foremen said they did or what their employees saw them doing in the actual work situation. Thus there is corroboration of the Canter-Tyler findings.

Another statistically significant finding was that the most important variable affecting leadership was the climate within which the foremen worked. The most influential factor was the immediate superior of the foreman. The foremen tended to behave in accordance with their bosses' behavior and the climate established by their bosses. Here is the third confirmation of the Detroit Edison findings.

It was also found that subordinates queried immediately after the training was completed perceived the foremen as less considerate than foremen who had completed the program between eleven and nineteen months previously. Foremen who completed the program between twenty and thirty-nine months previous to evaluation registered consideration approximately the same as before they took the training program. Correspondingly, initiating structure was perceived as higher in those foremen who had recently completed training and lower in those who had completed it a long time before.
This suggests that the effect of training wore off or some other factor over-weighed it as time went on. The only significant difference found between the group which received the refresher training and a matched group used for control was that the foremen in the control group showed less structuring in their leadership behavior as described by their employees. Harris suggests this finding might be interpreted to mean that the refresher course may have tended to retard a general decrease in structuring.

Since the human relations approach stressed in both the original course and the refresher is tantamount to stressing consideration, the results of the training are negative.

Concerning these studies, Mann states "At best, these two studies suggest that this type of training has little or no general effect on behavior of foremen in the plant...".

A further analysis of the data by Harris and Fleishman has shown one finding which qualifies the

17 Ibid., p. 91.
18 Mann, et al., loc. cit., p. 156.
negative conclusions of their findings regarding the effectiveness of training.\textsuperscript{19} This subsequent analysis indicates that the course had markedly different effects on different foremen and that "large variations in scores occur in both directions."\textsuperscript{20} Thus the research findings show no significant changes in group means among trained foremen and that future research should be directed toward investigating personal and situational variables which interact with the effects of training.

The General Electric Study

In 1958, Moon and Hariton\textsuperscript{21} report on an evaluation of a Feedback Training Program conducted in 1956 in the Engineering Section of a department of The General Electric Company.

The purpose of the program was "to equip line managerial personnel to use appraisal information in helping

\begin{thebibliography}{1}
\bibitem{20} C. G. Moon and Theodore Hariton, op. cit.
\bibitem{21} Ibid., p. 39.
\end{thebibliography}
their subordinates develop themselves. The thirty hour program was given to fifty managers. The total program was spread over two weeks of half day sessions. It consisted of principles together with practice sessions for skills training.

Questionnaires were submitted and completed by thirty-two participants of the program and sixty-six subordinates selected at random who reported to the program participants. The questionnaires were submitted two years after the training had been conducted, and asked the subordinates to compare the present conditions with what existed two years previously. The following reported results were highly positive:

A substantial majority (of the managers) also found it easier to talk to them (their subordinates) about job problems, and to lead them in following given courses of action. In sum, after criterion of judgements of the managers about their own behavior and what they got out of the programs were used, the overall results are highly positive.

---

22 Ibid., p. 39.  
23 Ibid.  
24 Ibid., p. 41.
A control group of sixty-seven subordinates from the manufacturing section was used to check the results of the sixty-six subordinates from the engineering section. The two groups were comparable in size and reported to the same general department manager. The manufacturing section had a different appraisal plan however, and had not received specialized and extensive training in the feedback techniques as had the engineering section supervisors.

Moon and Hariton report the following results:

Of the ten topics covered in training which were questioned in the follow-up, eight showed a greater positive change for the engineering (experimental group) than for the manufacturing managers. In general, the engineering employees were considerably more conscious of improvement in their managers' attempts to keep them informed on the job performance and to assist them in their development.

... While there was general improvement in both the manufacturing and engineering sections, there was a significantly greater gain in engineering - a gain that clearly seems to have been the result of the appraisal and training program.25

25 Ibid., p. 41
This is the first experimental evaluation which shows positive findings which are statistically significant. Following is a review of another more positive experiment with management training.

The Republic Aviation Study

In 1959 Buchanan and Brunstetter reported on the effects of a three day improvement (management training) program at Republic Aviation.

After the course was completed a survey was conducted to permit evaluation of the improvement program in terms of program goals. Questionnaires were submitted both to a control group and an experimental group. The questionnaire consisted of forty-five items or statements. Most of the items dealt with operation aspects of the organization which research studies have shown to be important in the data of the given organization. Additional items were included at the request of the department concerned to provide information of special interest. Respondents were requested to indicate the frequency with which the

---

circumstances covered by a particular item occurred. Four alternatives were presented: "Almost always", "Usually", "Infrequently", "Practically Never." After concluding the first section of the questionnaire, the respondent was directed to go back over each item in the section provided on the answer sheet and place a check opposite any items

1. which you think are more effectively done now than a year ago,

2. which you think are less effectively done now than a year ago,

3. which you think most merit attention in our management improvement efforts.

This constituted the second section of the questionnaire.

These questionnaires were submitted to first line supervisors who reported to those who took the program, and to a comparable group of subordinates of other supervisors who did not take the program. The results of the two groups were compared, thus using the group supervisors who did not take the program as a control group.

These researchers report the following:

1. The net improvement attributable to the program was 17.5 per cent of what was theoretically possible.
2. Two-thirds of the participants on whom information was obtainable showed improvement.

3. One-third of the participants showed slippage, (regression) with those who most recently commenced the program showing the most slippage.

4. The extent of improvement shown in each of the... goals of the program was roughly proportionate to the amount of effort which had been given. (This was established at the five per cent level of confidence)

The first two findings were not subjected to statistical evaluation, therefore, the confidence which can be placed in these must be determined qualitatively. The researchers expressed confidence in the validity of the findings because they claimed that "The program content and methods was based solidly on research findings and defensible theoretical considerations." 27 They stated that they would have reason to question the validity of the evaluation system if no more improvement was found in the experimental group than in the control group.

To further support their findings, Buchanan and Brunstetter state that "both the people involved in the improvement program and their superiors believe that the program made a substantial difference in the operation of the department,"\(^{28}\) and they related several specific operational changes which took place after the training program. These changes are attributable to the training, according to the participants who reported them to the researchers.

Following are examples of specific operational changes which were attributed to the training program.

Participants enthusiastically recommended the conferences for their subordinates, many initiated action (such as staff meetings, evening get-togethers, and "problem solving approach") in their own units, two fact finding committees were established on an interdepartmental basis, and the supervisors at one echelon level in one major unit commenced periodic meetings which have been going on for ten months.\(^{29}\)

The third conclusion, that "one-third of the participants showed regression, with those who most recently

\(^{28}\) Ibid.
\(^{29}\) Ibid., p. 27
conclusion was treated statistically to determine the relationship between degree of regression and length of time since completing the program. It was found that the slippage was greater for those who finished the program three months before the measurement was taken than the slippage measured for those who finished seven months before the measurement. This relationship was statistically significant but the level of confidence was not reported. Here, again, the researchers felt that this conclusion is valid because it is consistent with expected results. The fourth conclusion that improvement for each program goal was roughly proportionate to the amount of training effort expended was established at the five percent level of confidence and does appear to be quite valid.

Discussion of Results

The major weakness of this research project is that all measurements were taken after the program was completed. The measurements rest heavily on the ability of the respondents to objectively evaluate conditions as they
existened before the program commenced. To offset this weakness efforts were made to attempt to separate out the biases and to be conservative in interpretation of positive findings. The authors readily admit that "this (validity) is a difficult issue to appraise in any system for evaluating change. In our opinion the best way of approaching the question is in terms of consistency of results, and relations between theoretical expectations and findings."30

This study is not without application to the experiment being conducted for this dissertation. The findings, however, should be viewed tentatively because results from any one study in a field as new as management training can seldom be viewed as conclusive. More study of similar topics or problems is needed before general laws or principles can be determined with confidence.

SUMMARY AND CONCLUSIONS CONCERNING PREVIOUS EVALUATIONS

Only one comprehensive survey of training practices in industry has been conducted. This study, conducted in 1951 by Mahler and Monroe of the Psychological Corporation,
revealed that very few training efforts up to that time were proven successful.

The exceptions to this conclusion are two programs consisting of methods or work simplification training. These programs both brought about operational improvement as measured in terms of increased output or cost reductions. The results of these two programs appear to be positively significant in terms of economy and effectiveness. It is contended here that training in the areas of operative skills or other tangible and specific subjects, such as methods or work simplification, has a greater chance of becoming effective. It is also contended that such training is easier to evaluate.

The results of a more thorough study of the effects of a supervisory training program at a large insurance company are somewhat disappointing. The participants of the program show a slight decrease in performance as perceived by subordinates immediately after attending one unit of training. Similar measurements after two and three units of training indicate a slightly higher rating than after the first unit, but do not indicate a substantial improvement, if any, as a result of the program. Conclusions drawn on the basis of this study must be qualified because the results were not treated statistically, and a control group was not used to separate out the effects of other variables.
The results of three studies which made use of control groups and statistical analysis and which also followed the principles of evaluation stated in Chapter II showed no positive effects of human relations training and, in one case, negative effects.

Two of these studies analyzed the conditions which caused success or failure of training in human relations and arrived at similar conclusions. The primary requirement for successful human relations training was determined (based on extensive experimentation and statistical analysis) to be the climate in which the trainee works. If the trainees' immediate supervision practices what is taught in the training program and if the organization's policies and procedures facilitate practice of the course principles, it is reasonable to expect the course to be successful in changing the behavior of the trainees. Concerning this point, it can further be concluded that a work situation which is not conducive to the practice of course principles will in some cases cause significant regression in behavior when the trainee gets back on the job. Even in those cases where the course was successful in changing the attitudes (as opposed to the behavior) of the participants, the above conclusions hold true.
These conclusions are confirmed by another experimental evaluation conducted for the primary purpose of determining the conditions that influence the effects of training. This study was also conducted within the limits of scientific evaluation set down in Chapter Two.

The two studies conducted since 1956 show more positive results. Both studies indicate behavioral improvement as an effect of training. One of these studies showed significant positive findings. The other did not subject the findings to statistical treatment, but showed some evidence of validity of findings based on opinions of participants, specific operational changes and consistency of training effects with experimental predictions.

The findings of this study should be viewed conservatively, however, for the following reasons. First, measurements were taken only after the training was conducted, thus placing a great deal of faith in respondents' ability to remember and compare pre-training conditions against post-training conditions. Secondly, the results were not treated statistically to determine confidence levels.

The major finding which emerges conclusively from the previous review is that training effectiveness varies positively with the degree to which the participants' working climate and leadership are conducive to, and in agreement
with, the practice of course content on the job.

Having reviewed the methods of and previous studies pertaining to the evaluation of Management Training it is now pertinent to turn to the specific experiments of the present studies.

Chapters V through VIII will deal with an experiment in the use of a follow-up program designed to condition the climate in which a trainee works so that the training program content can be practiced on the job.

In Chapter IX the effects of elevating course standards will be discussed, and finally in Chapter X this dissertation will be summarized, conclusions will be drawn and recommendations will be made based on the research reported here.
CHAPTER V

THE FOLLOW UP EXPERIMENT

BACKGROUND

Prior to the experiment under analysis, the Management Training Section at North American Aviation, Inc., Columbus, Ohio, had been giving a management training program to the Engineering supervision for approximately two years. A part of this program was a management communication course that had been developed for the purpose of training the Engineering Division's Management in communication practices. The title of the course was "Effective Communications for Engineering Management." It was recognized at that time that a training program would not eliminate communication problems, but would rather lessen these problems. The aim was to provide superiors with knowledge of the basic principles which they might be violating, so that they could correct their own actions and correct the actions of their subordinates.

See Appendix A for a reproduction of course training manual which includes course outline, introduction and copies of training aids.
This course constitutes the basis for the follow-up program experiment evaluated in this dissertation and described in this chapter.

Two variations of communications training were given to a sample of the engineering supervisors. The effects were measured quantitatively. In this chapter the procedural steps of the experiment will be discussed in detail.

PROCEDURAL STEPS

The steps required to conduct this study were as follows:

1. Developing the course content.
2. Preparing upper management for the experiment.
3. Ensuring sample requirements.
4. Selecting the sample.
5. Developing and testing the questionnaire.
6. Classifying the questions.
7. Inviting the participants.
8. Administering the first Questionnaire.
9. Conducting the training program.
10. Conducting the follow-up program.
11. Administering the second Questionnaire.
Each of these steps will be explained here.

STEP ONE: DEVELOPING THE COURSE CONTENT

The initial step of the experiment was to determine the training needs through interviews with several members of top engineering management. These interviews along with previous observations made by the management training staff constituted the basis on which the objectives and content of the course were determined. ²

After the training program was developed it was presented to representatives of top engineering management and to the supervisors of the Training Section for comment and appraisal. As a result of suggestions made by members of this preview group, the course was slightly modified before final approval was given.

STEP TWO: PREPARING UPPER MANAGEMENT FOR THE EXPERIMENT

Once approved, the training program was presented to members of first, second and third level management in the Engineering Division. An effort was made to start at the upper levels and work down. But this was not possible in some cases because of the possibility of interference with

² See Appendix B, p. 12 for a list of course objectives.
the duties of some of the engineering management people. The purpose of starting at the upper levels of the organization, was to inform top and middle management of good-communication practices in hope of establishing a climate favorable to the teachings of the course, the assumption being that training at lower levels would be more effective if encouraged by such a climate.

STEP THREE: ENSURING PARTICIPANT REQUIREMENTS

After the course was given to as many members of the top and middle management as possible, preparation was begun to provide for the experimental requirements. The first of these requirements concerned the participants and their superiors. It was essential that each participant's superior complete the course before the participant did to make sure that the superior had a full knowledge of the course content.

After a sufficient number of second-level supervisors had attended the program, a sample was selected for the experiment. This sample was drawn from the first-level supervisors reporting to men who had completed the program. These first-level supervisors who constituted the sample are referred to in the remainder of this study as the "participants."
To insure that the superiors were not aware that an experiment was being conducted it was essential that all the participants who reported to the same superior be in the same group, i.e., that a superior not have some participating subordinates in the control group (conventional training program) and others in the experimental group (follow-up program). For these reasons the sample was selected by placing the superiors in either the control or the experimental group. The superior's placement determined in which group his subordinates would be.

STEP FOUR: SELECTION OF THE SAMPLE

The second requirement of the experiment was one of providing a matched control and experimental group. This was accomplished by means of a number of steps. The supervisors first were grouped into three categories according to occupational responsibility. The first was analytical engineering supervision; the second, design engineering supervision, and finally, non-technical supervision.

Names were then chosen from each category and placed alternately into the experimental group or the control group. For example, of all the analytical engineering superiors, one name would be placed in the experimental
group, and the following name in the control group. This continued until all of the names to be drawn were exhausted. This procedure was followed with the design engineers, and finally with the non-technical people. At the end it was found that there were approximately the same number of participants in each occupational classification for both the experimental and control groups. Slight adjustments were then made to ensure that the original control group was comparable to the experimental group in terms of occupational responsibility.

Control and experimental groups thus were matched on the basis of occupational responsibility and level of position. All members of the sample were first-level supervisors, and there was an equivalent number of analytical, design and non-technical people in the experimental and control group at the beginning of the experiment.

STEP FIVE: DEVELOPING AND TESTING THE QUESTIONNAIRE

The effects of the learning were determined by use of a questionnaire which measured the communication behavior before and after the experiment.
The questionnaire was developed and tested for clarity, accuracy, completeness, and expected distribution of answers. Questions were included to cover all of the course content.\textsuperscript{3} The development and testing of this questionnaire will be described here.

For pretest purposes the questionnaire was given to seventeen operative employees in the Engineering Division. They made suggestions as to the meaning and clarity of questions. Results were tabulated to appraise the distribution of answers in light of expectations.

Being closely associated with the superiors of those who completed the questionnaire, the writer was subjectively aware of their management behavior and communications practices. Evaluating the results of the questionnaire in light of expectations based upon this awareness, the writer judged that the questionnaire did provide the type of distribution expected.

A larger number of operative employees could not have been used because doing so would also have involved a greater number of first level supervisors. This, in turn, would have resulted in eliminating members of the first level of supervision from eligibility for the experiment.

\textsuperscript{3} See Appendix B, The Questionnaire.
The number of operative employees who tested the questionnaire is small. The answers, however, were consistent enough to indicate that the questionnaire conveyed the same meaning to almost all of the respondents. The questionnaire also showed a distribution of answers to be expected in the light of management practices of the person who was the subject of the questionnaire.

STEP SIX: CLARIFYING THE QUESTIONS

The questions were grouped in classifications about each major course topic. The classifications were such that the kind as well as the amount of behavioral change could be measured. Following are the classifications of communication behavior which were used: (1) clarity of communications; (2) timing of communications; (3) channels of communication; (4) control of communications; (5) employee performance information; (6) communication of job responsibilities; (7) communication of company information.

Eight doctoral candidates in Management at The Ohio State University classified the questions according to major topic. When seventy-five per cent of the candidates agreed upon a classification for a question, the question

---

4 See Appendix C for a detailed description of the content of each topic.
was accepted in that classification. It is held that the requirement of seventy-five per cent agreement constituted a very rigid and, therefore, valid standard, especially in the light of the select sample of people used to classify the questions.

It is contended here that such a high percentage of agreement from a small selected sample would be unlikely unless the questions agreed upon were highly reliable.\(^5\)

Although statistics cannot be meaningfully applied to such a small sample, the stringency of the seventy-five per cent agreement standard can be illustrated by comparing this with the statistical standard which would be used in a larger, randomly selected sample. If, for example, one hundred classifiers were selected at random, without regard to their academic knowledge of the field of management, a fifty per cent agreement would represent a significance at the five per cent level of confidence.

It is realized here that the actual and the hypothetically-stated samples are not comparable because of size and knowledge differences; therefore, the conclusions drawn from the comparison of standards must be made with

---

5 Reliability is used here to mean that characteristic which makes a test (or question) yield the same results when applied a number of times. In this case the questions yielded a similar meaning.
a high degree of reservation. However, it can be seen from the illustration that, despite the vast difference in the samples, the seventy-five-per cent standard is a stringent one, even when compared with proven statistical standards.

In addition, the intangible nature of the questionnaire items constitutes a more qualitative, but nonetheless, valid reason for considering the seventy-five per cent agreement standard a rigid one.

The intangible nature of the questions tends to lead to a difference of opinion between classifiers, depending upon the classifier's framework of reference, experience, and other general semantic influences. Thus, it is held that a question possesses a high degree of reliability when it passes the test of agreement by seventy-five per cent of the classifiers. For these reasons, it is contended that the seventy-five per cent requirement is sufficiently stringent for the purposes of classifying the question.

STEP SEVEN: INVITING THE PARTICIPANTS

With the measuring instruments developed, the sample selected and the members of upper management prepared for the experiment, the experiment was ready to begin.
After each superior (second level supervisor) completed the program he was asked if he had any subordinates whom he wished to have attend the program. Twenty-two superiors completed the program. All but two superiors requested that all of their subordinates attend the program. Only the subordinates whose supervisors requested them to attend were invited. The only qualification was that most of the superiors did not want more than one of their subordinates to attend the program at the same time of day.

STEP EIGHT: ADMINISTERING THE QUESTIONNAIRE

During the first week of training, the participants were asked to allow the conference leader to submit the evaluation questionnaire to the operative employees reporting directly to them. The operative employees will be referred to as subordinates in this study. There were no participants who refused to allow their subordinates to take the questionnaire, in spite of the fact that the participants were informed that they could not see the questionnaire because of research requirements.

To allow a participant to see the questionnaire could have caused a change in his behavior as a result of what he read in the questionnaire and not as a result of the
training. This would have made measurement of the effects of training impossible since the effects of reading the questionnaire could not be separated out.6

The questionnaire was submitted to the subordinates by the conference leader with the help of one of the peers of those who completed the questionnaire. The conference leader requested that one of the subordinates distribute the questionnaire to the rest of the subordinates in his work group. Thus the answers would remain anonymous, and, maximum honesty therefore would be assured. The questionnaire included a cover sheet with an explanatory statement and instructions.7

STEP NINE: CONDUCTING THE TRAINING PROGRAM

The training program was conducted by the conference method. This may be defined as "... a method of training that seeks to develop greater executive effectiveness in the members of a group by joint analysis and discussion of problems in a particular field. The conference method

6 It is recognized that the mere fact that ones' subordinates were taking the questionnaire may have caused a change in behavior. But it is contended that such a change would not affect the responses to the questionnaire because the questionnaire deals with behavioral patterns which would not be expected to change measurably unless the participant made a conscious effort to change his behavior, or unless a control over his action were imposed upon him.

7 See Appendix B, p. 1.
assumes that the required knowledge is to be found largely in the combined experiences of the group."

The function of the writer was that of conference leader. In this capacity he presented the basic course content with flip charts and blackboard. Most of the material had to do with principles of managerial communication. The function of the conference leader was not to give answers, but to clarify the principles and qualify their scope and limitations.

In the initial class of each section the conference leader stated that it was his function to present the material from a theoretical standpoint and that it would be the function of the conferees to evaluate, discuss, and draw conclusions from the information about its application in operating situations. It would then be the function of the conference leader to summarize the conclusions on the blackboard and to provide from the conclusions general principles of guidance for the behavior of the conferees.

---


9 See Appendix D for a copy of The Summary of the Communication Course.
STEP TEN: CONDUCTING THE FOLLOW-UP PROGRAM

When the members of the experimental group completed the conventional program, they were given a follow-up program which ordinarily lasted two or three weeks. The control group received no follow-up. In the follow-up program the conference leader conferred with the superior of the participant to encourage the superior to discuss the course content with the participant. The purpose of this was for the participant to learn from his superior how and where the course content should be applied to his job.

The original objective of the follow-up program was to get the superior to counsel the participant once a week for four weeks. As the experiment progressed, however, it was found that this requirement was too burdensome in scope and in number of meetings to accomplish the objective of on-the-job coaching. A program which lasts only three and one-half weeks, and which consists of only seven meetings, does not require more than two reviews.
or, in many cases, more than one review by the superior with the participant. As the follow-up program progressed, this fact became obvious.

When the conference leader contacted the superiors more than twice, the discussion usually dealt with information which had been previously discussed; the third discussion involved mostly repetitive and wasteful information. Occasionally a superior would inquire of the conference leader whether the superior had fulfilled the original request by counseling his subordinates who participated in the program. Obviously, if he had counseled the participants the conference leader's answer had to be in the affirmative. In these cases, there was no functional purpose for an additional contact. Discovering this, the conference leader decided to reduce the follow-up program to the number of contacts needed to induce the superior to discuss the conference program with the subordinate and to come to some plan for integrating the course content on the job.
STEP ELEVEN: THE SECOND QUESTIONNAIRE

Seven weeks after the conclusion of the conference program each participant was asked if another questionnaire might be submitted to his subordinate to measure change from the time of the first questionnaire. All participants were agreeable. The procedure was exactly the same as that used to submit the first questionnaire. The time elapsed between the first and second questionnaire was approximately eleven weeks, varying somewhat with delivery and completion of the questionnaire.

The second questionnaire was the final step in the experiment. The effectiveness of training and follow-up programs was measured by comparing the improvement or regression scores of each group as reflected by the questionnaire. This quantitative evaluation will be described in detail in the following chapter. The conference leader conferred with the superior two or three times, depending upon the number of contacts needed to bring about the desired discussion.
CHAPTER VI

EVALUATION PROCEDURE

In order that an objective decision may be reached about whether a particular hypothesis is confirmed by a set of data, an objective procedure for either rejecting or accepting that hypothesis must be established. This objective procedure should be designed according to the nature of the research data.

The statistical procedure and criteria used in this study will be explained under the following headings:

2. Explanation of the null hypothesis
3. Selection of the statistical tests
4. Explanation of significant difference
5. Computation of scores.

ASSUMPTION OF EXPERIMENTAL DESIGN METHOD OF EVALUATION

To determine the effects of the follow-up program, the scores\(^1\) of the follow-up participants will be compared

---

The scores will be the measurement of improvement or regression in communication behavior.
with the scores of those who did not participate in the follow-up program. Comparisons will be made by group, classification of questions and individual participants.

Theoretically any observed differences between the scores can be attributed to the follow-up program because both groups were measured during the same period of time and received identical treatment with the exception of one variable, i.e., the follow-up program. This implies an assumption, the validity of which is critical to the experiment. The assumption is that any outside variable, which would affect the communication behavior of the members of the sample, would affect members of both groups approximately the same.

To maintain the validity of this assumption, constant observation was made of the environment in which the research took place. Whenever a variable was observed which would affect only part of the total sample, the members of the sample who were affected by the variable were dropped from the experiment. This explains the attrition of the sample from sixty, at the beginning of the experiment, to twenty-eight at its termination.

EXPLANATION OF THE NULL HYPOTHESIS

To test for significance, the null hypothesis was used. The null hypothesis states that the observed
difference in certain situations probably does not represent a real difference, but can be explained truly by chance, that is, random variations in sampling. ²

Rejection of the null hypothesis at the five-per cent level of confidence indicates that the change or difference cannot be attributed to chance alone in more than five times out of a hundred. If the null hypothesis is rejected with this much confidence, the resulting change of difference is attributed to the introduced variable or variables.

For the purposes of this experiment the following null hypotheses were tested:

1. The control group will not show a significant change in communication behavior as a result of the conventional training program.

2. The experimental group will not show a change significantly different from that of the control group as a result of the follow-up program.

3. There will not be a significant change in any classification of communication behavior as a result of the conventional training program or the follow-up program.

---

4. There will not be a significant change in the over-all behavior of any of the participants as a result of either the conventional training program or the follow-up program.

SELECTION OF STATISTICAL TESTS

Two statistical tests were selected for purposes of statistical analysis. These tests are the sign test and the t-test. The reasons for the selection of each will be discussed here.

The Sign Test

The sign test is used to test the hypothesis that there is no significant difference in the median of two sets of data. It is especially useful when the researcher wishes to determine whether two conditions are different.\(^3\)

The sign test is a non-parametric test. This test has the advantage of being applicable to small samples, it depends on only one assumption and is easily computed.\(^4\) For these reasons it was decided that this test should be used when analyzing the changes in scores of individuals, groups, or the difference between groups.


\(^4\) The only assumption of the sign test is that the variable under consideration has an underlying continuous distribution.
All of the above scores are made up of the sums of seven equally weighted classification scores. The classification scores are used to determine the total group scores and, therefore, constitute basic unit of analysis. The seven classifications, constitutes the sample size for analysis of overall change in the individuals, groups and the difference between groups.

When using samples of this size it is desirable to minimize the number of assumptions. For this reason, the sign test was used for all analyses which were based on the seven classification scores.

An alternative to the use of classification score would be the use of the sum of the individual question scores. This would be undesirable because each classification of communication behavior was stressed equally in the course and, therefore, should be given equal weight in the evaluation, yet there is not an equal number of questions for each classification. The sums of the individual scores would give equal weight to each question but unequal weight to each classification.

The sign test has the additional advantage of being very easy to work with. This is secondary, but still of some importance because fifty-one computations were necessary to arrive at the total number of group scores, individual scores and the difference between group scores.
The t-test

The t-test was selected for evaluation of the change in behavior within classifications of questions, i.e., evaluation of the over-all change in behavior of the control and the experimental groups and the difference between the two groups for each classification.

Whereas the sign test establishes the difference in the median scores of two sets of data, the t-test measures the difference between the means of two sets of data.

The t-test makes more efficient use of the data than does the sign test and is more likely to reject an hypothesis when the hypothesis is invalid. The reason for this advantage of the t-test lies in the fact that it involves assumptions. When these assumptions can be justified the t-test should be used because it has a greater power than the sign test.

This test assumes either a large sample, or, that the sample was taken from a normal distribution.

The sample sizes to which the t-test is applied in this study are eleven (experimental group sample) and seventeen (control group sample). It is contended here that the sample is of sufficient magnitude providing there is justification for the normality assumption.
The justification of the normality assumption lies in the fact that the scores, used to make up the sample, are averages themselves. An averaging process tends to make a distribution normal by the central limit theorem.\(^5\)

Advantages of the t-test over the Sign test

The t-test makes more efficient use of data and is more likely than the sign test to disclose significant differences between two sets of data.

A second advantage of the t-test for this particular part of the analysis, comes about as a result of using it only within the confines of a single classification of questions. The individual scores which make up the classification sample are less likely to be heterogeneous because they are all scores about the same type of behavior, whereas the scores to which the sign test is applied concern all seven classifications of communication behavior and may not be as quantitatively comparable to one another. The sign test, however, does not require that the scores are quantitatively comparable.

---

EXPLANATION OF SIGNIFICANT DIFFERENCE

The differences between means and medians of the scores, and of the classes within the groups, on a before and after basis, were tested for significance. A five per cent level of confidence was established as the criterion which had to be met to establish significant difference. This is the conventional criterion for small samples. If the difference is significant at the five per cent level of confidence, this means that such a difference could occur not more than five per cent of the time by chance alone.

COMPUTATION OF SCORES

A score is a measurement of change of communication behavior. This measurement was made by subtracting the second questionnaire responses from the first responses (given eleven weeks prior to the second questionnaire), for each individual, classification, or group.

The second response was subtracted from the first because the questionnaire was constructed with the most desirable answers receiving the least weight, e.g.,

<table>
<thead>
<tr>
<th>Weight</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Very Good</td>
</tr>
<tr>
<td>2</td>
<td>Good</td>
</tr>
<tr>
<td>Weight</td>
<td>Answer</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>3</td>
<td>Poor</td>
</tr>
<tr>
<td>4</td>
<td>Very Poor</td>
</tr>
</tbody>
</table>

Using the above example, one can see that a higher score on the second response to a questionnaire item (after the experiment) relative to a lower score on the first questionnaire would indicate a regression in communication behavior. Therefore, for ease of interpretation all regression scores were made negative and all improvement scores were made positive by subtracting the second scores from the first. Thus, if a person received a score of two (Good) the first time and three (Poor) the second time, the score would be computed two minus three, showing the regression as a negative score. In other words if the participants score had increased (thereby reflecting a regression in communication behavior as compared to the first score), the participant received a negative score. If the participant improved, he received a positive score.

**Averaging the Scores**

Each participant's score consisted of the average scores of all the questionnaires filled out by the participants subordinates.
The purpose of averaging the scores was to ensure that such participant's score would be weighted equally in contributing toward the total score of the group. Had this not been done, total participant scores would have been influenced by the participant's span of control (number of people reporting to him), as well as by his communication practices. Final participant's scores were consequently averages of the questionnaires completed about the participant. Group improvement or regression scores were averages of the participant improvement or regression scores in the group.

Finally the experimental group total score and the scores by classification of question were subtracted from the corresponding control group scores. This gave the difference in mean changes in the other group. These were all measured for statistical significance.
CHAPTER VII

QUANTITATIVE FINDINGS

In this chapter the quantitative findings of the experiment will be reported. No attempt will be made to explain the reasons for the findings or to discuss their significance to the field of Management. Such explanations and discussions will be given in the following chapters with due consideration to the findings of pertinent scientific studies conducted elsewhere. In this chapter concern is with the following:

1. Assumption of Experimental Design
2. Sample Structure
3. Analysis of Group Scores
4. Analysis of Difference Between Groups
5. Inter-group Analysis of Classification Scores
6. Intra-group Analysis of Classification Scores
7. Analysis of Individual Scores

SAMPLE STRUCTURE

The sample group consisted of twenty-eight participants. Eleven of the participants were members of the experimental group, and seventeen were members of the
control group. Each group has an over-all group score made up of the scores of the participants in that group. Each participant had an over-all score which was made up of seven classification scores. The classification scores were the sums of several questionnaire items about a particular classification of communication behavior. For instance one classification of communication behavior is Communication Control, i.e., the extent to which a participant takes action to ensure accuracy and understanding when he communicates.

These group scores, classification scores and participant scores are the basic statistics which will be used in this analysis. These scores will be analyzed to determine the inter-and intra-group changes which took place within groups, and between groups. The remainder of this chapter will be concerned with the computations of the statistical tests, and with reporting the quantitative findings.

ANALYSIS OF GROUP SCORES

The significance of the change in group scores was determined by applying the two tailed sign test\(^1\) to the

---

\(^1\) See Chapter VI for an explanation of the sign test.
total number of classification score for each participant. This was done to determine the validity of the null hypothesis that the groups showed no significant change.

The results for each group are now presented.

The Control Group

There were seventeen participants in the control group, each having seven scores, one for each classification. Thus, the possible number of scores for the control group was 119.\(^2\) However, four of the classification scores for individual participants were .00, thus having no sign. Therefore, the sign test was applied to 115 scores. Sixty-four of the scores were positive and fifty-one were negative. This combination was significant at the .26 level of confidence. Since rejection here was set at .05, it cannot be concluded that the control group showed a significant change as a result of the conventional training program.

Experimental Group

There were eleven participants in the experimental group. Each participant in this group also had a score

\(^2\) Refer to Table 1, for individual scores by classification.
Table I
Control Group Scores by Classification of Question for Each Participant

<table>
<thead>
<tr>
<th>Participant Code Name</th>
<th>Classification</th>
<th>Sums of Scores</th>
<th>Ratio of Plus to Minus Signs</th>
<th>Confidence Level Per Sign Test**</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td>0/7</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td>5/2</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td>0/7</td>
</tr>
<tr>
<td>G</td>
<td></td>
<td></td>
<td></td>
<td>0/7</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td>3/3</td>
</tr>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td>2/4</td>
</tr>
<tr>
<td>J</td>
<td></td>
<td></td>
<td></td>
<td>4/3</td>
</tr>
<tr>
<td>K</td>
<td></td>
<td></td>
<td></td>
<td>0/7</td>
</tr>
<tr>
<td>L</td>
<td></td>
<td></td>
<td></td>
<td>1/6</td>
</tr>
<tr>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td>3/4</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td>7/0</td>
</tr>
<tr>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td>7/0</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td>4/3</td>
</tr>
<tr>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td>2/4</td>
</tr>
<tr>
<td>T</td>
<td></td>
<td></td>
<td></td>
<td>4/2</td>
</tr>
<tr>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td>3/4</td>
</tr>
<tr>
<td>W</td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

Sums of Scores: + .86 + -2.62 +1.07 +2.14 + - .04 + - .24 + - .41

Ratio of Plus Scores to Minus Signs: 12/3 8/9 10/6 12/5 8/9 6/11 8/8 64/51

Confidence Level** Per Sign Test: -.036 * 1.00 .454 .144 1.00 .232 1.00 .620

* Significant within the critical region of .05 or lower.
** Two tailed sign test.
for each of the seven classifications, thus making the possible number of scores seventy-seven.\(^3\) Six scores were .00. The sign test was applied to the remaining seventy-one scores, twenty-five of which were positive and forty-five of which were negative. This combination was significant at the .01 level of confidence. Thus, the hypothesis that the median for the experimental group scores is not significantly different from zero can be rejected.

Since the direction of the largest number of individual participant signs is negative, it can be inferred that a condition of regression or slippage exists on the part of the experimental group.

The means of the experimental classification scores, given in Table III, serve as a check on this inference. Since these sums are all negative, and since such a consistency, when evaluated by the sign test,\(^4\) is significant at the .016 level of confidence it is safe to say that the condition which exists is truly one of regression. In other words, the direction and consistency of the signs of

\(^3\) Refer to Table II, for the Experimental Group Individual Scores by classification.

\(^4\) A combination of seven scores all with the same sign, out of seven possible scores, is probable by chance alone at the .016 level of confidence.
### Table II

Experimental Group Scores by Classification of Question for Each Participant

<table>
<thead>
<tr>
<th>Classification</th>
<th>Sums of Scores</th>
<th>Ratio of Plus to Minus Signs</th>
<th>Confidence Level for each class per sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant Code Name</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>AA</td>
<td>- .21</td>
<td>+ .11</td>
<td>+ .25</td>
</tr>
<tr>
<td>BB</td>
<td>- .24</td>
<td>- .62</td>
<td>- .17</td>
</tr>
<tr>
<td>DD</td>
<td>- .16</td>
<td>- .20</td>
<td>- .05</td>
</tr>
<tr>
<td>EE</td>
<td>+ .16</td>
<td>.00</td>
<td>+ .21</td>
</tr>
<tr>
<td>GG</td>
<td>+ .20</td>
<td>- .32</td>
<td>+ .20</td>
</tr>
<tr>
<td>HH</td>
<td>.00</td>
<td>- .16</td>
<td>- .17</td>
</tr>
<tr>
<td>II</td>
<td>.00</td>
<td>- .50</td>
<td>.00</td>
</tr>
<tr>
<td>JJ</td>
<td>+ .06</td>
<td>- .62</td>
<td>- .25</td>
</tr>
<tr>
<td>KK</td>
<td>+ .29</td>
<td>+ .18</td>
<td>- .36</td>
</tr>
<tr>
<td>LL</td>
<td>+ .02</td>
<td>- .24</td>
<td>+ .02</td>
</tr>
<tr>
<td>MM</td>
<td>- .19</td>
<td>- .34</td>
<td>- .35</td>
</tr>
</tbody>
</table>

Sums of Scores: 
- .07  -2.71  - .67  - .31  - .28  -1.34  -1.39
Ratio of Plus to Minus Scores: 5/4 2/8 4/6 4/6 4/6 2/9 3/8
Confidence Level for each class per sign test: 1.00 .180 .754 .754 .754 .066 .226

* Significant within the critical region of .05 or lower.
the scores serve as a conclusive check on our inference that the experimental group regressed.

ANALYSIS OF THE DIFFERENCE BETWEEN GROUPS

Since it was found that the control group showed only an insignificant positive change (.24 level of confidence) and that the experimental group showed a significantly negative change, one may subjectively infer that the difference between the two groups is significant, and that the follow-up program (the experimental variable) has brought about the regression on the part of the experimental group. This inference is purely subjective however because when one considers the difference between the two groups one really considers a new sample of scores which is made up of the classification means of the experimental group less the corresponding means of the control group.

Therefore, to be objective, it is necessary to check the inference by again applying the sign test to the new sample. In Table III are given the differences between classifications and between the sums of the group classifications.

After subtracting the control means from the experimental means seven negative scores remain.

See page 96 for Table III.
### TABLE III

POST EXPERIMENT SCORE MINUS PRE EXPERIMENT SCORE FOR EXPERIMENTAL AND CONTROL GROUPS, AND THE TWO COMPARED

<table>
<thead>
<tr>
<th>(1) Classified* Number</th>
<th>(2) Experimental Mean* Change</th>
<th>(3) Control Mean* Change</th>
<th>(4) Experimental Means Less Control Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communication Clarity</td>
<td>-.0063</td>
<td>.0508</td>
<td>-.0571</td>
</tr>
<tr>
<td>2. Communication Timing</td>
<td>-.2463</td>
<td>-.1541</td>
<td>-.0922</td>
</tr>
<tr>
<td>3. Communication Channels</td>
<td>-.0609</td>
<td>.0629</td>
<td>-.1238</td>
</tr>
<tr>
<td>4. Communication Control</td>
<td>-.0282</td>
<td>.1259</td>
<td>-.1541</td>
</tr>
<tr>
<td>5. Performance Information</td>
<td>-.0255</td>
<td>-.0024</td>
<td>-.0231</td>
</tr>
<tr>
<td>6. Job Definition</td>
<td>-.1218</td>
<td>-.0141</td>
<td>-.1077</td>
</tr>
<tr>
<td>7. Information on Company</td>
<td>-.1264</td>
<td>-.0241</td>
<td>-.1023</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>-.6154</strong></td>
<td><strong>-.0449</strong></td>
<td><strong>-.6603</strong></td>
</tr>
</tbody>
</table>

Formula for Difference in Totals of Means: Total of Experimental means (\(-.6154\)) less total of Control Means (\(-.0449\)) = \(-.6603\)

*The classification means are all the totals of the participants' scores within each group classification divided by the number of participants in that group.

E.g. Experimental Class #1 Mean = \((\text{Total Participants scores for Experimental Class } #1)/\text{Number of Participants in Experimental Class } #1\)
Applying the sign test to this combination of seven negative scores it was found that the confidence level for such a combination (seven negative and no positive) scores) is .016. Since the direction of the difference between the scores is negative it can be concluded that the difference between the two groups is negative, significant at the .016 level of confidence.

From this finding it is apparent that only one of the groups changed significantly, and also that the difference between the two is negative and statistically significant.

The next consideration concerns the nature of this difference, that is, is it largely a result of a large change in a few classifications and no change in the others, or is there a relatively small, but consistent difference between the experimental groups in all classifications of communication behavior?

INTERGROUP ANALYSIS OF CLASSIFICATION SCORES

To answer the above question we must make an intergroup analysis of classification scores. In other words, significant differences between the classification scores of the two groups must be tested. For example, tests will be conducted to see whether the score for
classification number one, Communication clarity, has shown a significantly greater or smaller change in the experimental group than in the control group. To test the significance of the difference in improvement scores for each classification the t-test was used. The results of the t-test are reported, by classification, in Table IV. It should be noticed that the results are reported with negative signs. This indicates that the scores for the experimental group were, in all classes, lower than the scores for the control group. In fact, the experimental group showed a slight regression in all classes while the control group showed slight improvement in four classes and slight regression in three classes.

**Conclusion**

Inspection of Table IV reveals that there was no significant difference between the scores of the two groups, for any classification. Stated another way this means that the difference in any classification was not large enough to be attributed to the follow-up program, within a .05 level of confidence. In fact the largest difference only indicates a confidence level of .18.

---

6 See Chapter V for an explanation of the t-test.
7 See page 99 for Table IV.
### TABLE IV

MEANS, t-SCORES AND CONFIDENCE LEVELS BY CLASSIFICATION OF COMMUNICATION BEHAVIOR

<table>
<thead>
<tr>
<th>Classification Title</th>
<th>Mean of Participant Score by Behavior Classification for Control Group</th>
<th>Mean of Participant Score by Classification for Experimental Group</th>
<th>t Score for the Difference between Column 1 and 2</th>
<th>Approximate Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Clarity</td>
<td>.9508</td>
<td>.0063</td>
<td>-.645</td>
<td>---</td>
</tr>
<tr>
<td>Communication Timing</td>
<td>1.541</td>
<td>.2463</td>
<td>-.035</td>
<td>---</td>
</tr>
<tr>
<td>Communication Channels</td>
<td>.0629</td>
<td>.0609</td>
<td>-1.436</td>
<td>.18</td>
</tr>
<tr>
<td>Communication Control</td>
<td>.1259</td>
<td>.0282</td>
<td>-1.479</td>
<td>.18</td>
</tr>
<tr>
<td>Performance Information</td>
<td>.0024</td>
<td>.0255</td>
<td>- .215</td>
<td>---</td>
</tr>
<tr>
<td>Job Definition</td>
<td>.0141</td>
<td>-.1218</td>
<td>-1.192</td>
<td>---</td>
</tr>
<tr>
<td>Information on Company</td>
<td>.0241</td>
<td>.1264</td>
<td>-1.506</td>
<td>---</td>
</tr>
</tbody>
</table>

* Twenty-Six degrees of freedom

** The rejection standard (critical region) used to reject the hypothesis that there is no significant difference between classification scores by group is \( t = -2.056 \) for significant difference.
INTRA-GROUP ANALYSIS OF CLASSIFICATION SCORES

The above findings lead to the next step in the analysis, that is, the determination of whether any of the classifications for either the control, or the experimental group, show a significant improvement or regression from before experiment. This consideration is important because it is possible that there was substantial change in certain classes of communications as a group. Such changes cannot be determined from an inter-group comparison because the sample size of each group is not the same; therefore the t-score must fall within different critical regions to have significance at the given level of confidence.

In Table V\(^8\) are given the t-scores for each classification within the control group and in Table VI\(^9\) are given the t-scores for the experimental group classifications.

The critical regions (rejection requirement) and confidence levels for each sample are also given in the tables. The experimental group and the control group classifications will be discussed here in the light of

---

\(^8\) See page 102 for Table V.

\(^9\) See page 104 for Table VI.
the statistics reported in Tables V and VI respectively.

**Control Group**

From Table V it can be seen that none of the control group classifications showed a significant change at the .05 level of confidence. Classification Four, Communication Control, shows a change at the .11 level of confidence. This is hardly significant in that a .11 level of confidence means that such a change could be expected one out of nine times by chance alone. Since there are seven classifications in this group it should not be surprising to find one of them reaching significance at this low level of confidence.

It can be concluded from this that the amount of change which took place within this group can not be stated or inferred as significant for any of the classifications.

It can also be seen from Table V that three classifications scored positive signs while four were negative. Such a combination of scores is not statistically significant. This confirms the previous conclusion that no significant over-all change took place on the part of the control group.
### TABLE V

**T-Scores and Confidence Level for Difference Between Pre Experimental Score and Post Experimental Score by Classification of Communication Behavior for Control Group**

<table>
<thead>
<tr>
<th>Classification</th>
<th>t Score**</th>
<th>Approximate Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communication Clarity</td>
<td>.844</td>
<td>---</td>
</tr>
<tr>
<td>2. Communication Timing</td>
<td>-1.488</td>
<td>.15</td>
</tr>
<tr>
<td>3. Communication Channels</td>
<td>1.152</td>
<td>.14</td>
</tr>
<tr>
<td>4. Communication Control</td>
<td>1.728</td>
<td>.11</td>
</tr>
<tr>
<td>5. Performance Information</td>
<td>-.037</td>
<td>---</td>
</tr>
<tr>
<td>6. Job Definition</td>
<td>-.227</td>
<td>---</td>
</tr>
<tr>
<td>7. Information on Company</td>
<td>-.833</td>
<td>---</td>
</tr>
</tbody>
</table>

* Sample Size, Seventeen

** The critical regions are as follows

\[
\begin{align*}
.05 & t = 2.126 \\
.10 & t = 1.746 \\
.20 & t = 1.337
\end{align*}
\]
Concerning the experimental classifications, in Table VI it is indicated that Classification Number Two, Communication Timing, shows regression at the .02 level of confidence. This is well within the critical region for significance. In addition two other classifications are found with a .10 level of confidence or lower. These are classifications six and seven, Job Definition and Company Information respectively.

Both of these are closer to the critical region than any classification in the control group. This again lends some confirmation to the earlier conclusion\(^\text{10}\) that the difference between groups is significant.

From Table VI it can be seen that the significant regression took place in a very small part (approximately one or two-sevenths) of the total communication behavior of the participants. The reasons for this will be discussed in Chapter Ten.

In Table VI it is also indicated that all of the experimental classification scores are negative. This confirms the previous conclusion that the experimental group regressed significantly as a group. The significance of seven negative scores out of a possible seven scores is\(^\text{10}\)

This conclusion is discussed pages 95 through 97.
TABLE VI

<table>
<thead>
<tr>
<th>Classification</th>
<th>t-Score</th>
<th>Approximate Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communication</td>
<td>-.117</td>
<td>.20</td>
</tr>
<tr>
<td>2. Communication</td>
<td>-3.009</td>
<td>.02</td>
</tr>
<tr>
<td>3. Communication Channels</td>
<td>-.920</td>
<td>.20</td>
</tr>
<tr>
<td>4. Communication Control</td>
<td>-.445</td>
<td>.20</td>
</tr>
<tr>
<td>5. Performance Information</td>
<td>-.281</td>
<td>.20</td>
</tr>
<tr>
<td>6. Job Definition</td>
<td>-2.086</td>
<td>.08</td>
</tr>
<tr>
<td>7. Information on Company</td>
<td>-1.748</td>
<td>.10</td>
</tr>
</tbody>
</table>

* Sample Size eleven

** The critical regions are as follows:

- .05, \( t = 2.228 \)
- .10, \( t = 1.812 \)
- .20, \( t = 1.372 \)
.016, which is well within the critical region.

ANALYSIS OF INDIVIDUAL SCORES

Thus far the inter and intra group and classification changes have been discussed. This leaves the individual participant changes yet to be evaluated. Such an evaluation will help to show, in what way over-all group changes took place.

Again the sign test is used to determine whether the individual participants improved or regressed as evidenced by their classification scores. The sign test is applied to each individual's seven classification scores. This is intended to disclose whether or not there is a significant difference in the median score of each participant.

Control Group

In Table I it can be seen that five group members had seven scores with the same sign. Three of these scores were positive and two negative. Here are five individual scores, all significant at the .016 level of confidence, almost equally divided by direction of sign. These offsetting scores were thus far not evident from the group and classification data.

Such a combination is significant at the .016 level of confidence.
Concerning the significance of these scores, there can be no question that a change in the communication behavior of each of the five men, as perceived by their subordinates, actually did take place. This is true because of the low probability level of error, .016, associated with their scores.

The important question, however, is whether these changes are a result of the course or not. One thing which raises a doubt about the changes in the course is the lack of consistency of direction among the signs of the five scores.

Undoubtedly there will be a few isolated members in any group who will react significantly to the course. Since only five individuals reacted in this manner, it is contended here that such action is more a function of the individual participant's personal characteristics such as his personality, interest, etc.; the leadership climate within which he works; operational changes; or other factors outside of the course. It is very possible that such changes might have come about on the part of these five people even if they had not attended the course.

Additional light is shed on the question by analyzing the change in the composition of the group score in light of
over-all scores. In Table I it is shown that the individual over-all scores for the control group members were divided ten to seven, the later having positive scores. This combination of scores is hardly significant (.63 level of confidence) thus indicating little or no internal consistency among individual scores of the control members.

Conclusion

It is contended here that the course cannot be credited with bringing about the significant changes on the part of five individuals, or any uniformity of behavior on the part of all members of the control group. This conclusion is drawn in the light of the lack of consistency, first, on the part of the five significant individual scores, and, second, on the part of the over-all scores of all members of the control group.

Experimental Group

In Table II it can be seen that the experimental group had only one member whose seven classification scores all reflected improvement.  

12

Again, this consistency of classification scores is significant at the .016 level of confidence.
However, the over-all participant scores for this group were slightly more consistent than the control group scores. Eight of the scores were negative and three positive. This combination is significant at the .226 level of confidence. This combination does not meet the critical region, (.05) nor does it closely approach this region.

It is concluded from the above finding that there is no measurable consistency among the participant scores in the experimental group which can be viewed as a function of the follow-up program.

CHAPTER CONCLUSIONS

The effects of the conventional training and the follow-up program were evaluated quantitatively in this chapter. The analysis was conducted on the basis of group change, change in classification of communication behavior, and individual change.

The following conclusions emerge from all of these analyses.

1. The control group showed no significant change in over-all communication behavior as a result of the training program.

2. The experimental group, as a whole, reacted to its training to a significant degree differently than the control group.
3. The subordinates of the members of the experimental group reported that the volume and frequency of communication to them had decreased. In other words, there was a regression in communication behavior on the part of the supervisors who were followed-up.
CHAPTER VIII

CONFERENCE OPINIONS

Since both the conventional program and the follow-up program failed to bring about measurably improved communication behavior, it is necessary to determine the cause of this failure. Several reasons could account for this. One is that the course content was not compatible with, or pertinent to, the jobs of the conference. Another possibility is that the conference leader interfered with the learning process through poor teaching techniques. These two possibilities will be considered here.

To examine these two possibilities, the following topics will be dealt with individually in the remainder of this chapter:

1. Methodology
2. Evaluation of Course Content
3. Significance of Content Evaluation
4. Evaluation of the Instructor
5. Qualitative Significance of Instructor Evaluation
6. Summary of Chapter Findings
7. Conclusions.
METHODOLOGY

The Management Training Section followed the practice of conducting opinion surveys at the end of each program to determine conference leader acceptability, as well as applicability of course content. Although the results of these opinion surveys were not originally planned as part of the experiment, they will be examined in this chapter to determine possible reasons for the results obtained.

The conferees' evaluations were made during the first week following the last day of the course. All conferees who completed the communication course were asked to complete anonymously a questionnaire. One hundred and twenty-four questionnaires were distributed. Sixty-six (53.2%) were returned. The questionnaires were completed by the lowest four levels of engineering supervision.

Some of the respondents to this questionnaire were members of the quantitative evaluation sample and some were not. All training classes were composed of members of the control group, the experimental group and also of supervisors who were not part of the sample used for the quantitative evaluation.
EVALUATION OF COURSE CONTENT

Three questions were asked concerning course content. Following are tabulations of the opinions concerning these questions. The tabulations are presented in the form of the questionnaire used to collect the data. Each question is followed by a tabulation of the responses and a discussion where discussion seems warranted. Conclusions drawn from the responses are summarized at the end of the chapter.

Question 1 -
To what extent do you feel that the material covered in this course was pertinent to your development as a member of management? (Check one) (Please give reasons for your answers)

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Very little</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Somewhat</td>
<td>9</td>
<td>13.6%</td>
</tr>
<tr>
<td>Significantly</td>
<td>42</td>
<td>65.6%</td>
</tr>
<tr>
<td>A great deal</td>
<td>14</td>
<td>21.2%</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Table VII classifies the responses concerning the participants reasons for their answers.

Discussion

Fifty-six (85%) of the respondents stated that they felt the course contributed to their professional development significantly or a great deal.


<table>
<thead>
<tr>
<th>Reason* Why the Course was Pertinent</th>
<th>Frequency of Occurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The course pointed out personal weaknesses and corrective methods</td>
<td>20 30.3</td>
</tr>
<tr>
<td>2. The course clarified fundamentals which are necessary for effective fulfillment of management responsibilities</td>
<td>16 24.2</td>
</tr>
<tr>
<td>3. The course brought about a broadening of my perspective concerning job responsibilities</td>
<td>13 19.6</td>
</tr>
<tr>
<td>4. No reason given</td>
<td>9 13.6</td>
</tr>
<tr>
<td>5. The course provided a needed refresher of principles taken for granted</td>
<td>7 10.6</td>
</tr>
<tr>
<td>6. The course created an awareness of the importance of communication as a management responsibility</td>
<td>6 .09</td>
</tr>
<tr>
<td></td>
<td>70 106.0*</td>
</tr>
</tbody>
</table>

* Some participants gave more than one reason.
Of the nine who found the course only "somewhat" pertinent to their development, three (4 per cent) stated that the course needed improvement to contribute to their development, one (1.6 per cent) held that the course was not applicable to the job, and one stated that he already was familiar with the course content; the other four gave no reasons. It seems obvious that the majority of the participants felt the course was pertinent to their development.

Question 2 -

How is the course material related to your managerial duties? (Check one)

Directly 60 (90 per cent)  Indirectly 4 (6 per cent)
Not at all 2 (3 per cent)

Discussion

The course was designed on the basis of a training needs analysis. It is, therefore, logical to expect that the course content would be directly related to the managerial duties of the respondents. The answers to Question Two bears out this expectation. Ninety-six per cent of the participants stated that the course material was related either directly or indirectly.
Question 3

Has your opinion, of what your job consists of, changed as a result of the unit? (How)

Yes 19 (28.7 per cent)  No 46 (69.6 per cent)
No Answer 1 (.015 per cent)

Table II classifies the responses to the question "how" (has your opinion of what your job consists changed).

Discussion

The majority of the respondents had been on their particular jobs for several years. It is therefore not surprising that a large number did not change their opinions concerning what the job consisted of. In fact, it is a somewhat positive surprise that twenty-eight per cent of the respondents did change their job perspective.

Question 4

Are you performing any part of your duties differently as a result of the unit? (Please give specific examples)

Yes 56 (84.8 per cent)  No 10 (15.1 per cent)

Discussion

Fifty-two (78.7 per cent) of respondents gave 97 specific examples of changes they have made in performing
their duties. Four (6 per cent) of the participants gave no specific examples.

Table VIII classifies the specific changes stated as examples of changed behavior. The writer contends that this table gives the most meaningful participant evaluation of the effects of the course because it requires specific examples rather than opinions.

SIGNIFICANCE OF CONTENT EVALUATION

It appears from the opinions stated in the questionnaire that the respondents believed that the course content was very applicable to their job and pertinent to their development as members of management. However, the question of the conference leader's influence on the learning process still remains unanswered.

EVALUATION OF THE INSTRUCTOR

It is conceivable that the instructor could inhibit the learning process if he antagonized the group with his teaching methods or with undesirable personality characteristics or biases. Therefore, the degree to which the instructor is able to gain the confidence of the students, clearly explains the course content, relate course content to student
## CHAPTER VIII

SPECIFIC CHANGES IN PARTICIPANT PERFORMANCE AS A RESULT OF THE COURSE

<table>
<thead>
<tr>
<th>Type of Change</th>
<th>Frequency of Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>1. Establishing communications controls (screening, follow up, putting information in writing)</td>
<td>15</td>
</tr>
<tr>
<td>2. Reviewing and improving personal communications habits</td>
<td>15</td>
</tr>
<tr>
<td>3. Planning or thinking before communicating</td>
<td>11</td>
</tr>
<tr>
<td>4. Following the chain of command more rigidly</td>
<td>9</td>
</tr>
<tr>
<td>5. Communicating more information downward</td>
<td>9</td>
</tr>
<tr>
<td>6. Concentrating on clarity</td>
<td>9</td>
</tr>
<tr>
<td>7. Listening more for understanding</td>
<td>8</td>
</tr>
<tr>
<td>8. Paying greater attention to subordinate's requirements</td>
<td>5</td>
</tr>
<tr>
<td>9. Concentrating on building a better communication climate</td>
<td>3</td>
</tr>
<tr>
<td>10. Communicating more up and down</td>
<td>3</td>
</tr>
<tr>
<td>11. Communicating more upward</td>
<td>2</td>
</tr>
<tr>
<td>12. Making sounder employee performance evaluations</td>
<td>2</td>
</tr>
<tr>
<td>13. Defining authority and responsibility better</td>
<td>1</td>
</tr>
<tr>
<td>Type of Change</td>
<td>Frequency of Occurance</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>14. Communicating laterally more</td>
<td>1</td>
</tr>
<tr>
<td>15. Teaching subordinates to communicate better</td>
<td>1</td>
</tr>
<tr>
<td>16. Delegating more</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>97</td>
</tr>
</tbody>
</table>

*Percentage of total number persons who answered questionnaire, rounded to one decimal place.
**Some participants gave more than one example.
experience, and make use of student participation to illustrate points will be evaluated here to determine whether the instructor negatively or undesirably influenced the learning process of the conferees. Following are tabulations of the answers to each question concerning instructor performance. A brief discussion of the significance of these opinions will follow the last question tabulation.

**Question 5 -**

Please evaluate the conference leader with respect to:

a. His ability to explain and clarify points

Very Good 46 (69.6 per cent)  
Good 19 (28.7 per cent)  
Average 1 (1.5 per cent)  
Poor 0

b. His knowledge of course information

Well informed 54 (81.9 per cent)  
Adequate 10 (15.1 per cent)  
Lacked Knowledge 1 (.5 per cent)  
No Answer 1 (1.5 per cent)

c. His method of presentation

Interesting 42 (63.3 per cent)  
Satisfactory 21 (31.8 per cent)  
Boring 1 (1.5 per cent)  
No Answer 2 (3.0 per cent)
Question 6

What is your opinion of:

a. His ability to relate points to conferee experiences?

Very Good 29 (43.9 per cent) Good 31 (46.9 per cent)
Average 5 (7.59 per cent) Poor 1 (1.5 per cent)

b. His ability to make maximum use of conferee participation to illustrate points and arrive at group conclusions.

Very Good 35 (53.0 per cent) Good 26 (39.3 per cent)
Average 3 (4.5 per cent) Poor 0
No Answer 2 (3.0 per cent)

SIGNIFICANCE OF INSTRUCTOR EVALUATION

The response indicates that the instructor was successful in explaining and illustrating course content in a manner that was interesting or satisfactory to ninety-eight per cent of the respondents. Only four of the three hundred and thirty (1.2 per cent) indicated undesirable reactions to the instructor or his teaching methods.

There is little evidence that the instructor was looked upon as uninteresting, lacking in knowledge or failing to appreciate the practical considerations involved in on-the-
job application of the course content. On the contrary, 72 per cent of the answers were at the top end of the scale, indicating a high degree of respondent satisfaction with the instructor. It is concluded from this that he did not negatively influence the learning process or interfere with the accomplishment of course objectives by his classroom decorum or personality.

SUMMARY OF CONFERENCE OPINIONS

Of the 66 participants, fifty-six (84.8 per cent) stated that the course contributed significantly or a great deal. Sixty (90.3 per cent) stated the course was directly related to their managerial duties. Nineteen (28 per cent) stated that the course changed their opinion concerning what their job consists of. All of these stated that the change involved a better understanding of managerial duties.

Fifty-six (84.8 per cent) of the participants stated that they are performing their duties differently as a result of the course. Fifty-two (87 per cent) gave ninety-seven specific examples.

Ninety-four per cent of the respondents gave favorable evaluations of the instructor's knowledge of course information and teaching methods.
CHAPTER CONCLUSIONS

These participant responses would lead one to believe that the course caused improved communication. However, the respondent opinions are not in agreement with the quantitative findings reported in the last chapter.

The validity of participant responses for purposes of evaluating training effectiveness is highly questionable. The following quotation gives some reasons why such opinion evaluations should be viewed in this critical manner.

The questionnaires I have examined and, to a lesser extent, the comments collected by interview are generally favorable—REGARDLESS of the length, content, and conduct of the program in question. I have already concluded from this evidence that any program conscientiously constructed for executives and adapted to meet their criticism will generally be enthusiastically received. The generosity of the participating executive's comments is doubtless reinforced by his feeling that he is expected to respond in this way, by his recognition of the favorable implications of his selection, and by his satisfaction in associating under pleasant circumstances with other men of intelligence, ability, and varied experience.¹

¹ Andrews, pp. cit.
Apparently, based upon their questionnaire responses, the conferees were generally well satisfied with the knowledge, conduct, and conference leading ability of the conference leader. This factor would naturally cause the respondents to make favorable comments about the course content, therefore, possibly adding more bias to the already rather unscientific opinion survey.

It should be stressed, however, that participant opinions do serve a useful purpose in that they provide a basis for determining whether the course content is pertinent to the management job. Such opinion surveys also are helpful to the instructor for purposes of his personal development.

The opinion evaluation, which was the subject of this chapter, neither proved nor disproved course effectiveness. It did, however, permit narrowing of the number of variables which may have had an undesirable effect on training results. This is necessary in light of the quantitative findings of regression in some behavioral areas, and also in light of the failure of the course to bring about measurable change on a broad scale.
CHAPTER IX

EFFECTS OF RAISING COURSE STANDARDS

The effects of the conventional training program and the follow-up program have been described. Some of the variables which may have caused or influenced these effects have also been described.

As the reader will recall from Chapter IV, the course attendance and examination requirements were elevated for the purposes of increasing the motivation of the students and elevating the educational level of the courses offered by the training section.

In this chapter the effects of this change will be reported in terms of specific evidences of changes in the attitude of supervisor toward management training. The effects will be discussed under the following headings:

1. Traditional Management Training Philosophy
2. The Need For More Rigid Course Standards
3. Elevating Course Standards
4. Effects of Elevating the Course Standards
5. Chapter Conclusion
TRADITIONAL MANAGEMENT TRAINING PHILOSOPHY

Many staff specialists in the field of management training maintain that the justification for the existence of the training function can be and usually is measured by the popularity of the conference leaders and the courses. Consequently, the courses are often designed to meet the approval of line personnel rather than to assist in solving their problems or meeting their training needs. Many times course acceptance is achieved at the expense of sound course content.

The method of teaching, as well as the course content often suffers from this attitude. For example, the conference leader who holds to this traditional viewpoint will usually go out of his way to be permissive, he will not contradict members of the class, insist on prompt or consistent attendance, or in any way assert pedagogical authority except in the rarest and most extreme circumstances. Such conference leading has become traditional in many companies, and constitutes an implied policy of conference leader behavior.

---

1 This statement is based on the writer's observation of industrial training practices and his experience as a member of training department in three large firms.

2 This viewpoint has not yet been recognized in the training literature due to the lack of research in this field to date.
As a result of this traditional philosophy and the implied policy which frequently accompanies it, the quality of management training is often lowered to the point at which it is considered an unimportant or even burdensome staff function.

The following discussion will concern the effects of elevating course standards, in one company, and introducing authoritative teaching in place of the traditional philosophy of permissive management training, described above.

THE NEED FOR HIGHER COURSE STANDARDS

Before this dissertation was conducted, the Management Training class conducted at the Columbus Division of North American Aviation, Inc., had very low completion requirements. For example, new conferees were allowed to miss all classes except the first and the last class of each course, and still complete the course at a later date by attending make-up classes with other groups. Also no examinations were given to conferees at the end of each course.

As a result of these low completion requirements the communication course offered very little challenge or stimulation to the participants. Consequently the Management Training courses were looked upon with apathy by members of supervision; it was difficult to get many supervisors to
take the courses; the conference room was seldom filled to capacity; frequently there were few present at the time the class was scheduled to begin; and many classes were cancelled for lack of attendance. Toward the end of each program a condition existed wherein several participants who began the program were not present while several who were making up earlier classes were present. Consequently, course continuity was interrupted for remedial instruction in the latter case, and it became impossible to predict the number of conferees who would be present for each class.

This brought about a very undesirable condition for the members of the group who did not miss classes. Such a condition was also very frustrating to the conference leader who found it difficult to fulfill his teaching responsibilities adequately. To remedy this situation a new training plan which included higher course standards and more authoritative teaching were introduced. The new training plan called for strict attendance requirements and final examinations. In addition the conference leader was encouraged to be less permissive concerning principles of communication.

Finally, the frequency of course meetings was increased to twice a week for three and a half weeks. Previously, classes were scheduled once a week for seven weeks. The increased frequency of classes made it easier for the conferee to plan his attendance.
EFFECTS OF ELEVATING COURSE STANDARDS

These three changes, tighter attendance requirements, final examinations, and more compact course scheduling brought about a startling increase in attendance and course completion.

Prior to undertaking the experiment the communications course was given to forty-five supervisors. Twenty-seven (60 per cent) completed the course. Eighteen (40 per cent) did not complete until a later time. After the class frequency and requirements were changed 119 supervisors began the course. Ninety-seven (81.5 per cent) completed the first time through; twenty-two (18.5 per cent) did not. The difference between the two groups, 21.5 per cent, represents a 38.5 per cent increase in completions from before the new policy was effected. Such an increase is significant at the .01 level of confidence.

\[ \frac{81.5 - 60}{60} = 38.5\% \]

This confidence level was determined by applying the test of the Distribution of Two Percentages to the completion percentages reported above. For a further description of the test see Huel, Introduction to Mathematical Statistics, p. 72, Wiley and Sons, New York,
In addition to the improvement in attendance and completions, another very significant result was incurred. The elevated standards and changed scheduling procedure brought a striking change in the attitude and classroom performance of the participants. Enthusiasm for the courses grew, with increased, consistent and prompt attendance. Frequently supervisors who had not been scheduled into the course requested that they be scheduled. Very few classes were cancelled because of poor attendance. The conference leader was soon able to discontinue phoning conferees to remind them to attend. And frequently conferees requested the conference leader to extend the course for an additional class.

Whereas before the experiment it was difficult to induce the Supervisors to attend training, at the end of the experiment, the training section had a waiting list of seventy-five members of management who had requested invitations to any subsequent management training courses for which they were eligible.
CHAPTER CONCLUSION

Under the training plan followed prior to that established in connection with this experiment, the Management Training section did not appear to have much to offer to the Engineering Division. Under the new training plan, the elevated standards, the more authoritative methods of teaching and the more compact course scheduling presented a challenge to the supervisors which they accepted. This acceptance is evidenced by consistent and prompt attendance and frequent requests by the supervisors for more training.
CHAPTER X

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SCOPE OF STUDY

One of the most difficult aspects of operating executive development programs is that of appraising their effectiveness. Obtaining quantitative measurements of the results obtained is difficult indeed. But, if a program is to be utilized properly, evaluation is imperative.

In this study, obviously only a segment of all possible variables which affect training effectiveness could be subjected to experimentation. Of particular interest here are the effects of (a) a follow-up program designed to integrate classroom teaching with on-the-job performance, and (b) an attempt to raise the standards of an in-plant training program.

To examine these aspects of management training the writer was fortunate to obtain the cooperation of North American Aviation, Inc. This company has installed an in-plant training program for members of Engineering Management at its Columbus Division. The experiments for this dissertation were conducted by introducing variables to
a Communication course which is a phase of the training program at North American.

METHODS AND LIMITATIONS OF STUDY

Quantitative data on the effects of the follow-up program were obtained through the use of questionnaires completed by the subordinates of the participants of the training program. In addition, qualitative data on (a) the course content, (b) the teaching methods used, and (c) the instructor were obtained through questionnaires completed by the participants.

By use of experimental design, a control group, and rigid statistical evaluation; a sample of twenty-eight participants proved to be sufficiently large to render significant findings concerning the effects of the follow-up program. The sample is considered to be both adequate and representative. The limitations of this part of the study are those associated with the use of a questionnaire as well as limitations of scope associated with the experimental design method of evaluation.

By use of "before and after" comparisons of (a) course attendance and (b) the number of individual requests to participate in the program, the effects of raising the course standards were measured. The limitations of this
part of the study are those associated with the measurement of variables without the use of a control group.

The results of this study can be divided conveniently into the following categories:

1. Experimental findings
2. Conclusions
3. Recommendations

While all of the conclusions and recommendations are necessarily based on the experiments conducted in this dissertation, it is probable that similar results might be expected if identical experiments could be conducted in other firms. In addition, it is contended that the following findings constitute new knowledge which will be helpful in subsequent research efforts conducted to explain the nature and effects of variables connected with management training.

EXPERIMENTAL FINDINGS

The Effects of the Follow-up Program

By comparing the change which took place on the part of the control group with the change of the experimental group it was possible to determine the effects of the follow-up program. Following are the effects of the two programs and the differences between them:
1. The control group showed no significant change in over-all behavior as a result of the conventional training program.

2. There was a significant difference between the communication change which took place in the two groups.

3. The subordinates of the members of the experimental group reported that the frequency and volume of communication had decreased. In other words, there was a regression in communication behavior on the part of the supervisors who were followed up. This finding is based on over-all group scores. Over-all findings indicate significant regression when measured two ways. It is contended that the confirmation of the two measurements leaves little doubt of the validity of this finding.

4. Concerning classifications of communication behavior, none of the control group classification scores and only two of the experimental group classification scores were large enough to show statistical significance.

5. Concerning individual participants, only six of the twenty-eight members of the sample showed
significant change. There was no consistency of
direction of change among these six or among the
individual scores of either group.

The Effects of Raising Course Standards

By raising the course standards two very desirable
effects were achieved.

1. Class attendance and promptness improved substantially. This improvement is reflected by the fact that there was an increase of thirty-eight per cent in the number of supervisors who completed the course the first time they began. Such an increase is significant at the .01 level of confidence. This improvement in the number of course completions took place in spite of what would appear to be discouraging requirements that (a) the participants arrive on time to get credit for class attendance and (b) that they attend six of the seven classes to complete the course.

2. The interest and enthusiasm of the students in the subject matter increased substantially. This improvement in interest and enthusiasm is evidenced by the number of supervisors who requested further course offerings from the Management Training Section. Whereas before the course standards were elevated it was difficult to get enough supervisors interested
in a course to fill the classroom, at the end of the experiment, the Management Training Section had a waiting list of seventy-five supervisors who had requested invitations to any subsequent course offerings for which they were eligible. There were also frequent requests to allow operative employees to attend the course and requests to extend the present course offering for extra sessions. Although there were fewer of these latter two types of requests it is contended here that these represent a very substantial improvement in supervisory enthusiasm for management training.

OPINIONS OF PARTICIPANTS

To make the interpretation of quantitative findings easier, more accurate and more meaningful, the conferees were asked, anonymously, their opinions of the course content, the teaching methods used, and the instructor. Of the 124 supervisors who completed the course, sixty-five (53.2 per cent) returned completed questionnaires. Following is a summary of these sixty-five questionnaires.

a) Fifty-six (84.8 per cent) of the respondents stated that the course contributed significantly or a great deal to their development as a member of management.
b) Sixty (90.3 per cent) stated the course was directly related to their managerial duties.

c) Nineteen (28 per cent) stated that the course changed their opinion concerning what their job consists of. All of these stated that the change involved a better understanding of their managerial duties.

d) Fifty-six (84.8 per cent) of the participants stated that they are performing their duties differently as a result of the course.

e) Ninety-four per cent of the answers concerning the instructor's knowledge of course information and teaching methods were favorable.

CONCLUSIONS

Having reported the experimental findings it is pertinent to interpret these findings and draw conclusions concerning their application to the field of Management Training. Such interpretation and conclusions will be presented under the following headings.

1. The Conventional Training Program
2. The Follow-Up Program
3. The Elevation of Course Standards
The Conventional Training Program

Based on the quantitative evaluations and conferee opinions it was determined that (a) the course was applicable to the job of the supervisors who attended the course and (b) the course brought about little or no change in the behavior of the supervisors in spite of the fact that they felt the course was well presented.

These findings are consistent with previous research findings concerning the effects of Human Relations Training. To date, all Management Training programs which have been scientifically evaluated have been found to either be ineffective or to cause negative effects.

One might hypothesize that the conventional training program was ineffective because (a) it was not long or intensive enough or (b) because it was in conflict with the existing managerial practice.

In past experiments where the latter condition existed, training was not ineffective but rather it resulted in negative effects.¹

The findings of these previous studies are closely related to the effects of the training program conducted in this study. During this program, the participants frequently made the comment that the course should be conducted

¹ See Chapter III, p. 60
at higher levels of the organization. Many of the participants showed astonishment when told that their immediate supervisors had taken the course before them. Such reactions and comments were the rule rather than the exception. The participants stated, and with a high degree of consistency, that too little information comes down from the upper levels of management. Many times in class they complained that the course content was pertinent to their responsibilities, but not applicable because of this lack of information being transmitted from above.

Previous findings would lead one to expect the conventional training program to be negatively effective in the work climate described above. Since the training program was neither positively nor negatively effective it is concluded that the course was not long enough or intensive enough to bring about a measurable change. This conclusion should be accepted tentatively however, until the results of the follow-up program are discussed. It will be seen then that those results shed further light on this conclusion.

---

2 Although consistency of agreement on this point was not measured, the complaints about lack of information from above were never refuted in the classes by other participants, and generally, the complaint was confirmed by the whole class.
The Follow-Up Program

The follow-up program was designed to eliminate the effects of factors in the work climate or in immediate supervision which may be prohibitive to the practice of communication principles taught in the course.

Although it is somewhat surprising that the follow-up program resulted in poorer communication, it is none the less important to determine the cause of these disappointing results. Four explanations are plausible. First, the course content may not have been applicable to the job duties of the conferee. Second, the conference leader may not have taught the course adequately. Concerning these two possibilities, it was concluded from the qualitative evaluation that the course content and the instructor were both adequate for the purposes of the course.

The third possibility is that the immediate effects of the course are usually negative but temporary, and that in the long run the effects of the course will be in the nature of improvement. It was concluded in Chapter IV

---

3 See Chapter VIII for the qualitative evaluation.
4 See Chapter IV., pp. 56, 57.
that this theory is not proven by previous studies, and that it constitutes no more than a hypothesis which explains the negative results of the follow-up program.

Having rejected the first three plausible explanations of the negative effects of the follow-up program, the fourth explanation remains to be discussed. Following is the conclusion reached by this writer concerning the reasons for the negative effects of the follow-up program.

Whereas the conventional training program was ineffective, the follow-up program together with the conventional program constituted enough training to affect the experimental group members. However, because the follow-up program was only concerned with two levels, the principles stressed in the training program were still in conflict with the existing climate which was established from the top of the organization. Consequently when the training took effect, it came into conflict with the existing management practices thus causing the experimental group members to act with uncertainty and in a state of frustration concerning what to do about the practice of course content on the job.

The result of this uncertainty and frustration was a decrease in the frequency and volume of information which
the experimental group members passed downward. When queried about the communication practices of their supervisors, the subordinates of the experimental group members reported that the frequency and volume of communications they received had decreased significantly.

In other words, the conventional program alone did not offer sufficient instruction to take effect, either positively or negatively. However, the conventional program plus the follow-up program was sufficient to take effect, but when it did the reaction was negative. The reason for the negative reaction is that the existing climate was opposed to the practices taught in the course.

This conclusion is consistent with the negative effects found in the International Harvester experiment, and also with the repeated conclusions drawn from many other scientific studies,⁵ that the effects of training are conditioned by the behavior of the members of management many organizational levels above the level at which the training took place.

⁵ See Chapter IV, pp. 52-68.
The Elevation of Course Standards

The course standards were elevated and the course schedules were made more compact for the specific objective of increasing student enthusiasm in Management Training, thus stimulating the students to attend the classes regularly and promptly. It was hoped that this objective would be achieved as a result of presenting a more challenging course to the students.

The 38 per cent increase in the number of course graduates after the new plan was installed indicates that the objective of stimulating the conferees to attend the classes regularly and promptly was achieved. It is impossible, however, to determine how much of the improvement in attendance came about as a result of scheduling the classes closer together and how much of the change is due to the elevated course standards. It can be concluded however, that course continuity was improved significantly as a result of the tighter scheduling. When the classes were held once a week the conference leader would have to spend approximately fifteen minutes at the beginning for review. However, when the classes were held closer together the review time was reduced to about five minutes for each class.

\[6\]

This increase is significant at better than the .01 per cent level of confidence.
The requirement that the conferees attend the classes promptly also contributed to the class continuity, but in another way. Late attendance was practically eliminated, thus eliminating the need for the conference leader to inform late comers of the subject of discussion. There can be no question that this improvement is a result of the requirement that the conferees attend promptly to receive class credit.

The large number of unprecedented requests for additional courses constitutes another evidence of increased enthusiasm for Management Training. This increased enthusiasm was due to the more authoritative method of conference leadership provided in the new training plan. The increased interest of the students indicates that they preferred authoritative instruction to the traditional permissive instruction. This is to be expected in light of the type of educational background and work experience of the students. They were, for the most part, graduate engineers. Their educational training and most of their work experience had dealt with the physical sciences. The principles and laws of engineering are less relative and their applications are less subject to the conditions of the situation than are the principles and laws of the social sciences. The former permissive method of conference leadership makes the social
sciences appear to be "nothing more than organized common sense." However, a more authoritative method of instruction adds the stature of a discipline to the subject matter.

RECOMMENDATIONS

Having reviewed the experiment and the effects of the variables tested, and having summarized conclusions on the basis of these effects, it is pertinent now to make recommendations which may assist other researchers or practitioners in the field of Management Training. Following are the specific recommendations which this writer feels are warranted on the basis of the experiment conducted in this dissertation.

1. Management training effort should begin at the top of each autonomous organizational group in which the training is to take place. Once the members of the top level of management are thoroughly indoctrinated in the subject matter of the training program, they should either review the training program to be given to their subordinates or participate in the development of the program by making suggestions

7 This comment was made in class by one of the conferees, before the authoritative teaching methods were introduced.
concerning course content and insuring that it is in accordance with the policies of the organization.

2. Top management should establish controls to insure that the policies, and consequently the training content, are practiced in the day to day operations of members of management. By this method, a climate can be developed which will be conducive to the practice of the course content.

3. Management Training should be stressed as a line responsibility and the success or failure of any training program should be recognized as the responsibility of the line as much as it is the responsibility of Management Training staff.

4. Where operationally practical, in-plant training classes should be scheduled two or three times per week. This provides for greater course continuity. Such compact scheduling also makes it easy for the conferees to plan their course attendance since they are not required to plan as far in advance.

5. Definite and strict attendance requirements should be established for all courses. The conference leader should be given the authority to withhold class credit from conferees who arrive late, and credit for completion should not be given to
conferees who do not attend the required number of classes.

6. Make-up classes should be discouraged. Provision for making classes up should not be made except in those cases where it is absolutely impossible for the student to attend class with the group. In such cases, the provision for making up the class should not be one of allowing the student to attend class with another group because such practice disrupts course continuity. Rather, when practical, the student should be required to do extra reading or confer individually with his supervisor or the instructor.

7. Except in case study or problem solving classes, permissive instruction should be discouraged and authoritative leadership encouraged.

8. The conference leader should be well trained in the subject which he is teaching. His training should be equivalent to at least a Masters Degree in the subject matter taught in the course. Without extensive training, the conference leader can not be expected to take an authoritative position when questioned about the principles or practices he teaches. He should be equipped to answer
penetrating questions in his field with specific principles, reasons, examples and illustrations.

9. Final examinations should be given at the end of each course. Examinations motivate the students to attend regularly, take notes, study and participate in class discussion. They also require the student to review and summarize the course before terminating formal study of the subject matter.

10. Future follow-up programs should be limited to the length of time necessary to induce the supervisors of the course participants to coach the participants in the application of the practices taught in the course.

In addition to the above recommendations, the following research recommendations are made for the long range future.

1. Additional study should be conducted to determine the types of controls which can be installed to ensure top management that supervisory performance is in accordane with the policies, principles, and practices taught in the management training programs.

2. Additional research still remains and should be conducted to determine the effects of a follow-up
Bibliography
A. BOOKS


\[ \ldots \]


Mace, Myles. Growth and Development of Executives. Division of Research: Harvard University Graduate School of Business Administration, Boston, Massachusetts, 1950.


Zaleznik, A. *Foreman Training in a Growing Enterprise*. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1951.

B. PERIODICALS


Korb, David L. "How to Measure the Results of Supervisor Training," Personnel (March, 1956).

"Training the Supervisor," Personnel Method Series, No. 4, United States Civil Service Commission (September, 1956).


Winns, A. "An Experiment in Training," Canadian Personnel and
Industrial Relations Journal (July, 1953).

"Training in Administration and Human Relations," Personnel
(September, 1953).

Zaluznik, A. "Foreman Training in a Growing Enterprise," Boston:
Graduate School of Business Administration, Harvard University, 1951.

C. PUBLICATIONS OF LEARNED SOCIETIES, PROFESSIONAL ORGANIZATIONS,
GOVERNMENT, AND OTHER ORGANIZATIONS

Assessing and Reporting: Training Needs and Progress. United States
Civil Service Commission, Personnel Methods Series No. 3 (June, 1956).

Bennett, Willard E. An Integrated Approach to Management Development.
American Management Association Personnel Series No. 171.

Fleishman, Edwin A., Harris, Edwin F. and Burtt, Harold E. Leadership
and Supervision in Industry. Ohio State University Studies,
Bureau of Educational Research Monographs, Number 33, The Ohio
State University, Columbus, Ohio.

Kirkpatrick, Donald. Techniques In Training Evaluation. Proceedings,
14th Annual Conference, American Society of Training Directors' Journal
(May, 1953).

Mahler, Walter and Monroe, W. H. How Industry Determines the Need for and
Effectiveness of Training. Personal Research Section Report 929,
Washington: Department of the Army, 1952.

Mann, Floyd. Research in Industrial Human Relations. Industrial Relations
Research Association, Publication Number 17 (1957).

Rexford, Hersey. Management Training for Supervisors from New Horizons
in Office Management. Office Management Series Number 119,
American Management Association (1957).

Tannenbaum, Robert. The Introduction of Change in Industrial Organization.
American Management Association, General Management Series, Number 186.

Weschler, Irving, Tannenbaum, R. and Zenger, J. H. Yardsticks for Human

D. ACADEMIC THESSES AND DISSERTATIONS

Hariton, Theodore. Conditions Influencing the Effects of Training Foreman in
University of Michigan, 1957.

APPENDIXES
APPENDIX A

THE COMMUNICATION COURSE TRAINING MANUAL

157
Supervisory Development Program Training
Unit Synopsis

Effective Communications For Engineering Management

This is a seven (7) session, fourteen (14) hour course concerning the nature, problems and principles of Managerial communications as applied to Engineering Supervision.

SESSION I
A. Introduction
B. Communications and the functions of a member of management.
C. Purposes of managerial communications.
D. Communications responsibility of a member of management.
E. The nature of industrial communication problems.
   1. Organizational Problems
      a) Upward communications
      b) Downward communication
      c) Horizontal communication

SESSION II
A. The nature of Industrial Communication problems (Continued)
   1. Organizational problems
   2. Semantic problems
      Communicating facts
      Influence of feelings
      Effect and interpretation of purpose or intent of communicator
B. Principles of stating facts.
C. Controlling feeling of the person involved in the communication.
D. What should be communicated;
   1. To employees
   2. To members of management
SESSION III
A. Who Should be told
B. Who Should tell
   Selecting and training communications
C. Timing of communications
   1. Upward
   2. Downward
D. Principles of verbal communications
E. Control of verbal communications
F. Listening
   1. Barriers to effective listening
   2. Principles of effective listening

SESSION IV
A. Communicating orders
   1. Common mistakes
   2. Principles of effective order giving
B. Informal communication (the grapevine)
   1. Causes of rumors
   2. Characteristics of the grapevine
   3. Principles for dealing with the grapevine

SESSION V
A. Written Communications
   1. Types of written communications used
   2. Reasons for written communications
B. When to put it in writing
C. Principles of effective writing
<table>
<thead>
<tr>
<th>SESSION VI</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>SESSION VII</td>
<td>Practice</td>
</tr>
</tbody>
</table>
Communications and The Managerial Functions

We have seen in the Art of Administration course that all members of management perform the common functions of: Planning, Organizing, Controlling, Directing, and Coordinating. Little reflection is required to realize the significant part communications plays in the effective performance of these functions. Possibly, in a small organization, the functions of planning and organizing could be performed by one man with little or no communications required. In a large organization such as N.A.A., the Columbus Division, the Engineering Department, or even in groups consisting of two, or more employees, the performance of the functions of planning and organizing require the help of others, investigation, consultation, and approval. The functions of directing, coordinating and controlling by their very nature take place through the exchange of information. It is evident that these functions cannot be performed effectively without a clear understanding of the nature of industrial communications.

The responsibility for good communications within a group or department rests heavily on the shoulders of the supervisor in charge of that organizational component. He can delegate this responsibility, but he cannot delegate the accountability for it (the responsibility to see that the work is performed satisfactorily).

The member of management must know what to communicate, when and to whom, he should communicate; he should be thoroughly familiar with good communications techniques (how) and the formal and informal organization in which the communication channels exist (where). Each communication should have a reason and this "why" of each communication should accompany the message if at all possible.

Each member of management should have a thorough understanding of the relationships between communication and the principles of management.

An understanding of the what, when, where, how, who, and why of communications will not solve management problems, this is accomplished only through the judgement and decisions of each member of management. Such an understanding will go a long way toward basing judgment on facts, and making accurate and timely decisions.

In the communications conferences, we will discuss written and verbal communications separately and specific principles which apply to each. We will discuss and explain these communication principles in light of the setting in which they are exercised, i.e. the industrial organization. The purpose of taking this perspective is to relate these whenever possible to the functions and responsibilities of the member of management.

In addition to these specific principles there are some general principles which apply to all communications whether verbal or written. Following are the more important of these general principles which constitute the "Basics of Effective Communication".
PURPOSE OF COURSE

To become familiar with the principles of effective managerial communications.
1. To increase our ability to speak clearly.

2. To improve our writing ability.

3. To learn how to listen for maximum understanding.

4. To learn how to be sure our communications are correctly understood.

5. To gain an understanding of the relationships between principles of management and principles of communications.

6. To gain an understanding of the effects of the industrial organization and personal communication practices.

7. To gain an understanding of our management communication responsibilities so that we may state them clearly to our subordinates and superiors.
DEFINITION OF COMMUNICATIONS

The process by which we transfer an idea or thought from one person to another
The process by which leadership takes effect

PURPOSES

1. To provide the information and understanding necessary for group effort

2. To provide the attitudes necessary for Motivation, Cooperation, and job satisfaction.

Better communication gets better job performance

\[ SW + WW = BW \]

\[ S + W = B \]
THE NATURE OF COMMUNICATIONS

Communications problems in industry occur in relation to

1. Organization structure (group framework)

2. Semantics (meaning)
MEANING CONSISTS OF THREE PARTS

1. Facts

2. Feelings

3. Purpose or intent
BARRIERS TO COMMUNICATING FACTS

1. Slipshod use of words

2. Failure to watch for signs of possible misunderstandings

3. Inattentive listeners

4. Reluctance to ask questions

5. No wish to understand

6. Failure to speak the other person's language
FACT SYMBOLS ARE READILY UNDERSTOOD

WHEN;

1. Precisely stated

2. Briefly stated

3. Words are chosen with care

4. Key terms are defined

5. They are stated objectively

6. Use is made of as many senses as possible

7. Use of analogies and comparisons are made
EFFECTS OF FEELINGS

1. Feelings color facts

2. Feelings influence thoughts and actions.

3. Feelings influence attitudes
FEELINGS CAN BE CONTROLLED BY

1. Realizing the comparative unimportance of our own feelings
2. Appreciating the force of another person's feelings
3. Getting more facts
4. Making others aware of feelings and facts which are pertinent to the situation
5. Getting agreement on principles
EMPLOYEES ARE PRIMARILY INTERESTED IN:

1. Job information

2. Earnings

3. Advancement opportunities
SPECIFIC EMPLOYEE INTERESTS

1. Security
   a. Industry stability
   b. Company stability
   c. Job stability
   d. Employee relations
   e. Benefit programs

2. Promotional Opportunity

3. Group Functions In Relation to Over-all Company Objectives
   a. End Result of Their Effort
   B. Contribution to The Final Product

4. Wages
MANAGEMENT INTERESTS

1. Same as employees' concerning job security and opportunity

2. Lines of authority

3. The extent to which top management will stand behind them

4. Supervisory rights
MOST LACKING ESSENTIALS
FOR ENGINEERING JOB SATISFACTION

1. Reasonably private working quarters

2. Clear definition of responsibility

3. Being recognized as a member of a decision making body
COMMUNICATE TO EMPLOYEES AS MANY FACTS AS POSSIBLE CONCERNING:

1. Their relation to the total organization
2. Opportunity and security
3. Those things they will take pride in knowing
4. Those things they will eventually learn themselves
### Classification of Information

1. **Need to know**  
   - Job information

2. **Nice to know**  
   - General information

3. **Should not know**  
   - Classified information  
   - Proprietary information

As a general rule, withhold only classification 3.
1. Inform those directing others of the importance of good communications

2. Show them how to communicate

3. Keep all supervisors and employees informed.
PRINCIPLES OF VERBAL COMMUNICATION

1. Be yourself

2. Talk the other fellow's language

3. Provide a two way street

4. Listen at the speaker's rate

5. Don't make promises you can't keep
VERBAL COMMUNICATIONS CAN BE CONTROLLED

BY:

1. Planning your approach

2. Listening to understand

3. Verifying by "Playback"

4. Evaluating as you communicate

5. Arranging for follow-up
EFFECTIVE ORDER GIVING

1. Know and understand thoroughly the job to be done.
2. Assign work to the proper employees.
4. Don't assume orders are understood.
5. Keep orders on a high level; avoid sarcasm or other forms of antagonism.
6. If necessary demonstrate.
7. Do not give too many orders at any one time.
8. Allow reasonable time for work to be done.
9. If worker is capable, do not nag or stand over him, if he is not capable, train him before putting him on his own.
10. Give orders through proper channels.
11. Give adequate details, but do not confuse.
12. Follow up to insure correct interpretation.
13. Know when to put into writing.
14. Recognize individual differences.
15. Convey enthusiasm for the job to be done.
16. Clearly define the end product of the subordinate efforts.
SUGGESTIONS FOR BETTER LISTENING

1. Find areas of interest

2. Judge subject content, not the speaker

3. Listen for ideas

4. Be flexible in note taking

5. Work at listening

6. Exercise your mind

7. Keep an open mind

8. Capitalize on thoughts
   a. Try to determine what the speaker is driving at
   b. Mentally summarize what has been said
   c. Weigh the speakers evidence by mentally questioning it
   d. Listen between the lines
CHARACTERISTICS OF THE GRAPEVINE

1. It spreads information rapidly

2. It is personal

3. It is flexible

4. It is influential

5. It is an outlet for employee emotions

6. It carries informal information which is best left informal

7. You cannot hold it responsible for mistakes

8. It is difficult to identify
How To Deal With The Grapevine

A. Listen to it.

B. Allow employees to participate in those things which affect them.  Examples: Office Layout - Coffee Breaks

C. Set up atmosphere or structure conducive to employee questions and answers.

D. Reply promptly and completely to all questions, or give reasons why they can’t be answered.

E. Evaluate every rumor in light of what you can do.  True rumors can be encouraged.  If false - give accurate information.

F. Establish regular channels for handling rumors - eg. - newsletters in times of harmony will build acceptance.

G. Use channels of oral communications and follow-up with written communications.

H. In handling rumors, do not repeat them, just give the correct information.

I. Memorandum notes, make frequent announcements, have information meetings regularly or establish some other channel to handle current information.

J. Don’t try to kill it.
**Reasons for Silence**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Communication Improvement Suggestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>If an individual or group remains silent, analyze the reason for silence... then take the following corrective steps to establish two-way information exchange.</td>
<td></td>
</tr>
<tr>
<td>1. There is not a suitable place to talk.</td>
<td>1. Arrange facilities and schedules to permit confidential talks in private.</td>
</tr>
<tr>
<td>2. The supervisor is not &quot;approachable.&quot;</td>
<td>2. Establish the &quot;open door&quot; in reverse. Get out. Be available and receptive.</td>
</tr>
<tr>
<td>4. Employees don't know what to report.</td>
<td>4. Coach employees in upward communication. Let them know the kind of things to report. Control by exception. Control by check point.</td>
</tr>
<tr>
<td>5. Lack of confidence in information passed out leads to an active &quot;rumor mill.&quot;</td>
<td>5. Establish a reputation for factual, accurate reporting. Establish systems for reporting.</td>
</tr>
<tr>
<td>6. Employees feel that their past efforts to communicate have not gotten results.</td>
<td>6. Deal promptly with questions, complaints and suggestions. Reason for grapevine.</td>
</tr>
<tr>
<td>7. Fear of consequences.</td>
<td>7. Encourage employees to look to you for information. Recognize the basic aim of all communication - to achieve departmental results through mutual understanding.</td>
</tr>
</tbody>
</table>
WHEN TO PUT IT IN WRITING

1. When communicating between departments or shifts

2. When a number of people are involved

3. When a record is necessary

4. To confirm agreements or decisions

5. To save time

6. To assure group understanding

7. To record disciplinary action

8. When instructions are complicated

9. Never use writing for
   "I told you so"
   "Finger pointing"
   "Fanny padding"

10. When disseminating policy, rules, or standing instructions
PRINCIPLES OF CLEAR WRITING

1. Keep sentences short

2. Prefer the simple to the complex

3. Prefer the familiar word

4. Avoid unnecessary words

5. Put action in your verbs

6. Write like you talk

7. Use terms your reader can picture

8. Tie in with your reader's experience

9. Make full use of variety

10. Write to express not impress

11. Tell what, when, where, why, who and how
APPENDIX B

THE QUESTIONNAIRE
Survey Of
Communications Practices

The purpose of this questionnaire is to determine the nature of the communications practices at N.A.A.

You need not sign your name. The person to whom you report will not see the answers you give.

These questionnaires will be evaluated on a sample basis. They will not be associated with the performance of you or any other person. Only mass statistics will be evaluated. These statistics will then be used to determine what training can be provided to improve communications practices if improvement is needed.

Please answer each question as accurately as possible by marking a check at the left side of the answer you choose. If you do not feel that any of the answers given describe your situation, mark the answer which comes closest.

There are no correct answers. The best answer is the one which fits your situation.

The completed questionnaire will be picked up from you personally by a member of the Education and Training Section.

If you have any questions call Robert House, extension 225.
1. When changes are made concerning your group objectives, how frequently are you informed about these changes through the formal chain of command?

   1. Always or almost always
   2. Often
   3. Occasionally
   4. Seldom or Never

2. How often is it necessary for you to get job information from your fellow employees because the person to whom you report fails to supply the needed information which he should supply?

   1. Always or almost always
   2. Often
   3. Occasionally
   4. Seldom or Never

3. How often are you consulted in advance about planned changes which affect you or your work?

   1. Always or almost always
   2. Often
   3. Occasionally
   4. Seldom or Never

4. How often are you informed in advance about operating changes which affect your work?

   1. Always or almost always
   2. Often
   3. Occasionally
   4. Seldom or Never

5. From what source do you most frequently receive information about company progress?

   1. The formal chain of command within my group.
   2. Take-off
   3. Company Bulletin Boards
   4. Newspapers, magazines, or fellow employees.

6. When it would help you understand or remember assignments, how often does the person to whom you report give you assignments accompanied by a check list or sketched drawing to help you complete the assignment?

   1. Always or almost always
   2. Often
   3. Occasionally
   4. Seldom or Never
7. How often is the person to whom you report willing to give you the reasons for decisions which come down from above?

1. Always or almost always
2. Often
3. Occasionally
4. Seldom or Never

8. How often does the person to whom you report instruct you or consult with you about problems of communications between yourself and others?

1. Always or almost always
2. Often
3. Occasionally
4. Seldom or Never

9. Approximately how often does the person to whom you report review your job responsibilities with you?

1. About three times a year
2. About twice a year
3. About once a year
4. Hardly ever

10. How well do you understand the requirements you must meet to be eligible for advancement?

1. Very well
2. Well
3. Not very well
4. Very poor understanding

11. How well do you understand the company policies which are written in the North American Way Employee Manual?

1. Very well
2. Well
3. Not very well
4. Very poor understanding

12. How well do you understand the security regulations which affect your job?

1. Very well
2. Well
3. Not very well
4. Very poorly

13. How aware is the person to whom you report of your job interests?

1. Very aware
2. Slightly aware
14. How well do you understand the reasons for the paper work requirements of your job? (Weekly Reports, etc.)
   1. Very well
   2. Well
   3. Not very well
   4. Very poorly

15. How well is the person to whom you report informed about company policies and procedures?
   1. Very well
   2. Well
   3. Not very well
   4. Very poorly

16. How well are you informed about where the reports you prepare are sent?
   1. Very well
   2. Well
   3. Not very well
   4. Very poor understanding

17. How clearly does the person to whom you report let you know what he thinks about the quality of your work?
   1. Very clearly
   2. Clear
   3. Unclear
   4. Very unclear

18. How clear is your understanding of the responsibilities you are held accountable for?
   1. Very clear
   2. Clear
   3. Unclear
   4. Very unclear

19. How clearly do you understand what cooperation you can expect to receive from other people in the Engineering Division, in order to fulfill your job responsibilities?
   1. Very clear
   2. Clear
   3. Unclear
   4. Very unclear

20. How well do you understand the relationship of your job to the end product of your group activities?
   1. Very well
   2. Well
   3. Not very well
   4. Very poorly
21. How well do you understand the relationship of your job to other group activities?

1. Very well
2. Well
3. Poorly
4. Very poorly

22. When you attend group meetings or conferences, how often do you receive a report or memorandum stating the main points covered or agreed to in the meeting? (Check One)

0. Question not applicable to my work
1. Always or Almost always
2. Often
3. Occasionally
4. Seldom or Never

23. About how often does the person to whom you report talk to you about your work performance?

1. At the end of every job assignment
2. About every three months
3. About every six months
4. Less than every six months

24. When there is a change in the functions (work) assigned to your group, how often are you informed about this change from fellow employees?

1. Seldom or Never
2. Occasionally
3. Often
4. Always or Almost always

25. When you become confused about work requirements how often do you know whom to consult?

1. Always or almost always
2. Often
3. Occasionally
4. Seldom or Never

26. How often does the person to whom you report give you credit when you feel you have done a good job?

1. Always or almost always
2. Often
3. Occasionally
4. Seldom or Never
27. Do you feel the person to whom you report makes an effort to listen for understanding before he comments on what you tell him?

1. Always or almost always
2. Often
3. Occasionally
4. Seldom or Never

28. How often does the person to whom you report make an effort to see you at your work place?

1. Very often
2. Often
3. Occasionally
4. Seldom or Never

29. How well do you understand what cooperation you are expected to give to other groups?

1. Very well
2. Well
3. Not very well
4. Very poorly

30. How well do you understand when you should communicate with the person to whom you report?

1. Very well
2. Well
3. Not very well
4. Very poorly

31. How well do you understand what information the person to whom you report expects you to report to him?

1. Very well
2. Well
3. Not very well
4. Very poorly

32. How well are you informed about overall corporate objectives and plans?

1. Very well
2. Well
3. Not very well
4. Very poorly

33. How well are you informed about overall corporate activities?

1. Very well
2. Well
3. Not very well
4. Very poorly
34. How well are you informed about overall corporate progress results?
   1. Very well
   2. Well
   3. Not very well
   4. Very poorly

35. How well are you informed about Columbus Division progress results?
   1. Very well
   2. Well
   3. Not very well
   4. Very poorly

36. How well are you informed about Columbus Division plans and objectives?
   1. Very well
   2. Well
   3. Not very well
   4. Very poorly

37. How well are you informed about Columbus Division activities?
   1. Very well
   2. Well
   3. Not very well
   4. Very poorly

38. How often do you learn about changes which affect your group by communicating with fellow employees on your level?
   1. Seldom or Never
   2. Occasionally
   3. Often
   4. Always or Almost always

39. How often does the person to whom you report jump to conclusions without obtaining most of the available facts?
   1. Seldom or Never
   2. Occasionally
   3. Often
   4. Always or Almost always

40. How often do your instructions come directly from the person to whom you report?
   1. Always or almost always
   2. Often
   3. Occasionally
   4. Seldom or Never
41. How often do you receive assignments from fellow employees on your level?
   1. Seldom or Never
   2. Occasionally
   3. Often
   4. Always or almost always

42. How often do you receive instructions from someone above the person to whom you report?
   1. Seldom or Never
   2. Occasionally
   3. Often
   4. Always or almost always

43. When you receive assignments how often do you feel the assigner does not really know what he wants?
   1. Seldom or Never
   2. Occasionally
   3. Often
   4. Always or almost always

44. How often is your work delayed because of lack of information from the person to whom you report?
   1. Seldom or Never
   2. Often
   3. Occasionally
   4. Always or almost always

45. How often do you get copies of written information affecting your work when necessary?
   1. Always or almost always
   2. Often
   3. Occasionally
   4. Seldom or Never

46. How often is it necessary to ask the person to whom you report to clarify his instructions?
   1. Seldom or Never
   2. Occasionally
   3. Often
   4. Always or almost always

47. How often does the person to whom you report arrange for a follow-up to help you carry out the instructions he has given you?
   1. Always or almost always
   2. Often
   3. Occasionally
   4. Seldom or Never
48. How often do you receive your instructions in writing?

1. Always or almost always
2. Often
3. Occasionally
4. Seldom or Never

49. When you receive an assignment, how often do you feel that the person assigning you the work has not thought out the assignment ahead of time?

1. Seldom or Never
2. Occasionally
3. Often
4. Always

50. When the person to whom you report doesn't know answers to your questions, how often is he willing to find out the answers for you?

1. Always or almost always
2. Often
3. Occasionally
4. Seldom or Never

51. From whom do you most frequently receive your assignments?

1. The person to whom I report
2. The supervisor of the person to whom I report
3. A fellow employee at my own level
4. More than one person

52. How easy is it for you to understand the assignments you receive?

1. Very easy
2. Easy
3. Difficult
4. Very difficult

53. How well do you understand the reasons for the rules and procedures in the Standard Operating Manual and Engineering Procedures Manual which affect your job?

1. Very well
2. Well
3. Not very well
4. Very poor understanding

54. How well do you think you are informed about advancement opportunity at N.A.A.?

1. Very well
2. Well
3. Not very well
4. Very poorly informed
55. How well are you informed about the use made of the paper-work or reports which you prepare?

1. Very well
2. Well
3. Not very well
4. Very poor understanding

56. How well do you understand the communications channels within your group?

1. Very well
2. Well
3. Not very well
4. Very poorly

57. How well do you understand the activities of supporting groups whose services you make use of?

1. Very well
2. Well
3. Not very well
4. Very poorly

58. In general, what do you think about the communications you receive from the person to whom you report?

1. Very good
2. Good
3. Poor
4. Very poor
## CLASSIFICATIONS OF QUESTIONS

<table>
<thead>
<tr>
<th>Classification of Communication</th>
<th>Questions in This Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td></td>
</tr>
<tr>
<td>1. Clarity and completeness of communication (understandability, selection of proper words, completeness of instructions, and assignments)</td>
<td>6, 27, 39, 43, 44, 46, 49, 52.</td>
</tr>
<tr>
<td>2. Timing of communications (promptness of information, advance warning of changes)</td>
<td>6, 8.</td>
</tr>
<tr>
<td>3. Channels of communication (insuring adherence to chain of command, unity of command; use of grapevine company newspaper, bulletin boards)</td>
<td>2, 5, 24, 38, 40, 41, 42, 51, 55.</td>
</tr>
<tr>
<td>4. Control of communication (insuring understandability by putting instructions in writing, confirming decisions and agreements in writing, training subordinates in communication, following up instructions and other communications)</td>
<td>3, 47, 48.</td>
</tr>
<tr>
<td>5. Employee performance information (communication of performance standards, performance rating or appraisal, advancement opportunity, advancement requirements)</td>
<td>10, 17, 23, 26.</td>
</tr>
<tr>
<td>6. Job Responsibilities (communication of job objectives, job duties, authority, relationships with other persons or groups)</td>
<td>9, 13, 19, 21, 23, 29, 57.</td>
</tr>
<tr>
<td>7. Company Information (communication and explanation of company rules, policies and procedures; communication of reasons for decisions, and reasons for the use of departmental or group reports; communication of activities and functions of other organizational groups)</td>
<td>7, 12, 32, 33, 34, 35, 37.</td>
</tr>
</tbody>
</table>
Purpose of Management Communications - To provide information necessary to make decisions and appraise results.

This does not mean information necessary to solve the subordinates’ problems. His job is to solve problems. Yours is to delegate and appraise.

Management Communications Responsibilities -

Plan your communications to insure proper selection of words, completeness, clarity, coherency and understanding.

Define what you expect to be communicated to you from below.

Inform your subordinates of the specific kind and amount of communications they can expect from you.

Come to an agreement with your superior on the amount and kind of communication he expects from you and you must have from him to do your job successfully. (This requires that you train your boss in most cases)

Determine and define (preferably in writing) when the above communications should take place.

Instruct your subordinates in the art of communicating. How to.

Organize so that channels of communication are clearly defined, so that each man has only one boss, and chain of command by passing is discouraged.

Establish a control system for communications within your organization by stating who is responsible for the various types of communications, when, and whether they should be written or verbal.

Follow up your communications by memos. Confirm decisions and agreements. Follow up instructions or come to an agreement for the type of control to be exercised (100% check point - exception).

Identify and use the informal communications system. Train grapevine carriers to be constructive.

What to Communicate -

Job information should be communicated. This includes:
What to Communicate - (Continued)

Your management philosophy.

Job objectives and their relationship to company objectives.

Job responsibility, authority and accountability.

Job relationships (what cooperation each man can expect and what cooperation each man must render.)

Employee performance standards.

Employee performance rating.

N.A.A., Columbus Division and Engineering policy interpretation.

Reasons for policies, procedures and rules.

Reasons for decisions.

Reasons for and use of reports which the employee prepares.

Other group activities and functions

Advanced information which affects the man or his job.

Advancement opportunity.

Advancement requirements.

Future job responsibilities.

Future job rewards and privileges and compensation.

Factors Affecting Personal Communications

The physical setting.

The feelings of both parties.

Failure to differentiate between facts and assumptions.

Misinterpretation of purpose or intent.

Listening versus talking rates of speed (500 vs 125 words per minute).

Proper timing of communications.
APPENDIX E

COMMUNICATION

EXAMINATION QUESTIONS
MANAGEMENT COMMUNICATIONS EXAMINATION

1. "You have the responsibility to train your superior as well as your subordinates." Briefly discuss this statement as it relates to Management Communications.

2. How does this statement in question No. 1 affect the amount of technical versus administrative information you should be required to know?

3. List five methods of controlling communications. Do not copy any of the methods or suggestions given in the book. This is a thought question.

4. Discuss the importance of establishing a climate for management employee communications.

5. What methods would you recommend to establish a climate for good management employee communications?

6. What are your management communications responsibilities
   a) to your subordinates
   b) to your superiors

7. a) What are the major organizational factors which affect communications problems?
   b) Discuss their importance in relation to the feeling and behavior of the members of the organization.

8. List the following in single sentence outline form (be very specific).
   a) What your employees can expect you to communicate to them.
   b) What you expect your employees to communicate to you.
   c) Timing guides for the above communications.

9. List the following in single sentence outline form (be very specific).
   a) What you expect your superior to communicate to you.
   b) What you feel he should expect you to communicate to him.
   c) Timing guides for the above communications.

10. Discuss the significant factors which were stressed in the class discussion of the following topics
    a) Facts
    b) Feelings (do not list the gripe survey results)
11. a) Discuss the major conclusions you reached in the class discussion concerning the grapevine.

b) Discuss those grapevine principles which were discussed in class and which are not in the text.

12. Discuss the conclusions which were reached when discussing the chart statement "Talk the other fellow's language."

13. What would you include under the following classifications (be very specific).
   a) Need to know information.
   b) Nice to know information.

14. Discuss the importance of communicating objectives when giving an assignment. (This requires considerable enlargement and thought to be a complete answer)

15. State your philosophy of Management Communications (by philosophy is meant "point of view" or "integrated framework of thought which provides a basis for reflective thinking and problem solving." (This should not exceed 400 words).

Major considerations in your philosophy may come under the following topics.
   a) Objectives of management-communications.
   b) Values contributed by management-communications.
   c) Factors which are fundamental and essential to good management communications.
   d) Responsibilities of both parties in a communication.
AUTOBIOGRAPHY

I, Robert J. House, was born in Toledo, Ohio, June 16, 1932. I received my secondary education at Central Catholic High School in Toledo, Ohio. I received my Bachelor of Science degree from the University of Detroit in February of 1955. In February of 1959, I received a Master's Degree of Business Administration at the University of Detroit.

Between 1955 and 1959, I was employed in two major automotive companies as a Management Research Analyst and as a Management Development Staff Assistant. During this period, I attended evening school for my Master's Degree.

I completed my course work for the Ph.D. Degree at the Ohio State University in August, 1959. I was employed at the Columbus Division of North American Aviation, Inc., from May 1959 to October 1959 as a Management Training Specialist. It was during this period of time that I conducted the experiment for my doctoral dissertation. Since October 1959, I have been employed as an Instructor at The Ohio State University. I held this position for nine months while completing requirements for the Degree of Doctor of Philosophy.