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GRADUATE C LLEGE

EVALUATING TITLE I, HIGHER EDUCATION ACT OF 1965 HUMAN RESOURCE DEVELOPMENT TRAINING FOR METROPOLITAN OKLAHOMA CITY AREA LOCAL-GOVERNMENT SUPERVISORS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

BY

JOHN LAWRENCE BUTLER

Norman, Oklahoma

1972

EVALUATING TITLE I, HIGHER EDUCATION ACT OF 1965
HUMAN RESOURCE DEVELOPMENT TRAINING FOR
METROPOLITAN OKLAHOMA CITY AREA
LOCAL-GOVERNMENT SUPERVISORS

APPROVED BY

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To

Ri, Jane, and Su

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CHAPTER I

THE PROBLEM

Evaluation of training is a considerably neglected aspect of manpower development in industry and practically nonexistent in local government. Belasco and Trice observe that both "hard-headed" businessmen and well-schooled academicians and clinicians have shared a false notion that change efforts equal change itself. Any serious effort to question the utility of training has been equated with blasphemy. As a result of strong negative attitudes toward training evaluation, serious efforts have been few and far between. A slow change toward the acceptance of evaluation, however, has been observed during the late 1950's and early 1960's.[1]

In view of the relative novelty of formal training programs for local government employees, serious efforts to evaluate training at city and county levels of the public sector are understandably fewer than in either the business

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[1]James A. Belasco and Harrison M. Trice, The Assessment of Change in Training and Therapy (New York: McGraw-Hill Book Company, 1969), p. 1.

or Federal Government areas. In supervisory training, formal evaluation becomes increasingly scant in local governments. The need for training evaluation, however, is universally recognized.

While the need is universally accepted at the cognitive level, evaluation is probably the least popular of all the scholarly activities that one can pursue. Despite the wide acceptance of the need for evaluation, the evaluator is likely to be viewed with all the warmth and affection given to a motorcycle policeman hiding behind a billboard.[1]

A major factor in reducing resistance to evaluation is a requirement that specified training programs be evaluated. This requirement must be established by top management or some agency with the authority to require that the evaluation be conducted as part of the training program.

From the viewpoint of the training director, such a requirement may come as a blessing in disguise. The exercise of authority by top management or an agency sponsoring the training, as is the case where the Federal Government is funding local-government training, facilitates the local-government training director's implementation of the evaluation effort. Such was the situation encountered in developing this study.

In the Spring of 1971, when this study was suggested to the Personnel Director of the City of Oklahoma City, that

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[1] Ibid., p. v.

city had been engaged for five years in training under the provisions of Title I, Higher Education Act of 1965. The only evaluations of the courses held prior to this study were subjective evaluations in the form of comments from the participants at the end of each course. The proposal to conduct this study was welcomed as a necessary beginning of formal evaluation procedures.

Coincident with the proposal to conduct this study was the initiation of a new supervisory training program by the City of Oklahoma City. The emphasis in this new program was to be on human resource development (see Appendix A-1). As with the existing Fundamentals of Supervision course, the new Supervisory Skill Development course was to be conducted by local institutions of higher learning (see Appendix A-2).

The institutions presently cooperating with the local governments in the Metropolitan Oklahoma City Area, under the provisions of Title I, Higher Education Act of 1965, are: Langston University, Oklahoma Christian College, Oklahoma City University, Oklahoma State University, and The University of Oklahoma. The training that was evaluated by this study was designated for overall direction as follows: (1) Phase I, Fundamentals of Supervision, was conducted by Oklahoma City University. (2) Phase II, Supervisory Skill Development, was assigned to Oklahoma Christian College.

Statement of the Problem

The problem of this study was to ascertain the effectiveness of human resource development training for local government supervisors that is conducted under the provisions of Title I, Higher Education Act of 1965. The specific training evaluated in this study was for first-level supervisors and some non-supervisory personnel designated as potential supervisors in Metropolitan Oklahoma City Area municipalities.

The overall question to be answered by this study was: Does the aforementioned training cause significant changes in the knowledge and the behavior of supervisors concerning human resource development in the working environment of Metropolitan Oklahoma City Area local governments? This main question was divided into these four specific questions related to the two different courses of instruction that were evaluated:

1. How effective is the Phase I, Fundamentals of Supervision, training in changing the participants' knowledge of principles and concepts of human resource development?

2. How effective is the Phase I training in changin supervisory behavior on the job?

3. How effective is the Phase II, Supervisory Skill Development, training in changing the participants' knowledge of principles and concepts of human resource development?

4. How effective is the Phase II training in changing supervisory behavior on the job?

Additional questions, related to the participants' evaluation of the training, arose during the study. These are treated in the ancillary findings in Chapter IV.

Definitions

Terminology used in this study is defined as follows:

Attitude: How an individual feels, or what he believes; not directly measurable in a practical sense; inferred or estimated from samples of opinions expressed. Even though there is no sure method of describing and measuring attitude, the description and measurement of opinion, in many instances, may be closely related to the real feeling or attitude of the individual.[1]

Behavior: A compromise between forces internal to the individual and those from the work environment. Internal forces include intelligence, interests, energy level, motives, needs, personality traits, and biological requirements. The work environment encompasses the physical environment and the interpersonal climate.[2]

Human Resource Development: Used to include human relations, communication, leadership, motivation, and other aspects of a supervisor's job that relate to the betterment of the supervisor's relations to his subordinates, peers, and supervisors.

Inventory: Used interchangeably with "survey" and "test."

Supervisor: Used interchangeably with "foreman" to refer to the operating level of management. In the municipalities that enrolled participants in the training programs evaluated by this study, the terms "supervisor" and "foreman" often denote the same level of responsibility.

Pretest: The inventory or survey administered before the training started.

Posttest: The inventory or survey administered after the training ended.

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[1]John W. Best, Research in Education (2nd ed. rev.; Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1970), p. 173.

[2]Daniel M. Duncan, "Managing the Behavior of Man," Training and Development Journal, XIX, No. 11 (November, 1965), pp. 2-8.

Delimitations

This study was limited to human resource development training in Phase I (Fundamentals of Supervision), and Phase II (Supervisory Skill Development) conducted during the Fall and Winter of 1971 for Metropolitan Oklahoma City Area local-government supervisors. The findings of this study are applicable only to the training and the population investigated.

Limitations

The reliability of attitude surveys and fact and concept tests used on a before-and-after basis for comparison purposes is recognized as a limitation. People may not answer questionnaires, opinionaires, or interview questions with equal objectivity on different occasions. Pre-post test comparisons impose a similar limitation in that no reliable measure can be made of guessing from time to time and of learning that takes place beyond the training undergone during the period between tests.

Hypotheses

Six hypotheses were tested in this study. They are stated in the positive form as follows:

1. Significant change in supervisory knowledge of human resource development results from the Phase I, Fundamentals of Supervision, training.
2. Significant change in supervisory knowledge results from the Phase II, Supervisory Skill Development, training.

3. Supervisory behavior, as measured by the surveyed opinions of the participants' superiors, changes positively over a period of two months after the Phase I training.

4. Supervisory behavior, as measured by the surveyed opinions of the participants' superiors, changes positively over a period of two months after the Phase II training.

5. Perceptions of the participants by their subordinates improve over a period of two months following the Phase I training.

6. Perceptions of the participants by their subordinates improve over a period of two months following the Phase II training.

Assumptions

1. The instruments used in this study are valid for measuring changes in knowledge and attitude regarding the human resource development aspects of supervision.

2. Human resource development is a concern of local governments that is also shared by the academic community.

Significance and Need for Study

In its application for funds for fiscal year 1971 for training under Title I, Higher Education Act of 1965, the City of Oklahoma City has outlined its area of concern as: "Supervisory Training for Improvement of Skills in Management of Human and Physical Resources." The number one specific concern in this regard is for increasing the concern for human and physical resources by "awareness and motivation training." This application for funds, although coordinated and submitted by the City of Oklahoma City, encompasses all the units of

local government in the Oklahoma City Metropolitan Area. This "community" is approximately 700 square miles in size, with an estimated population of 650,000 and 16 separate units of local government. (See Appendix A-3.)

A growing need exists for education to assist local government officials in overcoming the accelerating crises facing all levels of government, especially at the city level. This study evaluated the efforts of institutions of higher learning toward meeting this need in the selected area of human resource development training for supervisors.

Background for the Study

A general background of training evaluation has been acquired by this investigator's experience as a military training officer, municipal-government training director, and college professor. The study of related literature that is contained in Chapter II was focused on specific applications of training evaluation to supervisory training in human resource development. Participation in local and regional meetings of the American Society for Training and Development and membership in the Oklahoma City Personnel Association were combined with personal interviews of training directors to gain specific insights into the problems associated with supervisory training.

Preliminary investigation of the problem included a pilot study that involved an experimental group of eleven

first-level supervisors and a control group of fifteen comparable supervisors, both randomly selected from a group of twenty-eight supervisors. Although the two groups were pretested and posttested, only the experimental group received the Supervisory Skill Development training. The instrument used was Kirkpatrick's Supervisory Inventory on Human Relations (SIHR).[1] The results of the pilot study, based upon the limited use of this one instrument, were encouraging. The experimental group showed a highly significant positive gain in knowledge of human resource development principles. The control group showed no significant change between the pretest and posttest scores.

The pilot study, however, revealed the practical difficulties in attempting to secure control groups that were not to be trained when they were assembled. Administrative and operational requirements precluded assembling sufficient supervisory personnel to serve solely as control groups. The alternative was to use those groups of participants in the Fundamentals of Supervision.

The preliminary work also included the selection of two additional instruments: (1) Forms A and B of How Supervise? prepared by the Psychological Corporation of New York and (2) Marvin's Management Matrix.[2] The use of these instruments is detailed in Chapter III.

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[1]Donald L. Kirkpatrick, Extension Division, University of Wisconsin, Milwaukee, Wisconsin.

[2]Philip Marvin, Management Goals (Homewood, Ill.: Dow Jones-Irwin, Inc., 1968), pp. 97-113.

In addition to the use of those three instruments, evaluations were obtained from the participants, the instructors, and the program director. These evaluations, along with the objective data gathered in this study, are described in detail and analyzed in Chapters III and IV.

With the experimental group (N = 11) and the control (N = 15) of the pilot study, a total of 89 local-government employees participated in this study. Of that total, 70 were first-level supervisors. The remaining 19 were non-supervisory personnel who had been designated as potential supervisors.

The review of related research in Chapter II reveals why certain procedures and methods were adopted for this investigation. The problem of control groups, which is emphasized in the research concerned with evaluating human relations training for supervisors, was encountered early in this study. Similar problems relating to the environment, which are documented in the related research, were encountered by this investigator.

CHAPTER II

REVIEW OF PERTINENT RESEARCH

Any researcher who investigates the evaluation of training is confronted with a scarcity of published results of such efforts. Although a growing body of literature recognizes the need for more objective evaluations of training, there remains a scarcity of published research in the field. This scarcity becomes increasingly noticeable as one moves from training evaluation in general to supervisory training and further into the specific area of training in the behavioral aspects of the supervisor's job.

Throughout the pertinent research publications, a recurring conflict in values is placed upon supervisory training. Those who conduct such training programs often are convinced, albeit on the basis of subjective evaluation, that the benefits derived from the training justify the expense. On the other hand, the investigators who attempt objective evaluations of such programs are less enthusiastic about the results. Even when participating supervisors and their superiors express satisfaction with the training and advocate continuation of the program, the measures of benefits in terms of on-the-job application often leave much to be desired.

Perhaps, as Jucius[1] observes, the difficulty arises from the almost impossible task of determining which results are attributable to training and which evolve from other causes. Furthermore, when the various training programs for supervisors are analyzed for their subject-matter contents, a separation of subjects into areas of technical, administrative, and behavioral categories is possible. The technical and the administrative aspects are more accurately measured than are the behavioral supervisory duties. Amounts of materials wasted and the timeliness of reports are concrete facts by which training in technical and administrative skills may be evaluated. The behavioral aspect, which is the most universal of all the areas of a supervisor's job, does not lend itself to clearly defined yardsticks.

This chapter reviews research pertinent to the evaluation of training in the behavioral aspects of supervision. The universality of that aspect of a supervisor's job creates widespread interest in programs in human relations, leadership, human resource development, and similar supervisory-behavior training. The absence of clearly defined yardsticks to evaluate such training tends to restrict objective evaluation efforts.

An analysis of the literature on training evaluation revealed three major categories of expressions: (1) philosophy,

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[1]Michael J. Jucius, Personnel Management (6th ed.; Homewood, Ill.: Richard D. Irwin, Inc., 1967), p. 260.

(2) criteria, and (3) design. Accordingly, the following sections have been established to synthesize the pertinent research in those three categories.

The section on philosophy contains expressions of beliefs regarding forces external to the evaluation effort. These include views regarding the universality of supervision, the need to account for the costs of supervisory development, and the impact of the working environment on the evaluation of supervisory training.

The criteria section presents the experiences of investigators in their attempts to evaluate training in the behavioral aspect of supervision. The criteria for measuring changes in supervisory behavior are seldom specified in planning the training program. The evaluator, therefore, is often attempting to apply yardsticks to measure ill-defined objectives.

In the section devoted to evaluation design, the experiences of investigators who have worked with various models and instruments are detailed. The conflict between the theoretically-ideal design of an evaluation effort and one that is practical is critical to all evaluation efforts.

The summary section presents the relationships between philosophy, criteria, and design in supervisory-training evaluation. Conflicts in views expressed in the pertinent research are recognized.

Training Evaluation Philosophy

This section summarizes the philosophies of researchers in training evaluation and includes pertinent views concerning the universality of supervision, the need to account for the costs of supervisory development programs, and the impact of the working environment upon attempts to evaluate the lasting effects of supervisory training. All of these considerations suggest the need for a greater uniformity in management theory relating to the behavioral aspect of human resource development and a philosophy that will demand greater objectivity and sophistication in the evaluation of supervisory training programs.

The Universality of Supervision

Fleishman[1] and others conducted a long-time research program on leadership in the armed forces, in industry, and in education, in which the universality of leadership is supported. The Ohio State group point out that leaders in those three broad areas have much in common. They all carry responsibility, exercise authority, delegate duties, and work with people. This common pattern of leadership characteristics facilitates a cross-fertilization of training and the evaluation of the training efforts. The behavior of the supervisor

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[1]Edwin A. Fleishman, Edwin F. Harris, and Harold E. Burtt, Leadership and Supervision in Industry (Columbus, Ohio: The Bureau of Educational Research, Ohio State University, 1955), p. 3.

in either industry or government can be expected to resemble the behavior of leaders in other fields, particularly in the human relations aspects of the supervisor's job.

The universality of supervision, especially in the behavioral aspect of the supervisor's job, extends beyond the daily operational similarities in diverse organizational settings. The retention of knowledge and the application of learned behavior are problems to be faced in all supervisory training. In this respect, the effectiveness of supervisory training is subject to many of the same forces that affect education, indoctrination, and other behavior-changing efforts.

Among the more widely publicized techniques for changing supervisory behavior and organizational relations is the T-Group or sensitivity training. Both "sensitivity training" and "brainwashing" have become commonplace terms during the 1950's. The similarity in objectives, despite the differences in techniques, is pertinent to a philosophy of training evaluation that recognizes the universal problems in supervisory development.

In specifying and describing some of the characteristics common to both brainwashing and sensitivity training, Manley perceives a similarity between the two in the permanence of learning that may occur. Despite the obvious differences in the methods and the environment employed in the two techniques, Manley concludes that " . . . experience seems to dictate that . . . graduates of either model revert

to behavior and value systems held before their incarceration or enrollment, as the case may be."[1]

The T-Group or sensitivity training is only one of the many forms of human relations training for supervisors. The problem of measuring the degree of retention and application of learned behavior may be insolvable if reversion to previously held behavior and value systems is dictated by experience. On the other hand, reversion may be the more desirable outcome if the alternative is dysfunctional supervisory behavior.

The conclusion by Manley that graduates of either brainwashing or sensitivity training sessions revert to previously held behavior and value systems is pertinent to a discussion of the major problem that confronts evaluators of supervisory training in all forms of organization. That problem is to determine the lasting effects of demonstrated gains in the knowledge of facts and concepts pertaining to supervisory skills in human resource development. One approach to reducing the enormity of the problem may be to develop a more realistic expectation of evaluation than has been the case in many studies.

McGehee and Thayer[2] distinguish between evaluation and diagnosis, pointing out that "evaluation . . . should not

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[1]Robert S. Manley, "Are T-Groups Brainwashing Sessions?" Training in Business and Industry, VIII (November, 1971), pp. 28-36.

[2]William McGehee and Paul W. Thayer, Training in Business and Industry (New York: John Wiley & Sons, Inc., 1961), pp. 259-260.

be confused with what we prefer to call a 'diagnostic' approach to the investigation of training." The diagnostic approach concentrates on measuring the degree to which individuals learn to perform specific tasks, and how well they retain the skills, knowledge, and attitudes required to perform the job. Evaluation of training has two major aspects: (1) that of assessing whether or not training results in behavior that furthers the achievement of organizational goals, and (2) that of comparing techniques of training to determine their relative merits in achieving the desired results.

Considering the first of those aspects, evaluation would appear to end at some point relatively close to the completion of the training. The training would, as a result of the evaluation, have accomplished the objective of creating behavioral patterns favorable to the achievement of organizational goals, or the training would be evaluated as having failed to accomplish that objective. The diagnostic approach appears to be an attempt to measure long-range effects of training. The dynamic nature of organizational life and the multitude of variables that affect supervisory behavior make any long-range diagnosis of a specific training experience an exercise in futility.

A philosophy of supervisory training evaluation must be operationally relevant. The universality of supervision provides the opportunity for managers in all forms of organization to develop operational philosophies that are relevant

to their particular situations. A synthesis of the experiences and findings in diverse settings will facilitate the adoption of beliefs regarding the values of supervisory training.

Accounting for Supervisory Development Costs

The philosophies of investigators in the field of training evaluation include beliefs regarding the costs of training efforts. These beliefs are pertinent to an understanding of the complexity of supervisory training and its evaluation.

Developmental costs, according to Pyle,[1] are sacrifices incurred in increasing the capabilities of employees in areas not related to specific technical job skills. These costs:

> are . . . normally associated with managers and involve more generalized learning . . . designed to broaden a manager's abilities or perspectives. In a sense, development might be viewed as training of managers in the basic processes of management.

The evaluation of supervisory training in human resource development is clearly a costly effort. The sacrifice of resources incurred in these efforts is immeasurable. Because the returns on investments in such programs are subject to many unidentifiable variables, the reluctance by many managers to demand more systematic evaluations of supervisory

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[1]William C. Pyle, "Implementation of Human Resource Accounting in Industry," in Human Resource Accounting, ed. by R. Lee Brummet, Eric G. Flamholtz, and William C. Pyle (Ann Arbor, Mich.: Foundation for Research on Human Behavior, 1969), p. 39.

training programs is understandable. The need for such evaluation, however, is not diminished by its complexity.

Tracey[1] observes the phenomenal increase in the resources committed to training in recent years and strongly suggests the need for a critical, systematic approach to replace the present erratic attempts to justify training. His assumptions and principles to guide evaluative efforts provide a foundation for a philosophy of systematic training evaluation. The essence of Tracey's assumptions and principles is that the efficiency and effectiveness of training and development programs must be objectively determined and demonstrated if they are to be retained by the organization. The need for evaluating training programs is an underlying assumption that should receive more attention than prevalent practices indicate. While most training practicioners agree that the need for training should be demonstrated, relatively few adhere to the practice of clearly demonstrating the value of a particular training program to the organization. The same critical evaluation that is accorded the expenditure of resources in manufacturing, sales, and other operational programs should apply to the increasing commitment of physical, financial, and human resources in training and development programs.

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[1]William R. Tracey, Evaluating Training and Development Systems (New York: American Management Association, 1968), pp. 13-15.

The Impact of Environment on Training

House[1] attempts to clarify the problems of management development through a rigorous review of the literature of social science and business. His work is based on actual experiences with management development efforts since 1948 (the approximate date when industry began planned efforts to develop managers) and social science studies that deal with the important aspects of the development process. By confining his analysis to social science studies and reports of company experiences that meet the minimum requirements of social science research (studies that provide for isolation, observation, and measurement of the variables under study), he found 200 studies of value. Of those 200 studies, approximately 135 dealt not only with the effect of development efforts on individuals or organizations but also with the conditions under which development efforts are likely to be either successful or unsuccessful.

A further classification of the related research by House shows that only ninety-five of the studies and reports that meet the minimum requirements of social science research are empirical studies concerned with the effects of management development efforts. Of these ninety-five empirical studies one was published in 1935, two in the late 1940's, forty-seven

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[1]Robert H. House, ed., Management Development: Design, Evaluation, and Implementation (Ann Arbor, Mich.: Bureau of Industrial Research, The University of Michigan, 1967), pp. 10-13.

during the 1950's, and forty-five during the first half of the 1960's.[1]

The philosophy of training evaluation evidenced in House's research reflects a set of beliefs that include (1) the need to evaluate the environment in which training will take place and (2) a growing recognition of the need for empirical studies that can be classified as social science resear failing to develop and maintain an operational training-evaluation philosophy, management development efforts may actually create problems, rather than solve them.[2]

Contrary to the conclusion reached by Manley, which held that graduates of either brainwashing or sensitivity training sessions revert to their previously held behavior and value systems, the pertinent research contains examples of a different sort. The environment to which participants return appears to be a strong determinant of whether or not the reversion to previous behavior patterns occurs. Furthermore, the organizational environment, which is either created or fostered by the supervisors' superiors, appears to determine whether or not that reversion is desirable.

Fleishman[3] suggests a dilemma in which the training in good human relations can result in poorer human relations

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[1] Ibid., pp. 133-138.

[2] Ibid., p. 11.

[3] Fleishman, op. cit., pp. 4-6.

on the job. The awareness of the importance of the first-line supervisor by officials of the International Harvester Company and the deep concern of those officials with the interpersonal relations of their employees led to a search for the effect of the intensive training, aimed at improving human relations, that was being conducted by that company. By using a before-and-after approach to measure the knowledge of supervisors by responses to a leadership-opinion questionnaire, a significant decrease was found in the orientation referred to as "initiating structure," while an increase was noted in the factor called "consideration." Initiating structure refers to the administrative aspects of a supervisor's job and involves the organizing of resources, the establishing of channels of communication, and the prescribing of ways to do the job. Consideration refers to such characteristics in the relationship between the supervisor and his employees as friendliness, mutual trust, and respect. The noted increase in the consideration factor and the noted decrease in the initiating structure factor were, according to Fleishman, understandable in the light of the human-relations orientation of the school. These results, however, were countered by a study of other foremen in a single plant, some of whom were untrained and some of whom were grouped according to the length of time since they had received the training. While it was not possible to do a longitudinal study on a selected group of foremen, Fleishman suggests that,

" . . . , the over-all tendency appears to be that . . . attendance at the school gives a foreman a temporary human-relations orientation, but also makes him more aware of his relation to management."[1]

The identification with management that Fleishman suggests is meant to explain the reason that, back on the job, the foremen trained in human relations exhibited less consideration and became more oriented toward the administrative aspects--the initiating-structure behavior. Further study of the climate, to which the trained foreman returned, revealed that his identification with management was an unmistakable reflection of the orientation of his superior. " . . . The foremen operating in a considerate climate were, for the most part, more considerate themselves, and vice versa." Any possible carryover of considerate attitudes from human-relations training, in the view of Fleishman, can be negated by an unfavorable environment. Identification with management appears to be strengthened by training. Whether or not this is a training benefit or a training loss depends on the orientation of the supervisor's boss.

After describing the aspects of training programs, particularly referring to executive development programs, Jucius cautions that " . . . it would be negligent to overlook the environmental factors involved in, and group

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[1]Ibid., p. 6.

interactions affected by, development programs." The complexity of the factors that surround such programs causes psychological and sociological overtones, which condition the input, process, and output of supervisory training. In any attempt to change the knowledge, skills, attitudes, and behavior of the participants the vital role that the environment plays in that change process must not be overlooked.[1]

House[2] emphasizes that management commitment is probably the most critical requirement for the success of any development effort. He finds indications in research that, where developmental efforts do not consider changing the training environment, when necessary, and if such efforts do not take place through decisions by top management, an overall change in performance cannot be expected or predicted. The best that might be hoped for, in the absence of such desirable commitment by management, " . . . is a change in the managerial performance of a few of the individuals in the program."

Belasco and Trice[3] report a detailed example of training evaluation in a large organization located in the Northeast, in which they caution against the implicit assumption " . . . that the organization and its members willingly

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[1]Jucius, op. cit., pp. 249-250.

[2]House, op. cit., p. 59.

[3]Belasco and Trice, op. cit., p. 72.

cooperate in the study and that this cooperation, like Pallas Athena, springs full-blown from the brow of the researcher." The researcher, including such organizational members as the training specialist, is an "outsider" to the individuals participating in the change experience. The establishment of rapport is a critical, difficult, and frequently overlooked step in training evaluation. The value of the research, the competence of the researcher, and the confidentiality of the data are among the many areas subject to suspicion in the resistance to evaluation.

The environment has its impact on the effectiveness of training and the evaluation of that training, alike. While providing the needed climate for growth of learned supervisory behavior, or negating the training effort, the organizational environment may support or hinder the evaluation of training.

Among the problems confronting the evaluator of training programs is the direct or implied threat to the position, status, and opportunities of every person in the organization. This threat contributes to the passive resistance that often meets evaluation efforts. Tracey suggests a total involvement of the organization and improved communication with all who may be affected by the training as means of overcoming this resistance.[1] If evaluation is to

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[1]Tracey, loc. cit., p. 17.

be successful, a reduction of its direct or implied threat must be among the major concerns of the evaluator.

The degree of success a given evaluator may achieve in reducing the direct or implied threats of his evaluation depends on many controllable and uncontrollable factors. The most important of the uncontrollable factors is the support of top management in an active role. That role must be one of an enthusiast for training with an honest and well-communicated desire for an objective evaluation of the training effort.

Terry[1] perceives the current concept of management to be changing from the formal, highly systematized approach to a more informal and flexible reliance on the environment. He believes that the objective of management development is changing from that of developing learned managers to one of developing learning managers. In his view, " . . . there is today more realism about what can and cannot be accomplished in the classroom." This view of the changing concept of management development should affect the process of training evaluation. It may aid in more realistic expectations from training than have guided past evaluative efforts.

If Terry's perception is correct, future evaluation efforts may be more fruitful than have been most of those reported to date. A philosophy of management regarding the

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[1]George R. Terry, Principles of Management (5th ed.; Homewood, Ill.: Richard D. Irwin, Inc., 1968), p. 500.

evaluation of supervisory training may evolve, under which both the learned behavior and the evaluation of the developmental programs will be actively supported. This philosophy, to be operationally effective, will encompass recognition of the universality of supervision, serious attempts to account for the costs involved in developing the human resource and a continuing effort by top management to create and maintain an environment conducive to both the practice of learned supervisory behavior and the evaluation of the training effort.

A philosophy of training evaluation, especially regarding supervisory training in human resource development, may be adopted by managers at all levels without any necessary application of that philosophy. Managers who hold an operational philosophy regarding training evaluation and fail to support and demand objective evaluation behave like the supervisor who fails to practice the learned supervisory concepts. Failure to implement a philosophy may be attributed to a lack of knowledge and experience regarding the criteria and the design of evaluative efforts. The following sections review the pertinent research regarding such criteria and design.

Training Criteria and Evaluation

This section reviews the pertinent views of investigators regarding criteria for training and the relationship

between criteria and evaluation. Particular emphasis has been placed on the criterion problem that exists in the evaluation of supervisory training in human resource development.

Belasco and Trice[1] identify the criterion problem by defining two essentials of a good, usable criterion and by identifying some of the numerous difficulties encountered in the development of training criteria. The essential elements are: (1) a statement of the objective in measurable terms and (2) a yardstick to determine if the objective has been reached. The statement of expected results must be measured by a yardstick that is relevant to the objective, reliable in its measurement over time, independent of changes external to the training, and capable of ranging over a variety of collection techniques. Accordingly, the evaluator may choose to employ objective yardsticks, subjective yardsticks, or a combination of the two--provided that they are " . . . quantifiable in some fashion."

The development of training criteria presents, among the difficulties stated by Belasco and Trice, one that is especially pertinent to the evaluation of training. That is, " . . . confusion about the length of time in which training objectives may be accomplished." If evaluation is to be realistic, the time frame for accomplishing specific objectives must be part of the criterion for the training.

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[1]Belasco and Trice, op. cit., pp. 16-19.

The failure to specify time frames for accomplishing objectives results in conflicting assessments of the effectiveness of the training. Supervisory knowledge and supervisory behavior are different objectives. Kirkpatrick[1] offers a solution by suggesting that criteria be differentiated on a time basis. His time frame specifies immediate, intermediate, and ultimate objectives. An increase in knowledge can be an immediate objective of training, changes in job behavior fall into an intermediate category, while objectives aimed at increasing effectiveness and productivity may be best thought of as ultimate objectives.

Although published prior to Kirkpatrick's work and not specifically related to establishing criteria on the basis of time, the dilemma cited by Fleishman (see supra, p. 21) indicates further support for the criticality of the time factor in training evaluation. The positive change measured by Fleishman occurred immediately after training. The elimination of the positive change and the development of some negative changes were found in measures taken at varying times after training. Fleishman, as previously indicated, did not apply the same measures to the same people because, " . . . it was not possible to do a longitudinal study on a selected group of foremen." His intermediate

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[1]Donald L. Kirkpatrick, "How to Start an Objective Evaluation of Your Training Program," Journal of the American Society for Training and Development, X (May-June, 1956), p. 55.

measures were applied to foremen in another plant of International Harvester. This second group of foremen was, however, divided on the basis of varying lengths of time since their training.

Belasco and Trice cite the works of Kirkpatrick and Fleishman in stating: "This evidence clearly suggests that the time of measurement must be adjusted to consider the time implied in the objective."[1] If training objectives are recognized as falling into Kirkpatrick's immediate, intermediate, and ultimate time categories, and if the desired changes are specified in those categories, there may be a lessening of the conflict that arises when positive-immediate objectives are attained and negative-intermediate results are found. Changes in knowledge appear to be the immediate changes that are most attributable to a given training program; changes in behavior at some later date appear to be less attributable to the training experiences because of the variety of unspecified variables that impact on the trainee between the immediate and the ultimate points in time.

Another view of the criterion problem is taken by Tracey, who advocates evaluation from two different but complementary perspectives: (1) the application of external criteria and (2) the application of internal criteria. The external criteria, such as decreases in employee grievances

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[1]Belasco and Trice, op. cit., p. 18.

and increases in employee attitudes, are used to measure the results of training after the supervisor returns to the job. These external criteria appear to fall into either the intermediate or ultimate time frames of criteria advocated by Kirkpatrick.

Internal criteria, according to Tracey, are mostly subjective and involve comparing one program with another. His "training and development self-audit" is, however, designed to overcome the limitations of the usual internal comparisons. This audit is intended to be a "total-systems" audit to be used periodically by a training and development organization.

Content measurement is especially attacked by Tracey. He believes that the end-of-course paper and pencil test has little meaning in terms of job performance. Wherever possible, paper and pencil tests should be replaced by performance tests.[1] Whether or not performance tests are feasible for evaluating supervisory training in human resource development and leadership is not discussed by Tracey.

House[2] states that management development, by definition, implies that the results of the development effort must be measurable in terms of change in either learner knowledge or learner performance. He views the objectives of management

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[1]Tracey, op. cit., pp. 22-23.

[2]House, op. cit., pp. 105-107.

development as desired levels of the learner's knowledge, attitude, skill, or job performance. In his discussion of skill objectives for management development programs, he points out that these may be classified into the three broad categories of intellectual, manual, and social skills. He considers that the skill objectives are concerned with the development of latent abilities that prescribe the overt responses that a learner is expected to exhibit under training conditions. The ability to respond correctly in a learning situation does not guarantee a change in job performance.

The relationship between criteria and design is stated by Rizzo[1] as he calls attention to the two major aspects of training evaluation: (1) the definition and measurement of the criteria and (2) the experimental design. He views development as a "before-and-after" situation that requires the establishing of criteria to demonstrate change, and involves the designing of the evaluation effort so that before-and-after comparisons of the participant's levels of development are possible. The following five "objectives of development" are suggested: (1) knowledge, (2) attitude, (3) ability, (4) job performance, and (5) end-operational results. This categorization of criteria closely resembles

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[1]John R. Rizzo, "The Evaluation of Management Development," in Management Development, ed. by Robert J. House (Ann Arbor, Mich.: Bureau of Industrial Research, The University of Michigan, 1967), pp. 79-96.

the "time frame" approach suggested by Kirkpatrick for the immediate, intermediate, and ultimate objectives. Unlike Tracey, Rizzo advocates the use of questionnaires, paper-and-pencil tests, observation, ratings, and company records to measure the before-and-after-training levels.

The relationship between criteria and design is an extension of the philosophy-criteria relationship. The manager or training director who adheres to a philosophy of training evaluation that includes recognition of the universality of supervision, the need to account for training costs, and the impact of the working environment on the training effort is likely to specify realistic and measurable criteria for training programs.

The Evaluation Design

Training evaluation design includes the methods and instruments used to assess changes that may be attributed to training. Various degrees of success with widely differing combinations of methods and instruments used to evaluate human relations training for supervisors have been reported. To facilitate the presentation of experiences and views regarding the designs of evaluation efforts, this section has been divided into two subsections: (1) evaluation methods and (2) evaluation instruments.

Evaluation Methods

Lindbom and Osterberg[1] emphasize that much has been written about supervisory training, but very little has been published about research in this field, " . . . chiefly because little has been done." They identify three alternative levels at which efforts to train supervisors can be evaluated: (1) at the classroom level, (2) by the supervisor's behavior on the job, and (3) by the behavior of the supervised employees.

The first-level or classroom evaluation is the most common and consists of two sub-levels. The lowest level uses the "after-only" test of achievement; the higher sublevel expands the evaluation by including both a "before" and an "after" measurement. The latter usually relies on " . . . some arbitrary increase or a statistically significant increase in score . . . " for assessing the program. The major weakness of the first-level evaluation is the assumption that performance in the classroom is related to performance on the job.

Evaluating a training program on the basis of the supervisor's behavior on the job is a higher level of assessment that goes beyond the classroom and involves reports of superiors and opinions of subordinates. Included in this

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[1]Theodore R. Lindbom and Wesley Osterberg, "Evaluating the Results of Supervisory Training," Personnel (November, 1954), pp. 224-228.

second-level evaluation are self-evaluations by the supervisors of changes that they attribute to the training.

The third and highest level of supervisory training evaluation looks at the behavior of a supervisor's subordinates. Such indicators of increased supervisory effectiveness as increased productivity, reduced accident rates, and improved morale are examined to measure changes that may be attributed to the training of the supervisor. This level of training encounters the problem of isolating employees' behavior that may be attributed to the training of their superiors. The behavior may stem from a complex of other organizational forces and personal problems.

McGehee and Thayer made an exhaustive search of the literature concerning attempts to reduce the problem of distinguishing changes in behavior attributable to training from changes that may result from either chance cause or from some systematic change in the organizational environment. They report numerous examples of widely varying methods of evaluation, which they have reduced to four major categories:

1. Measures taken after training without a control group.
2. Measures taken before and after training without a control group.
3. Measures taken after training with a control group.
4. Measures taken before and after training with a control group.

The first of these four procedures was found, as Lindborn and Osterberg previously reported, to be the most

frequently used and the least defensible for drawing causal inferences. The second method, although it is a step forward, is rarely defensible. The lack of a control group is, in the view of McGehee and Thayer, a serious limitation on causal inferences drawn from the before-and-after training tests. The use of a control group in the third method, even with only the after-training test, is considered to be more defensible than the preceding methods. Its major shortcoming is the inability to show that the two groups were comparable prior to training one of them. The fourth method, testing before and after training with a control group, avoids most of the pitfalls encountered in the other three methods.[1]

Control is a major concern in designing the training evaluation study. Obtaining control groups, however, may encounter administrative objections, which these investigators recognize to be " . . . particularly true if the control group is simply pre-and-post-tested and given no training at all." The problem of obtaining a control group may be reduced where the control group is scheduled for training at a later date.[2]

The recognition of an organization's objections to the use of some of its personnel as a control group, while others are trained, is a critical consideration for any

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[1]McGehee and Thayer, op. cit., pp. 277-281.

[2]Ibid., p. 282.

investigator who attempts to evaluate training. Even in organizations that may be said to provide an environment favorable to training evaluation the impact on operational supervisors who are asked to serve as a control group, or to provide personnel to serve that purpose, may create " . . . an attitude that the trained group is receiving special attention and are 'fair-haired' boys." McGehee and Thayer suggest another important way of reducing the objections to the use of a control group in the statement: "By control groups, we mean employees who did not receive the training or received training different from that received by the group for whom we are trying to determine the results of training."[1] This definition of control groups permits the designation of those who are either scheduled for later training in the same subject matter or concurrent training in a different course as the control element.

In addition to providing an operational definition of control groups, these researchers help to synthesize some of the divergent views of evaluation design. They classify the measures used to evaluate training as (1) objective-subjective, (2) direct-indirect, (3) intermediate-ultimate, and (4) specific-summary. Objective measures derive from overt behavior, whereas subjective measures are dependent on expressions of belief, opinion, and judgment. Supervisory

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[1] Ibid., p. 277.

training would be impossible to evaluate in most instances, they state, without the use of indirect measures of the supervisor's influence on others. Reporting on his early studies in 1948, McGehee shows that intermediate measures secured early in training are indicative of an ultimate level of performance. Specific measures deal with the ability to perform a specific task, in contrast to the "summary" measures of how the individual performs the entire job. These distinctions of measures provide important guides to the problems of (1) measuring supervisory training, rather than operative training, and (2) evaluating human relations training, versus training to produce skill in performing a specified mechanical task. These four categories of measures are not mutually exclusive. The most likely pattern of categories for measuring the human relations aspects of a supervisor's job would be (1) subjective, referring to evaluations of behavior change, (2) indirect, reflecting the accomplishment of objectives through others, (3) intermediate, since the ultimate value of such training may never be known, and (4) summary, which recognizes that the whole job of the supervisor in human resource development cannot be fragmented into specific tasks.[1]

The need for control, in the form of one or more groups that are comparable to the experimental group, is generally accepted. The use of before-and-after measures, however, is not without its opponents.

[1] Ibid., pp. 260-263.

Belasco and Trice[1] describe three major obstacles to the effective evaluation of training:

1. The possibility that sharp differences exist in each individual participants' knowledge, skills, and attitudes.

2. The inability to distinguish the possible effects of a unique group of participants from the effects of the change experience itself.

3. The possibility that the initial administration of the measuring instruments, applied on a before-and-after basis, will result in sensitizing the trainees to the subject matter.

They reinforce the need for control groups, which stems from the inability of most researchers to observe the process of change itself. They do not, however, advocate pretesting.

Either to reduce or to eliminate as many as possible of the factors that intervene between the training and the recorded results, Belasco and Trice report that the bulk of evaluation studies utilize the before-and-after experimental design involving two groups chosen from the same population to assure comparability. One group is exposed to the change experience while the other, the control group, is not. However, they maintain that "contamination within the design" remains as the third major obstacle, even under conditions of the intensive two-group, before-and-after controlled experiment.

While they admit the paucity of experimental data to support or refute the contention that the pretest operates

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[1]Belasco and Trice, op. cit., pp. 22-32.

directly upon training effectiveness, they emphasize that there is no single, simple, foolproof way to deal with the problems of control and contamination. Having made an exhaustive analysis of the relevant research in regard to these problems, Belasco and Trice provide a valuable warning to researchers--problems of contamination are endemic to all evaluation efforts. A distinction among types of training programs, however, is found in their statement that the traditional evaluation designs are useful " . . . when the change experience is relatively homogeneous (such as in a management training program), . . . "[1]

The distinction among types of training programs has an important bearing on this study. The program evaluated by this researcher fits the definition of a "homogeneous management development" program, rather than the program reported on by Belasco and Trice. In that program, there were statistically significant downward movements in attitudinal and action means between the pretest and the posttest for a control group of supervisors. This control group did not receive the training, which was " . . . related to aberrant behavior of problem-employees." The intensive interviewing that followed the sharp downward movement of scores led the researchers to conclude that the " . . . emotionally charged nature of the subject matter . . . produced the dramatic test effect." In

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[1] Ibid., p. 32.

this instance, the changes associated with testing were far more potent than were those associated with training. The negative movement of the means of the control group's scores was significant, while statistically insignificant changes resulted from the training received by the experimental group. The possibility must be considered, therefore, that making supervisors aware of aberrant behavior problems, without training them to cope with such behavior, may intensify their negative attitudes toward the "problem-employee."[1]

Conflicting research results magnify the problems associated with traditional evaluation schemes. The works of Canter and Lana[2] are cited by Belasco and Trice as examples. Whereas Canter reported that the administration of questionnaires before training seriously intervenes in the training process, Lana reported no instrument effect in his study of attitude change. Belasco and Trice conjecture that the contradiction may be attributed to the different subject matters involved in the training. Lana dealt with the relatively nonthreatening subject of attitudes toward vivisection, whereas Canter was involved with the more important and uncertain area of employee motivation.

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[1] Ibid., pp. 100-104.

[2] Belasco and Trice, 153, citing Ralph R. Canter, "A Human Relations Training Program," Journal of Applied Psychology, XXXV (February, 1951), pp. 38-45, and Robert Lana, "Pretest-treatment Interaction Effects in Attitudinal Studies," Psychological Bulletin, VLI, No. 7 (1956), pp. 293-300.

Despite the previous assertion by Belasco and Trice that the traditional evaluation designs are useful in relatively homogeneous change experiences, such as in a management training program, they hold strong objections to the traditional patterns. On the grounds that the initial test in a before-and-after application intervenes and interacts with the training, they point out that " . . . most supervisory training or management development programs, . . . , attempt to produce such vague changes as more interpersonal sensitivity, ... It is in these types of programs that the traditional evaluation efforts are most limited."[1]

Belasco and Trice used the "before-and-after" method with two experimental groups and two control groups. The increase in knowledge as a result of training was clearly demonstrated, while the effect of the training on the attitudes of supervisors toward their subordinates was less clear. As a result they suggest that the " . . . simple two-group comparison involving no pretests may avoid many of the methodological problems . . . and still yield an accurate indication of the change associated with training."[2]

One of the earliest and most sophisticated designs for reducing the problems encountered in supervisory-training evaluation is the Solomon Four-Way Design.[3] Concerned with

[1]Belasco and Trice, op. cit., pp. 152-153.

[2]Ibid., pp. 71-97.

[3]Richard Solomon, "An Extension of Control Group Design," Psychological Bulletin, XLVI (March, 1949), p. 147.

the impact of the before-training test upon the training itself, Solomon introduced his elaborate design in 1949. His concern is expressed in the following statement:

> We feel that the pretest operates directly upon the effectiveness of the training or interacts with the training process. That is, there is a great possibility that merely taking a pretest changes the subject's attitude toward the training procedure. Or it may conceivably change the set or attentional factors important to the effectiveness of training. Thirdly, it may actually change the manner in which the subjects perceive the training material.[1]

The Solomon Four-Way Design requires an experimental (training) and three control groups. The experimental group is pretested, trained, and posttested. Control group number one is pretested, not trained, and posttested. Neither control group two nor control group three is pretested. Control group two is trained and posttested, while control group three is posttested without having been either pretested or trained. A comparison of posttest scores for control groups two and three permits an assessment of the training that was received by control group two. This comparison attempts to account for any contamination that the experimental group and control group number one may have experienced by their exposure to the pretest. The twice-tested but untrained control group one also provides a direct measure of the contaminating effect of the initial test.

Solomon's elaborate design, however, does not satisfy Belasco and Trice, who report " . . . several severe limitations

[1] Ibid., p. 141.

. . . in a field setting."[1] Those researchers emphasize that the design depends upon the holding out of two control groups from the pretesting phase of the evaluation. As a result, they argue, the need for control conflicts with the sampling need to derive comparable groups. Their considered criticism of the Solomon Four-Way Design is that " . . . probably the most serious research problem posed by the design is the inability to match the four groups on the criteria considerations in advance of the experimental manipulation."[2]

Campbell supports Belasco and Trice in the argument against the practicality of the Solomon Four-Way Design. His recognition that it may be an ideal design does not deter him from the view that it " . . . is an ideal that can probably seldom be reached in a field setting." Practical organizational problems may make the four-way design impossible to implement, it may be too costly, and the effort to set it up may " . . . so change the expectations . . . that a new source of bias is introduced."[3]

Campbell suggests some "quasi-experimental designs" that can provide useful data even though a true experiment is not possible. The justification for these "patched-up"

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[1]Belasco and Trice, op. cit., p. 94.

[2]Ibid.

[3]John P. Campbell, et al., Managerial Behavior, Performance, and Effectiveness (New York: McGraw-Hill Book Company, 1970), p. 278.

designs is that:

> . . . the real purpose of an experiment is to eliminate rival hypotheses that compete with the hypothesis proposed by the experimenter. . . . To the extent that a patched-up design might eliminate nontrivial alternative explanations, it may be worth the effort. . . . one experiment, no matter how ideal, will not 'prove' that the program is either effective or ineffective.

An example of Campbell's patched-up designs is one that pretests one group at time one, trains that group until time two, then posttests the trained group and pretests a second group for training between times two and three. Thus, at time two an experimental and a control group have, in effect, been created.[1]

Contrary to the views of Belasco and Trice regarding the contaminating effects of the pretest, and taking a much less flexible stand than that expressed by Campbell's "quasi-experimental designs," Odiorne bluntly states:

> As every experimental psychologist knows, there are some definite rules for measuring behavior change. (1) You must have an experimental group that is to be trained and a control group that is not to be trained. (2) You measure behavior in specific actions that can be seen or counted in both groups before and after the training of the experimental groups. (3) You measure the changes in each group and infer meaning from the results by T-test, Chi square, multiple correlation, and the like.[2]

Odiorne clearly addresses himself to the experimental psychologist. He does not intend the aforementioned procedures

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[1] Ibid., pp. 278-279.

[2] George S. Odiorne, Training by Objectives (New York: The Macmillan Company, 1970), p. 4.

for industrial and other organizational trainers. In fact, he suggests that " . . . even if all trainers in industry had the ability to conduct such measures, as well as the time and money, it would not be necessary." An alternative suggested for industrial trainers is " . . . to keep abreast of experiments . . . to find guides as to which training methods will most likely change behavior."[1]

Pointing up the discouragement and disillusionment experienced by researchers in evaluating management development programs, Flippo reviews much of the pertinent literature for examples of negative and insignificant findings. In his analysis, he holds that the best method of determining whether or not organizational behavior has improved is to use the before-and-after measures with a control group " . . . carefully selected as equivalent to the trained group in all things except the training experience."[2]

Bass lends further support to the value of both the control group and the pretest in evaluating training. His emphasis on before-and-after testing is demonstrated by the observation that:

> A significantly higher level of scientific rigor is reached when evaluation includes '<u>before-after</u>' measures of the experimental (training) group and a

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[1] <u>Ibid</u>.

[2] Edwin B. Flippo, <u>Principles of Personnel Management</u> (3rd ed., New York: McGraw-Hill Book Company, 1971), pp. 223-225.

> matched control group. The use of two or more control groups permits even more sophistication in design and allows the training expert to isolate the effects of contemporary events, maturational processes, and the initial measurement.[1]

Evaluation of the training of supervisors in terms of job behavior requires indirect measures. The behavior of the subordinate employees is taken as a reflection of the effectiveness of supervisory training. The weakness in this method, according to Bowers and Seashore, is the assumption that the effects of supervisory training, if any, are felt immediately, that there are no delayed effects, and that none of the other change program elements, e.g., earnings, are particularly active at the time. These investigators, however, compared average performance for a period immediately preceding the supervisory training seminars with performance for the periods following each seminar, at approximately monthly intervals. They found more statistically significant increases in operator productivity, as expected, as the series of sessions progressed.[2] These indirect measures of supervisory training effectiveness have been used successfully on occasion, despite the negative findings that are more frequently reported.

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[1]Bernard M. Bass and James A. Vaughan, Training in Industry: The Management of Learning (Belmont, Cal.: Wadsworth Publishing Company, Inc., 1966), p. 145.

[2]Alfred J. Marrow, David G. Bowers, and Stanley E. Seashore, Management by Participation (New York: Harper & Row, Publishers, 1967), pp. 171-176.

A comprehensive approach to the method of evaluating supervisory training, which relies on measurements at both the input and the output stages of the training model, is reported by Lawrie and Boringer.[1] They describe the approach, which is being used in a large Midwestern utility company, as consisting of the following steps:

1. Use all possible sources of information that relate to (supervisory) training needs (internal and external sources).

2. Generate and evaluate a large pool of items that describe supervisory (trainee) behavior on the job (participation of supervisors and operators is included).

3. Administer training needs checklist to samples of people having knowledge of the trainee's performance on the job (sample supervisors, their bosses, and subordinates).

4. 'Cluster' analysis of training needs checklist results (weighted-importance scores attained).

5. Feedback review to sources (participation of people who contributed inputs).

6. Training experiences (less reliance on 'canned' programs is suggested).

7. Evaluation of training programs or experiences (the foregoing develops within its own process the necessary criteria for its own training evaluation).

The Lawrie-Boringer approach, although requiring a high degree of perseverance and attention to data, is intended to provide a systematic approach that may be adapted to field

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[1] J. W. Lawrie and Clayton W. Boringer, "Training Needs Assessment and Training Program Evaluation," Training and Development Journal, XXV (November, 1971), pp. 6-9.

conditions. Unlike the approaches of many researchers who address themselves to the experimental psychologist, these investigators focus on the operational needs of practicioners.

Kirkpatrick reviewed the research pertaining to the evaluation of human relations training for supervisors and found that subjective evaluation, in the form of post-training course evaluations by the participants, is the extent of most evaluative efforts. While these subjective evaluations are preferable to none, their inherent limitations dictate that they be used " . . . only when objective evaluation is not practical."[1]

In evaluating ten human relations programs for industrial foremen and supervisors, Kirkpatrick used the method of "measures taken before and after training without a control group." His comparison of pretest scores with posttest scores for each foreman revealed the gains in scores, an item analysis provided information about changes in answers to the specific test items between the first and second inventories, and comment sheets furnished a subjective evaluation of the programs. These three analyses comprised the design of the evaluation of the programs. Other questions he sought to answer concerned the validity of the measuring instrument and the selection of supervisors.[2]

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[1]Donald Lee Kirkpatrick, "Evaluating Human Relations Programs for Industrial Foremen and Supervisors" (unpublished Ph.D. dissertation, University of Wisconsin, 1954), p. 18.

[2]Ibid., pp. 49-52.

Fleishman reports another example of successful research without the use of a control group. He administered a Foreman's Leadership Opinion Questionnaire to a group of foremen on both the day that they had started training and the day that they had completed it. While recognizing the limitations of a "noncontrolled" experiment, he reports significant increases in the mean scores in the direction of enhanced attitudes of consideration for subordinates. The opposite attitudes, those of "initiating structure," showed significant decreases. Furthermore, the evaluation revealed that the extent and direction of attitude changes varied according to the individual.[1]

In a later study, Fleishman compared a group of untrained foremen with three groups of trained foremen classified by the number of months elapsed since training. Contrary to the aforementioned increase in consideration for the workers that had been shown in the classroom, the on-the-job behavior of the most recently trained group was significantly lower in consideration than that of the untrained group. Fleishman suggests a danger in relying upon evaluations immediately after training.[2]

The evidence that criterion measures taken immediately after training may show positive change, while later measures

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[1]Fleishman, op. cit., pp. 41-43.

[2]Ibid., pp. 47-48.

indicate a negative pattern may be traceable to the climate of the on-the-job setting. This consideration was discussed earlier in the section dealing with philosophy and environment. The problem, however, remains to haunt the researcher. The timing of evaluation has been suggested as a critical consideration.

A possible solution to the aforementioned dilemma is found in Kirkpatrick's work. He suggests that evaluation criteria be differentiated on a time basis. Increased knowledge can be an immediate objective of training, changes in job behavior become an intermediate objective, and changes in subordinate employees' behavior are recognized as ultimate objectives.[1]

With the time-basis classification of training criteria in mind, Kirkpatrick establishes a logical four-step approach to evaluation. Immediate objectives may be evaluated in either step 1, reaction, or step 2, learning. Intermediate objectives become the criteria for an evaluation in in step 3, behavior. Ultimate objectives may be evaluated in step 4, results. The steps are defined as follows:

> Step 1--Reaction. How well did the conferees like the program?
> Step 2--Learning. What principles, facts, and techniques were learned?
> Step 3--Behavior. What changes in job behavior resulted from the program?

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[1]Donald L. Kirkpatrick, "How to Start an Objective Evaluation of Your Training Program," Journal of the American Society of Training Directors, X (May-June, 1956), p. 55.

> Step 4--Results. What were the tangible results of the program in terms of reduced cost, improved quality, improved quantity, etc.?[1]

The distinctions between (1) favorable reaction to a program and learning, (2) learning facts and principles and behavior, and (3) on-the-job behavior in the short-run and ultimate gains in productivity by the supervised employees are clearly recognized in Kirkpatrick's four-step approach to evaluation. Each of the four steps is progressively more difficult to accomplish. Kirkpatrick cites several examples and suggestions regarding each step. While learning is much more difficult to measure than reaction, " . . . measuring changes in behavior resulting from training programs involves a very complicated procedure."[2] When the fourth step of evaluation is considered, the results desired must be stated in measurable terms before the training is initiated. Safety programs, cost reduction programs, and similar "skill-improvement" programs lend themselves more readily to a step-4 evaluation than do the less-quantifiable human relations programs. Kirkpatrick emphasizes this problem in the statement that:

> From an evaluation standpoint, it would be best to evaluate training programs directly in terms of results desired. There are, however, so many complicating factors that it is extremely difficult, if not impossible, to evaluate certain kinds of programs

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[1]Donald L. Kirkpatrick, "Evaluation of Training," in Training and Development Handbook, ed. by Robert L. Craig and Lester R. Bittel (New York: McGraw-Hill Book Company, 1967), p. 87.

[2]Ibid., p. 100.

> in terms of results. Therefore, it is recommended that training directors evaluate in terms of reaction, learning, and behavior.[1]

The pertinent research reveals a strong preference for evaluation methods that include both the before-and-after aspect of measurement and the use of at least one control group. Successful evaluations, however, have been reported in which one of these elements has been missing. That is, significantly positive results have been claimed without the pretest, and other successes without control groups have been reported.

Evaluation design encompasses both the method and the instrument. As was the case with methods, differences of opinion can be expected in regard to the instruments used in the evaluation effort.

Evaluation Instruments

Research in supervisory-training evaluation reflects a common pattern that attempts to combine objective and subjective measurements. Questionnaires, opinionaires, inventories, surveys, observations, and other tools and techniques are employed to measure changes in knowledge and changes in behavior.

Changes in knowledge regarding principles, facts, and concepts of supervision are most often measured by paper-and-pencil tests applied before and after the training. Behavioral

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[1] Ibid., p. 106.

changes, referring to the on-the-job application of the learned theory, is inferred from indirect measures of either the accomplishments of others, the opinions of others, or both.

Folley, however, cautions, "Keep in mind the achievement test concept rather than the predictive test concept. . . . Training evaluation is intended to determine the extent to which the trainees and the training achieved the objectives set up for them."[1] The previous discussions of the difficulties encountered in evaluating supervisory training pointed up the indirect methods of assessing on-the-job behavior of supervisors, which require measuring changes in opinions of subordinates, appraisals by superiors, accident ratios, productivity of operators, and similar combinations of qualitative and quantitative criteria--all of which are indirect measures of supervisory effectiveness. Despite Folley's further admonition that: "it is tempting to forget the behaviors you want the trainees to learn and to retreat to a knowledge test,"[2] the research on supervisory training in human resource development is replete with measures of knowledge changes.

Relevance, reliability, and freedom from bias are necessary characteristics of measures used in evaluating

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[1]John D. Folley, Jr., "The Learning Process," in Training and Development Handbook, ed. by Robert L. Craig and Lester R. Bittel (New York: McGraw-Hill Book Company, 1967), p. 53.

[2]Ibid., p. 50.

training, if causal inferences are to be made from a study of the training results. McGehee and Thayer[1] contend that such measures must be relevant to one or both of (1) the major performance requirements of the job, for which the training is offered, and (2) that attainment of organizational goals through the behavior of the individuals who are being trained. Reliability, they point out is, perhaps, not as important as relevance; however, measures that appear to be relevant have no value in assessing the outcome of training, if they lack reliability. There should be sufficient reliability to retain an individual or group in the same, or nearly the same, relative rank if no training takes place between the initial and the later measurements. Despite the relevance and reliability of measures, their value can be eroded if they are not free from bias. Essentially, measures become biased or contaminated when they are not gathered under conditions completely independent of other variables. The relevance, reliability, and freedom from bias characteristics of evaluation measurements are difficult to control, but necessary considerations to support causal inferences.

Katzell[2] used the File and Remmers[3] instrument on a before-and-after basis to evaluate a human relations course

[1]McGehee and Thayer, op. cit., pp. 264-269.

[2]R. A. Katzell, "Testing a Training Program in Human Relations," Personnel Psychology, I (Autumn, 1948), pp. 319-330.

[3]Q. W. File and H. H. Remmers, "How Supervise?" (New York: The Psychological Corporation, 1948).

for supervisors. On the basis of that instrument and an evaluation of the course by the trainees six months after its conclusion, Katzell concluded that the course was a success. McGehee and Thayer[1] challenge the relevance of the File and Remmer instrument on the grounds that Katzell had not shown any relationship between the File and Remmer instrument and: (1) the on-the-job behavior of the supervisors, (2) the effect of their behavior on their subordinates, or (3) the effect of their behavior on the attainment of the organization's objectives. They point out that " . . . there is no clear evidence that an improvement in the knowledge of principles of human behavior has a high positive relationship to effective performance in the area of human relations." Furthermore, McGehee and Thayer cite Millard[2] in their challenge of Katzell's use of the File and Remmer instrument. They dispute Katzell's findings with " . . . some evidence that the questionnaire used has a reasonably close relationship to so-called tests of intelligence."

The essence of the criticism of Katzell's work by McGehee and Thayer is that, in their combined judgments, the File-Remmers How Supervise? instrument was not shown by Katzell to be relevant to the on-the-job behavior of the

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[1]McGehee and Thayer, op. cit., pp. 264-265.

[2]K. A. Millard, "Is 'How Supervise?' an Intelligence Test?" Journal of Applied Psychology, XXXVI (August, 1952), pp. 221-224.

supervisors who were trained, nor did he establish relevance between that instrument and the effect of the subsequent behavior of the supervisors on either their subordinates or the organization's objectives. In substantiating their criticism of Katzell's claim of success for the training, McGehee and Thayer point to the lack of evidence that improvement in the knowledge of human behavior has a high positive relationship to effective performance in the area of human relations.

In view of the aforementioned criticism, an examination of Katzell's work was undertaken from the viewpoint of his claimed success for the training program that he evaluated. His statement of the purpose of the training: " . . . to improve understanding of human relations on the part of a group of experiences supervisors," may be implied to mean that the training should bring about subsequent positive changes in the on-the-job behavior of the trained supervisors. Such, however, is not a stated purpose in Katzell's study. Furthermore, he describes the File-Remmers "How Supervise?" questionnaire as one that " . . . calls for expressions of attitudes toward supervisory principles and practices." His claim of success for the training appears to be limited to the stated purpose of the program by his statements:

> The evidence suggests that the program was effective in improving understanding of human problems in supervision, and that it may, also, have had some value as a morale-builder among the supervisory staff. . . . It was hoped that this would lead to greater effectiveness in supervision of subordinates and in dealing with superiors and coordinates. . . .

> The undertaking was designed as a job improvement program, and should, therefore, not be viewed as a complete training course such as might be desired for prospective or inexperienced supervisors.[1]

Katzell's "hope for greater effectiveness" in supervisor-subordinate relations, and his reference to "a job improvement program" may be construed to mean that the purpose of the program was to increase on-the-job supervisory effectiveness. His claim of success, however, does not contain any reference to a "high positive relationship" between the gains in attitudes toward supervisory principles and practices and the subsequent human-relations behavior of the trainees. After comparing the scores of sixty supervisors from two divisions of a large railroad, who were divided into four groups (two groups within each division), he states that

> . . . it may be deduced that the training program was most effective for supervisors whose opinions were most different from those of the experts to begin with, who were not highly experienced, and who were relatively 'bright.' These deductions . . . apply when . . . training is evaluated in terms of improvement on the 'How Supervise?' questionnaire.[2]

Admitting that relevance is a matter of judgment, McGehee and Thayer suggest that this judgment is best made by those responsible for the training activity. The line managers, as the ultimate consumers of the results of training, should make those judgments with the assistance of the training specialist

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[1]Katzell, op. cit., pp. 319-321.

[2]Ibid., p. 326.

who can aid in objectifying the judgments. The matter of relevance can be improved by demanding " . . . that the purpose of a training activity be clearly stated, and that relevant measures . . . be established before the training is undertaken."[1]

McGehee and Thayer cite, as an example of bias in the use of seemingly valid measurements, a request for a department head to rate all his personnel after half of them had been trained. By knowing which employees had been trained, the supervisor may inject his personal regard for the training into the ratings. If he is favorable toward training, his judgment may be biased toward higher ratings to those who have been trained; if he is hostile toward training, the opposite form of contamination may occur.[2]

Sorensen experienced a paradox in his evaluation of two groups of middle-and-upper managers. With twenty-one in each group, forming twenty-one matched pairs, he was able to use one group as control. Only the experimental group received the human relations training. To measure training effectiveness in terms of knowledge gained regarding principles and practices of human relations, he applied Form M of How Supervise?[3] to each group both before and after the

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[1]McGehee and Thayer, op. cit., pp. 266-267.

[2]Ibid., p. 269.

[3]Form M is designed for higher management levels than are Forms A and B.

experimental group was trained. Both groups showed positive gains. The experimental group's mean gain, however, was not statistically significant, while that of the control group was. He observes that " . . . it would seem that training tends . . . to cloud some of the concepts of good human relations held by a number of experimental subjects prior to training." The paradox is explained by Sorensen " . . . by the fact that considerably more error variance is associated with the experimental group."[1]

Canter[2] used a series of objective tests, which included the File-Remmers How Supervise? instrument. An analysis of before-and-after measures led to the major conclusion that the participants in the experimental group obtained means on all tests that exceeded the predicted means. A significant gain in the understanding of psychological facts and principles was reported for the trained supervisors.

The most frequently used instrument for objectively evaluating human relations programs, according to Kirkpatrick,[3] has been the paper-and-pencil inventory How Supervise? by File and Remmers. That instrument provides alternate forms for

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[1]Paul Gilbert Sorensen, "An Evaluation of a Human Relations Training Program" (unpublished Ph.D. dissertation, Purdue University, 1957), pp. 33-34.

[2]Ralph R. Canter, "An Experimental Study of a Human Relations Training Program," (unpublished Ph.D. dissertation, Ohio State University, 1949), p. 43.

[3]Kirkpatrick, "unpublished Ph.D. dissertation," pp. 16-18.

pretesting and posttesting first-level supervisors. Also, a separate form is available for use at higher levels of management.

Supporting Katzell's recommendation that paper-and-pencil tests be used in areas such as human relations training evaluation, Kirkpatrick developed an instrument to evaluate six intensive four-and-one-half-day programs in human relations training for supervisors, which were conducted by the Industrial Management Institute of the University of Wisconsin. This instrument, the Supervisory Inventory on Human Relations (SIHR),[1] was also used by Kirkpatrick to evaluate company programs in a Wisconsin paper mill and an Iowa manufacturing company, and in two University of Wisconsin one-day conferences, which were held in Milwaukee and Racine. In all, ten different human relations programs were evaluated. While variations existed in length of program, spacing of the sessions, and the instructors involved in the programs, Kirkpatrick found the objectives, subject content, and techniques to be similar in all programs.

Kirkpatrick reports that the Supervisory Inventory on Human Relations (SIHR) revealed gains that were significant at the .02 level, or better, for nine of the ten programs he evaluated. The gains were measured by comparing the posttest scores and the pretest scores of 172 supervisors and foremen

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[1] Ibid., pp. 29-40.

in the ten separate programs. He states that the SIHR, " . . . was found to be a reliable instrument for measuring human relations, facts and principles." With regard to the validity of that instrument, he cautions: " . . . its validity as a measure of job performance of industrial foremen and supervisors must be determined for each company. . . . "[1]

Hariton did not attempt to measure knowledge gains. His study of fifty foremen, split into experimental and control groups, involved before-and-after measures of attitudinal changes in the supervisor-worker relationship. The initial measures were taken at the start of the training, and the follow-up was made three months later. On the basis of the comparisons made, the hypothesis that training foremen would result in an overall increase in employee satisfaction with supervision was not substantiated.[2]

Summary of Research

The following three major areas of the evaluation effort have been identified: (1) philosophy, including the environmental aspects of evaluation and the influence of the working environment upon the application of learned concepts in the job situation, (2) criteria and the importance of

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[1] Ibid., pp. 90-96.

[2] Theodore Hariton, "Conditions Influencing the Effects of Training Foremen in New Human Relations Principles," (Unpublished Ph.D. dissertation, University of Michigan, 1951), p. 94.

establishing reasonable objectives prior to initiating training, and (3) design, which includes the evaluation model, or methods, and instruments used to measure changes in knowledge and behavior.

There seems to be a general growth of interest, particularly during the 1960's, in objective evaluation of supervisory training. Those aspects of the supervisor's job that lend themselves to ease of quantification, e.g., numbers of accidents and quantities of rejects in production, may be directly related to training in safety and quality control. The human resource development aspect, however, defies direct quantifiable measure. Supervisor-subordinate relations must be inferred from surrogates, e.g., absenteeism, grievances, turnover rates, and from the anonymously gathered opinions of those most affected by and affecting a supervisor's behavior.

Several examples of negative reactions after training are cited by most authorities as indications that the classroom effectiveness of training may be eroded by an organizational climate that is not supportive of the learned behavior. Unfortunately, in some instances, supervisory training appears to cause the trainee to identify more closely with management than with workers. There is general agreement in the literature that this enhanced management-identification results in an adoption by the trained supervisor of the attitude of his superiors. Under an autocratic superior, the supervisor may show negative behavioral changes on the job--despite any

previously measured positive changes in knowledge regarding human relations. Where this has been recorded in the research, an unfortunate trend has been to consider that the training has not been effective. There have been very few attempts to distinguish between problems that may reasonably be considered solvable by training and those problems stemming from poor management practices at the upper levels.

With regard to criteria for evaluation, research reports and related literature show general agreement with the concept of stating training objectives in terms of identified needs. Training objectives should generate criteria for the evaluation effort. In practice, however, objectives for training in human relations take the form of generalities. Supervisors should "understand" and "appreciate" a wide range of behavioral theories of communication, motivation, group dynamics, and leadership. The evaluation criteria, more often than not, attempt a finer degree of objectivity and specificity than the program objectives warrant.

The evaluation design is the subject of most of the conflict in the related research. Contamination from pretesting and the various opinions regarding its alleged impact on the training have failed to sway the majority of the investigators. There is a much higher reliance upon the pre-and-post training measurements than upon the after-only method of measurement. With regard to the design of evaluations, general agreement is found regarding the desirability of the

use of one or more control groups. Just as general, however, is the recognition of the impracticality of insisting upon control groups in field settings. Few researcher distinguish between the laboratory and the operational organization in their advocacy of "controlled experiments."

From this summary and analysis of pertinent research, certain relationships are identifiable. The organizational philosophy creates an environment that may or may not support the training effort. Furthermore, the operational climate, which is a reflection of top management's philosophy, may cause learned behavior to grow, or it may stifle or reverse it. That philosophical environment affects the criteria of the training program directly, and the evaluation effort indirectly. Unless training evaluation is a planned part of the training effort, the criteria for evaluating the training must be developed from without. The design of the evaluation is affected, similarly, by the philosophy of evaluation that exists in an organization and by the training objectives.

In the specific case of human resource development training for first-level supervisors, the weight of evidence indicates that paper-and-pencil inventories, used on a before-and-after basis are the most feasible type of instrument to determine changes in trainees' understandings and attitudes. Control groups, which the related research reveals may consist of trainees in different courses of instruction, are desirable for comparison of changes in the different

groups. Intermediate, rather than ultimate, behavioral changes may be measured by before-and-after surveys of the opinions of the trainees' superiors or subordinates. Ultimate behavioral changes, particularly in a dynamic organization, can seldom be related to a specific training program.

In consonance with the recommendations of the majority of researchers discussed in this chapter, this study was designed to use paper-and-pencil instruments on a before-and-after basis to measure changes in knowledge, at the classroom level, and to measure intermediate behavior changes from before-and-after surveys of both the trainees' superiors and subordinates. Control groups, comprised of participants in a different course of instruction than that experienced by the experimental groups, were also used. A detailed description of the design of this study is contained in the next chapter.

CHAPTER III

DESIGN OF THE STUDY

The design of this study is described and explained in this chapter and in the appendixes referred to herein. The scope of this chapter includes detailed descriptions and explanations of (1) the training program evaluated, (2) the program participants, (3) the measuring instruments used, (4) the methodology of the evaluation effort, and (5) the statistical procedures employed in this study. A chapter summary establishes the basis for the analysis and interpretation of the results that are presented in Chapter IV.

Description of the Program Evaluated

The general and specific objectives of the training program evaluated by this study, as determined by the City of Oklahoma City, emphasize the supervisor's responsibility for human resource development and the need to develop skills in effectively transforming municipal plans and programs into reality (see Appendix A-1). The schedule of courses and information about the two courses evaluated by this study are contained in Appendix A-2. This study encompassed a pilot study of one group of supervisors enrolled in Phase II of the program (Supervisory Skill Development)

and four additional groups of participants, two of which were enrolled in Phase I of the program (Fundamentals of Supervision) and two of which participated in the Phase II training.

Phase I--Fundamentals of Supervision

This 30-hour course of instruction in the basics of supervision was designed for the first-line supervisor or potential supervisor who had not undergone a comparable course of instruction. The ten sessions of three hours each were conducted by one instructor. The methods of instruction included the lecture, film, and group discussion.

According to the instructor, the major emphases were placed on (1) motivation, (2) leadership, (3) communication, (4) evaluating and counseling employees, and (5) skill in developing empathy with the workers. Light to medium emphases were given to such topics as the functions of management, productivity, and methods of supervision. The fundamentals of supervision that were stressed in this course were those generally associated with the human-relations aspect, rather than the structural relationships of the supervisor's job (see Appendix B-1).

Phase II--Supervisory Skill Development

This 60-hour course of instruction was intended for those first-level supervisors who had successfully completed the Fundamentals of Supervision or an equivalent course. In addition to encompassing twice as many instructional hours

as the Phase I training, this course differed from the fundamentals course in the number of instructors involved and in the methods of instruction. Whereas Phase I instruction was all conducted by one professor from Oklahoma City University, seven professors were provided by Oklahoma Christian College to present various parts of the Phase II supervisory training. The major difference in methods of instruction was the emphasis placed upon simulation in this course. Keys (see Appendix B-2) functioned as course director and principal instructor. He developed an "in-basket" exercise during the Spring, 1971 pilot study and applied it to the Fall and Winter, 1971 courses that were evaluated by this study. The emphasis on simulation was enhanced by Keys' proposed change in the name of the course from Supervisory Skill Development to Supervisory Simulation Laboratory. The in-basket exercise was developed from on-the-job supervisory problems collected during the conduct of the Spring, 1971 pilot study and was the basic instructional guide for all portions of the 60-hour Supervisory Simulation Laboratory.

As indicated by the course content in Appendix B-2, 75 percent of the 60-hour Supervisory Skill Development course was devoted to human resource development and leadership. The remaining 25 percent encompassed "setting environmental goals and objectives," which also included human-relations orientation in "perception--motivation and creativity" and "public image formation--public relations."

Description of the Participants Studied

Eighty-nine municipal employees, representing three cities in the Metropolitan Oklahoma City Area, were studied by this investigator. The cities and their numbers of participants are shown in Table 1.

TABLE 1

EIGHTY-NINE PARTICIPANTS REPRESENTING THREE OKLAHOMA MUNICIPALITIES

Municipality	No. Participants
City of Midwest City	10
City of Norman	3
City of Oklahoma City	76

The nature of the work, supervised by the 70 first-level supervisors and engaged in by the 19 non-supervisory personnel who comprised the 89 participants, was mostly outdoor, "blue-collar" work (see Table 2).

TABLE 2

OCCUPATIONAL AREAS OF 89 PARTICIPANTS IN HUMAN RESOURCE DEVELOPMENT TRAINING FOR MUNICIPAL EMPLOYEES

Occupational Area	N	Occupational Area	N
Aircraft Refueling	5	Recreation	1
Court Administration	1	Safety and Civil Defense	1
Data Processing	2	Sanitation	5
Equipment Maintenance	11	Street Maintenance	10
Fire Protection	1	Traffic Signals & Meters	6
Golf Course Maintenance	2	Water Distribution	10
Game, Fish, & Lake Patrol	4	Water Plant Operation	5
Law Enforcement	11	Water Pollution Control	9
Office Administration	3	Zoo Operation	2

For this investigation, the participants of the various groups studied were selected by means beyond the control of this investigator and with only minor influence by the City of Oklahoma City Training Director. The determination of whether or not the studied training program would materialize depended upon an allocation of Federal funds through a State coordinator. Once the funds had been allocated, the organization of the training program was developed by the City of Oklahoma City Training Director in coordination with participating institutions of higher education. Attendance at the courses offered was determined by the individual department heads of the sixteen eligible units of local government that comprise the Metropolitan Oklahoma City Area.

Experimental Groups

Although the training evaluated by this study included both the Phase I training (Fundamentals of Supervision) and the Phase II training (Supervisory Skill Development), the Phase II groups were designated as the experimental groups. This was believed to be the only operationally-feasible means of evaluating the human resource development aspect of the overall training program (see supra, pp. 9-10).

During the period from May 15, 1971, to December 15, 1971, three groups, totalling 41 first-level supervisors, completed the Phase II training. These experimental groups were designated E_1, E_2, and E_3. All forty-one supervisors had completed the Fundamentals of Supervision course or a comparable

in-service course during the five years preceding their enrollment in the Phase II, Supervisory Skill Development, training. Additional characteristics of these groups, obtained by use of the Background Data instrument (see Appendix C-1), are described in Table 3.

TABLE 3

ABSOLUTE NUMBERS IN GROUPS, AND MEANS AND RANGES OF CHARACTERISTICS FOR THREE EXPERIMENTAL GROUPS

	Group E_1	Group E_2	Group E_3	Totals
N =	11	15	15	41
Age $\bar{X}$ = (R =)	46.00 (25-63)	42.01 (27-63)	39.33 (25-60)	$\bar{\bar{X}}$ = 42.45 R = 25-63
Education $\bar{X}$ = (R =)	10.55 (7-14)	10.60 (7-16)	11.27 (8-13)	$\bar{\bar{X}}$ = 10.81 R = 7-16
Supervisory Experience $\bar{X}$ = (R =)	12.45 (4-28)	8.33 (1-37)	6.96 (1-20)	$\bar{\bar{X}}$ = 9.25 R = 1-37
Employees Supervised $\bar{X}$ (R =)	7.73 (2-15)	10.20 (2-21)	12.20 (2-31)	$\bar{\bar{X}}$ = 10.04 R = 2-31

The average supervisor participating in the Supervisory Skill Development phase of the training evaluated by this study was 42.45 years old. He had less than a high-school education, had functioned in a supervisory position for slightly over nine years, and was, at the time of this study, responsible for the supervision of approximately ten employees. This "average supervisor" is the focus of this

study. His changes in knowledge and behavior, as measured by the instruments later described in this chapter, became the basis for evaluating the effectiveness of the training program that was investigated.

Control Groups

A total of 48 municipal employees comprised the three control groups used in this study. These groups were designated C_1, C_2, and C_3. Group C_1 was a control group used in the pilot study during the Spring of 1971 to evaluate the training received by experimental group E_1. Control group C_1 differed from groups C_2 and C_3 in that the former received no training during the training of the pilot study group E_1, while groups C_2 and C_3 received training in Fundamentals of Supervision during the same time frame (September to December, 1971) that groups E_2 and E_3 were receiving the Supervisory Skill Development training.

Another difference between group C_1 and groups C_2 and C_3 was in their composition. Group C_1 was composed of all first-level supervisors, while groups C_2 and C_3 contained both supervisors and potential supervisors. Background data were gathered on the control groups in the same manner as for the experimental groups (see Appendix C-1). These data are summarized in Table 4.

The average supervisor participating in the Fundamentals of Supervision phase of the training evaluated by this

TABLE 4

ABSOLUTE NUMBERS IN GROUPS, AND MEANS AND RANGES OF CHARACTERISTICS FOR THREE CONTROL GROUPS

	Group C_1	Group C_2	Group C_3	Totals
Supervisors N =	15	9	9	33
Non-Supervisors N =	--	10	5	15
Group N =	15	19	14	48
Age $\bar{X}$ =	45.57	36.42	36.86	$\bar{\bar{X}}$ = 39.58
(R =)	(35-63)	(24.55)	(23.63)	R = 23-63
Education $\bar{X}$ =	10.67	12.26	13.07	$\bar{\bar{X}}$ = 11.99
(R =)	(7-14)	(5-16)	(4-15)	R = 4-16
Supervisory Experience $\bar{X}$ =	10.67	4.38[a]	4.20[c]	$\bar{\bar{X}}$ = 6.42
(R =)	(1-28)	(1-10)	(1-12)	R = 1-28
Employees Supervised $\bar{X}$ =	11.27	8.56[b]	6.78[d]	$\bar{\bar{X}}$ = 8.87
(R =)	(4-26)	(2-22)	(1-19)	R = 1-26

[a] N = 13 because 4 of the 10 non-supervisors reported previous supervisory experience in other organizations

[b] For the 9 supervisors in group C_2

[c] N = 10 because 1 of the 4 non-supervisors reported previous supervisory experience in another organization

[d] For the 9 supervisors in group C_3

study was 39.58 years old. He had the equivalent of a high school education, had slightly more than six years of supervisory experience, and was responsible for the supervision of approximately nine workers. This "average supervisor" differs from the experimental groups' average supervisor mostly in the characteristics of (1) supervisory experience (6.42 years for the control groups' average versus 9.25 years for

the experimental groups' average) and (2) education (11.99 grades for the control groups' average versus 10.81 grades for the experimental groups' average).

Homogeneity of All Groups

Despite the obvious variations in ages, educational levels, supervisory experience, and numbers of workers supervised, all experimental and control groups studied for this training evaluation were statistically homogeneous. Using the descriptive statistics: the mean, the standard deviation, and the variance, the homogeneity of all groups on the factor of human resource development knowledge, which is the factor pertinent to this study, was established. F tests showed no statistically significant differences between or among the experimental or control groups.

Description of Data-Gathering Instruments Used

This section describes six of the seven instruments used in this study. The seventh, the Background Data Form, was discussed in the previous section in connection with the characteristics of the participants of the training program. Appendix C contains examples of all but one of these instruments, that one being How Supervise?, Forms A and B. Table 5 presents a listing of the data-gathering instruments used and their locations in Appendix C.

Of the seven data-gathering instruments used, four were used on a before-and-after basis. These are numbered

2, 3, 4, and 5 in Table 5. The Background Data form was used only at the start of the training. The two course evaluation forms were completed by each participant at the end of each course. With the exception of the previously-discussed Background Data Form, the instruments used are described below, under the headings: (1) before-and-after instruments and (2) after-only instruments.

TABLE 5

DATA-GATHERING INSTRUMENTS AND RELATED MATERIALS

	Instrument	Appendix
1.	Background Data Form	C-1
2.	How Supervise?, Forms A and B[a]	C-2
3.	Supervisory Inventory on Human Relations (SIHR)	C-3
	Manual for the SIHR	C-4
4.	Marvin's Management Matrix (self-perception form)	C-5
5.	Marvin's Management Matrix (others' perceptions form)	C-6
6.	Supervisory Skill Development Course Evaluation Form	C-7
7.	Fundamentals of Supervision Course Evaluation Form	C-8

[a]Instrument not included. See letter from the Psychological Corporation (Appendix C-2)

Before-and-After Instruments

The following instruments, used on a before-and-after basis, served to attain the <u>immediate</u> objective of measuring changes in knowledge of facts and concepts that could be attributed to the training:

1. How Supervise?, Forms A and B
2. Supervisory Inventory on Human Relations (SIHR)
3. Marvin's Management Matrix

How Supervise?

The 1971 test catalog of the Psychological Corporation describes the How Supervise? instrument as follows:

> Useful in the training or upgrading of candidates for supervisory positions, in evaluating the results of supervisory training programs, and in counseling supervisors. The test deals with the problems of supervision and human relations common to most business and industrial organizations and has three sections: Supervisory Practices, Company Policies, and Supervisor Opinions.
>
> Three forms: A, B, and M. To evaluate the results of training programs, Form A is frequently given at the beginning and Form B at the end. Form M is composed of those items from Forms A and B which proved most discriminating at higher management levels.[1]

Chapter II of this study included some criticism of the How Supervise? instrument and of its use by Katzell in evaluating a human relations course for supervisors (see supra, pp. 57-9). The criticism of Katzell's work by McGehee and Thayer took the form of challenging that instrument's relevance to the on-the-job behavior of the trained supervisors.

This study makes no claim, direct or implied, that an increase in knowledge of the facts and concepts of human resource development has any predictable relationship to effective

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[1]Q. W. File and H. H. Remmers, "How Supervise?," The Psychological Corporation Test Catalog, 1971 (New York: The Psychological Corporation, 1971), pp. 16-17.

performance. A clear distinction is made at this point that the How Supervise? instrument was used to attain the immediate or classroom-level objective of evaluating changes in knowledge of facts and concepts. Behavior on-the-job after the training is, as Kirkpatrick suggests, an intermediate objective of the evaluation effort (see supra, p. 30).

The validity of How Supervise? to the program evaluated by this investigator is based upon its relevance to the principles, facts, and techniques that are taught in the course being evaluated (see p. 5 of Appendix C-4). This relevant validity was considered prior to adoption of the How Supervise? instrument. A careful examination of the three sections of that instrument (1) Supervisory Practices, (2) Company Policies, and (3) Supervisor Opinions and a comparison of those three sections with the contents of the two courses that comprise the evaluated program (see Appendixes B-1 and B-2) indicated a strong "face-relevance" validity. The analysis and interpretations of the results (Chapter IV of this study) reveal the extent of this relevant validity and the effectiveness of the training in imparting the required knowledge of supervisory practices, company policies, and supervisor opinions.

Permission to use Forms A and B of How Supervise? was obtained via correspondence with the publisher (see Appendixes A-3, A-4, and A-5). The inclusion of that instrument in this study was, however, denied (see Appendix C-2).

Supervisory Inventory on Human Relations (SIHR)

This instrument, which will be referred to as the SIHR throughout the remainder of this study, was designed in 1954 by Kirkpatrick as the basis for his work in evaluating human relations programs for industrial supervisors. The original instrument contained 100 items, 40 of which were adopted from four different available measuring instruments that applied to supervisors and foremen. The remaining sixty items were drawn up by Kirkpatrick to cover the facts and principles that were taught in the human relations programs he evaluated. In its present form, the SIHR contains eighty items.

Appendixes A-6, A-7, and A-8 are the correspondence between this investigator and Kirkpatrick that established the permission to use the SIHR and bind it and its manual into this study. Original copies of the SIHR and the SIHR manual are contained in Appendixes C-3 and C-4, respectively.

A complete description of the SIHR is contained in Appendix C-4 to this study. Page 3 of that appendix discusses the use of the SIHR in evaluating the effectiveness of a human relations course. This study included a detailed investigation of the SIHR and the SIHR manual for the validity of the SIHR to the program that was to be evaluated. As Kirkpatrick states on page 3 of Appendix C-4:

> Where the SIHR covers principles, facts, and techniques that are included in a company's training course, the Inventory can be used as an instrument

> to evaluate the effectiveness of the instruction. It will not measure changes that take place on the job. However, a change in knowledge may be necessary before behavioral change can take place.

The above quotation from the SIHR manual clearly establishes the SIHR as an instrument to be used for the immediate rather than the intermediate objective of evaluation, i.e., to measure changes in knowledge that may be attributed to the training being evaluated. It was for the specific purpose of measuring knowledge changes that the SIHR was used in this study.

Of the two approaches to evaluation suggested by Kirkpatrick (see p. 3 of Appendix C-4), the first (a comparison of total scores on the pretest with those on the posttest) was used by this investigator. This same approach was used with How Supervise? and Marvin's Management Matrix in order to facilitate a comparison of the change-results obtained by the three objective measures that would lead to the immediate evaluation objective of assessing changes in knowledge.

Two important considerations are stated by Kirkpatrick on the same page of the manual cited in the preceding paragraph:

1. Pretest responses should be used in planning the course content. Emphasis should be placed on the areas in which items were 'missed' most frequently.

2. The value of the SIHR as an evaluation tool depends to what extent the course covers the areas included in the Inventory.

Both of these considerations are germane to this study. The first was carefully avoided, while the second was carefully adopted.

The evaluation, conducted by this investigator, was deliberately held separate from the planning of the course content. The City of Oklahoma City Training Director and the course directors from Oklahoma City University and Oklahoma Christian College did not have the pretest responses and could not emphasize areas in which the trainees had most frequently answered items on the SIHR incorrectly. This procedure was adopted throughout the evaluation effort in the use of all the measuring instruments to preclude "teaching to the test."

The second consideration in using the SIHR, that of determining to what extent the evaluated courses covered the areas included in the SIHR, involved a comparison of the evaluated courses' contents (see Appendixes B-1 and B-2) with the subject content of the program originally studied by Kirkpatrick in developing the SIHR. The subjects discussed and the amount of time devoted to each, which are the bases for the SIHR, are as follow:

The Supervisor's Role in Management	2 hrs.
Understanding People	6 hrs.
The Supervisor and Employee Attitudes	3 hrs.
Solving a Human Relations Problem	3 hrs.
The Supervisor as a Trainer	6 hrs.
The Supervisor as a Leader	3 hrs.
Summary and Discussion of Problems	3 hrs.
Total	26 hrs. [1]

[1]Kirkpatrick, "unpublished Ph.D. dissertation," p. 30.

Comparisons of these 26 hours of instruction with the 30-hour Fundamentals of Supervision course content (see Appendix B-1) and the 60-hour Supervisory Skill Development course content (see Appendix B-2) reveal that the subject matter that formed the basis for the SIHR was included in the program evaluated by this study. The universality of supervision (see supra, p. 15) further supports the relevant validity of the SIHR for the program evaluated by this investigator.

Behling developed a performance rating form and applied it to four companies in his study to validate the SIHR. He found his hypothesis that " . . . 'the SIHR can be validated by means of some relatively objective criterion of human relations performance' has been adequately substantiated. . . ." A further conclusion of that investigator is that " . . . the SIHR is best suited for an educational range of from grade 8 through grade 13."[1]

Comparisons (1) between Kirkpatrick's original subject content, upon which the SIHR was based, and the course contents of this study (see Appendixes B-1 and B-2), and (2) between Behling's conclusions regarding the suitability of the SIHR and the educational level of the participants in the program evaluated by this study (see Tables 3 and 4, supra), served to establish "face-relevant" validity for the

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[1]Gerald L. Behling, "A Study on the Validation of the Supervisory Inventory on Human Relations," (unpublished Master's thesis, University of Wisconsin, 1959), pp. 77-8.

SIHR as a measuring instrument in this study. Operational and administrative realities in the planning and conduct of the training by the agencies involved negated any further attempt to test the validity of the SIHR prior to using it in this evaluation effort. The results of the evaluation (see Chapter IV of this study) indicate that a high degree of validity did exist in the SIHR for the training effort studied by this investigator.

Marvin's Management Matrix

This is the third of the objective instruments employed in the effort to achieve the immediate objective of this study, i.e., to measure changes in knowledge and attitudes concerning human resource development from the start to the end of the training. A variation of the original form was used, also, to achieve the intermediate objective of measuring on-the-job behavior changes over a period of from two to three months following the training.

A complete description of this instrument, along with examples of the instrument and its scoring key, is contained in Marvin's Management Goals.[1] A reproduced version of the original matrix is contained in Appendix C-5 of this study. This instrument, Marvin's Management Matrix (Self-perception form), will be referred to throughout the remainder of this study as the MMS. A modified version of the MMS,

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[1]Marvin, op. cit., pp. 95-113.

for use by subordinates and superiors of the trainee-supervisors, is contained in Appendix C-6. This version, designated by this investigator as Marvin's Management Matrix (Others' Perceptions), will be referred to throughout the remainder of this study as MMO.

Marvin describes his instrument as a "reference framework" to answer questions about factors underlying organizational effectiveness. It was developed through the cooperation of over 150 chief executives from industrial, commercial, government, military, and institutional organizations throughout the United States, Canada, the United Kingdom, and Europe. Within these organizations over 10,000 managers participated in the development of the reference framework, MMS.[1]

Unlike the How Supervise? and the SIHR instruments, which predate MMS by 25 years and 12 years, respectively, there are no published norms or validation studies for MMS. The "action patterns" that it was designed to measure, however, appear to have universal application for all levels of management. These action patterns are (1) working through others, (2) producing worthwhile results, and (3) generating usable ideas. These patterns have been used by Marvin to aid a person in recognizing his relative skills as a statesman, entrepreneur, and innovator.

The statesman pattern.--"These men initially gravitated into supervisory positions where special technical skills were

[1]Ibid., p. 97.

not essential to their success."[1] This pattern is the one most applicable to this study. It is a pattern that is people-oriented. Human resource development training for supervisors was felt to be the type of training that should increase the supervisor's orientation toward the "statesman" pattern.

The entrepreneurial pattern.--"In sharp contrast with men who have initially had a statesman orientation in their work are men who have been primarily concerned with getting jobs completed."[2] This pattern has relatively little application to this study. The lack of a profit motive in government service and the relatively low emphasis placed on productivity in the program evaluated by this study were believed to be factors that would not increase the trainees' entrepreneurial orientation.

The innovator pattern.--"As a group, the innovators generate usable ideas."[3] The human resource development training studied by this investigator was intended to "increase the supervisors' awareness and effectiveness" of problems and provide the skills needed to improve his problem-solving ability (see Appendix A-1). This general synthesis of the objectives of the training evaluated by this study, together with the fact that any operationally usable ideas in the work situation would most likely be generated or implemented by the supervisor, led to the belief that the

[1] Ibid., p. 108.
[2] Ibid., p. 109.
[3] Ibid., p. 110.

training should increase the trainees' orientation toward the innovator pattern.

Self-perceptions.--Marvin's intent in developing his matrix was to enable a person to position himself in a performance plane that resembles a horizontal cross-section of a pyramid, with the three points of the plane anchored at varying levels of the respective action patterns. For scoring purposes, the index numbers on each ridge of the pyramid range from a low of 5 to a high of 35. Perfect performance would result in three pattern-scores of thirty-five each--a combination that would place a person on the pinnacle of the performance pyramid.

The intervening scores on each ridge of the pyramid (action pattern) suggest varying degrees of orientation:

> Index numbers from 30 to 35 reflect top performance. Men in the 20 to 30 range, according to index numbers, place significant emphasis on action patterns in achieving things they set out to do. The 15 to 20 range indicates that a man does make use of a particular action pattern. An index number below 15 suggests that a man does not attach any significant importance to a particular action pattern in his own activities or make any attempt to capitalize, for his purposes, on a specific activity pattern.[1]

Others' perceptions.--The modified version of MMS, MMO (see Appendix C-6) was used to measure the perceptions of the trainee-supervisor by (1) his boss and (2) the workers he supervised. The modification consisted of changing the

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[1] Ibid., p. 103.

pronoun "you" to "he" in order that the perceptions of the trainee by those above and below him in the organization could be compared with his perceptions of himself on the same three action patterns.

Permission to use Marvin's instrument and to modify it for other than self-perceptions was obtained by this investigator from Dr. Harold Viaille, Director of the University of Oklahoma Rehabilitation Institute. Viaille had permission from Marvin to use the latter's instrument in a supervisory training program for rehabilitation supervisors. At the suggestion of Dr. L. Doyle Bishop, Chairman of the Management Department in the University of Oklahoma's College of Business Administration, this investigator interviewed Viaille regarding the applicability of Marvin's instrument to the program evaluated by this study. Viaille had modified the instrument for use by the subordinates of the rehabilitation supervisors, as well as by the trainee-supervisors themselves.

Having gained permission to use the instrument in this study, this investigator carried it a step further by employing it to gain a three-way pattern of perceptions: (1) from the trainee of himself, (2) from the trainee's superior of the trainee, and (3) from the trainee's subordinates of the trainee. A further modification of the use of Marvin's instrument is its application in this study on a before-and-after basis. Marvin's use of the instrument

was to permit a person to assess his own orientations and to provide a working perspective for " . . . further developing his own effectiveness."[1]

After-Only Instruments

Two end-of-course instruments were employed in this study: (1) the Supervisory Skill Development Course Evaluation Form (see Appendix C-7) and the Fundamentals of Supervision Course Evaluation Form (see Appendix C-8). Both of these forms were administered only at the conclusion of each course. Participants were asked to indicate the subject content of the course that they considered to be most valuable and least valuable. Also, they were asked to assess their own perceived changes in knowledge regarding the subjects taught. Additional comments regarding changes to be made in the course were also sought.

Kirkpatrick's review of the research related to subjective evaluation[2] cites instances in which subjective evaluations justify the evaluated training. Bringing the foremen and management closer together and creating a feeling of greater confidence in the trained supervisors are benefits that may not be directly measured. The most objective studies of supervisory-training effectiveness, however, are only indirect measures.

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[1]Ibid., p. 113

[2]Kirkpatrick, "unpublished Ph.D. dissertation," pp. 15-18.

The most common approaches to the end-of-course evaluation by the participants uses questionnaires to get supervisory reactions to such questions as:

> Did you feel the program was worthwhile?
> What subjects did you enjoy the most?
> How would you rate the conference leader?
> What did you get out of the program?

These questionnaires should probably, according to Kirkpatrick, be classed as comment sheets rather than evaluation sheets. The course evaluation forms designed for this study were intended to make the reactions of the participants more objective by causing them to score their own relative gains in knowledge.

While recognizing the value of subjective evaluations as an alternative to no evaluation, Kirkpatrick suggests that they " . . . be used only when objective evaluation is not practical."[1] The after-only instruments used in this study were employed to gain insight into the perceptions of the participants regarding the training they had received. While "liking" a program may not insure learning, hostility toward it will probably lessen the application of course content to the job situation. Furthermore, a human resource development or human relations program that does not solicit the participation of the trainees has the appearance of a study in contradiction.

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[1] Ibid., p. 18.

Development and Description of the Methodology

This section contains the rationale for the design and procedures used in this study. The overall design of the study was determined after a review of the related research. The procedures used and the detailed design resulted from a pilot study and an evaluation conference, which followed that study.

The Overall Design

The evaluation design, according to a review of the related research, is the subject of the greatest conflict in studies of training evaluation (see supra, p. 64). Also emphasized in the related research was the desirability of differentiating evaluation criteria on a time basis. Kirkpatrick's four-step approach to evaluation and his caution that the fourth step (results) was " . . . extremely difficult, if not impossible, to attain in certain types of training. . . . " (see supra, p. 52) led to the adoption of the overall design depicted in Table 6.

TABLE 6

OVERALL DESIGN OF THE STUDY

	Time Phase 1	Time Phase 2
Objective	Immediate	Intermediate
Step	1. Reaction 2. Learning	3. Behavior

Detailed Design and Procedures

The detailed design and procedures used in this study resulted from a pilot study of one group of municipal supervisors and a post-training conference that followed the pilot study. Additional background information regarding the choice of instruments and the design of the evaluation effort is included in the following descriptions of the pilot study and the evaluation conference.

The Pilot Study

In April, 1971, the City of Oklahoma City Training Director estimated that approximately 100 first-level municipal supervisors throughout the Metropolitan Oklahoma City Area had completed the Fundamentals of Supervision course (referred to throughout the remainder of this study as the Phase I training). These supervisors were expected to serve as the input to a new Supervisory Skill Development course (hereafter referred to in this study as the Phase II training). Accordingly, efforts were made to assemble the "eligible 100" for pretesting with the SIHR.

Of the estimated 100 eligible supervisors, 15 reported to the pretest site at the designated time. A repeat session was held the following day with additional effort from the Personnel Department to get the eligible supervisors assembled. This session was held with 13 additional supervisors, making a total of 28 supervisors pretested with the SIHR.

The intent of this evaluator and the City of Oklahoma City Training Director was that 20 of the pretested 28 supervisors would be randomly selected for the first course of the Phase II training, scheduled to start the following month. The actual selection, however, was beyond the control of the training director. Despite his best efforts, only 13 commitments of attendance were obtained from the various department and division heads, of which one entered the course after the first day, one dropped out, and 11 completed the course. This group of eleven was designated E_1 and was posttested with the SIHR on completion of the training.

With pretest scores available for both group E_1 and the remainder of the original 28 supervisors, an effort was made to assemble approximately 15 of that remainder for posttesting. Only five attended the scheduled posttest session. Follow-up efforts by mail and by personal contact enabled this investigator to complete the posttesting of the other ten within two weeks of the completion by group E_1 of the Phase II training. These 15 supervisors, who had been pretested as part of the original 28 but had not received the Phase II training, were designated as control group C_1.

The comparison of pre- and post-scores for the two groups is detailed in Chapter IV. The overall results of this pilot study showed a gain in knowledge for group E_1 that was statistically significant beyond the .001 level of confidence. No significant change was found between the

pretest and posttest scores for group C_1. The pilot study indicated the validity of the SIHR and its ability to measure attainment of the immediate objective of the evaluation effort. An evaluation conference was held during the Summer of 1971 to plan the Fall and Winter, 1971 program.

The Evaluation Conference

A post-training conference was held on July 29, 1971 at the City of Oklahoma City's Emergency Operating Center for the purpose of discussing the evaluation of the pilot study course in the new Phase II training and the need for changes in the program. The conferees, including four of the participants of the pilot study group (E_1), are listed in Appendix A-9.

The initial use of the SIHR was found to be applicable to the Phase II training. At the conference, the decision was made to add How Supervise? Forms A and B and to broaden the evaluation to include the Phase I training. The original application of these instruments was intended to be (1) the How Supervise? instrument for Phase I and (2) the SIHR for Phase II. Because of the operational and administrative limitations on obtaining control groups, which was experienced in the pilot study, the decision was made to apply both the How Supervise? and SIHR instruments to both the Phase I and the Phase II trainees. The Phase I groups would serve as the control for the Phase II trainees who

were actually undergoing a new phase of training in the overall program.

Also, at the evaluation conference, agreement was reached on the levels of evaluation to be conducted. The first level would include the before-and-after measures of the attainment of the immediate objective and an end-of-course evaluation by the participants. The second level of evaluation was to go beyond the classroom to measure the degree of attainment of the intermediate objective--on-the-job behavioral change. This investigator reported to the conferees that he had designed and used a 17-item survey instrument during the pilot study. Two forms of that instrument were developed, each containing the same seventeen characteristics. The Training Needs form (see Appendix C-9) was sent to the superiors of each of the pilot-study participants. The Supervisory Practices Survey (see Appendix C-10) was administered to the participants' subordinate workers.

Several of the participants' superiors had difficulty with the seven-point scale on the Training Needs form. It was discovered, by interviews, that low scores had been given on some negative items, although the respondents intended the negative characteristic to apply to a high degree to the ratee. As a result of these scoring difficulties those two instruments (Appendixes C-9 and C-10) were abandoned. To replace them as behavior-change-measuring instruments, a modified version of Marvin's Management Matrix (MMO) was

adopted (see Appendix C-6). The original version of that instrument MMS (see Appendix C-5) was also adopted to permit comparisons of the perceptions of a participant by his superiors and subordinates with his self-perceptions.

From the pilot study and the post-training conference that followed the initial Phase II training session came decisions that affected this study in regard to (1) levels of evaluation, (2) instruments, and (3) control.

The Detailed Design

The objectives and levels of evaluation, the program and its participants, the instruments used, and the control problems encountered have been discussed in the previous sections of this chapter and in sub-parts of this section. With this background in mind, the detailed design of the study will now be described. Table 7 shows the schema for the design of this study.

The design facilitates a discussion of the procedures used to answer the questions posed in Chapter I (see supra, p. 4). Since the four questions posed are, in effect, two questions applied to each of the two courses of training, only questions 3 and 4, which apply to the Phase II training, will be discussed at this point.

TABLE 7

SCHEMA FOR EVALUATING THE HUMAN RESOURCE DEVELOPMENT EFFECTIVENESS OF TWO DIFFERENT COURSES

Treatment	Phase I Training			Phase II Training		
	Experimental Groups			Control Groups		
	E_1	E_2	E_3	C_1	C_2	C_3
Pretest	yes	yes	yes	yes	yes	yes
Training	yes	yes	yes	no[a]	yes[a]	yes[a]
Posttest	yes	yes	yes	yes	yes	yes

[a]While C_1 is the only control group that received no training, the training received by C_2 and C_3 was quite different from that received by E_1, E_2, and E_3 (see McGehee and Thayer, supra, p. 37).

Question 3. How effective is the Phase II, Supervisory Skill Development, training in changing the participants' knowledge of principles and concepts of human resource development?--This question was approached by the use of three instruments previously described in this chapter: (1) How Supervise?, (2) the SIHR,and (3) MMS. Each of these instruments was administered at the first meeting of each group, for both the Phase I and the Phase II training, and again at the last meeting.

Form A of How Supervise? was administered initially in all cases. Form B was uniformly applied during the last class meeting for each group. The three sections of this instrument: (1) Supervisory Practices, (2) Company Policy,

and (3) Supervisor Opinion were compared statistically on a before-and-after basis for each group. Total scores on this instrument were likewise compared. Differences between all three parts and total scores for the E and C groups were also compared. This one instrument provided four separate scores for each individual, both at the beginning and at the end of the training, in four separate groups that totalled 63 participants. These 252 pairs of scores were averaged by groups into 16 pairs of means, and later into 8 pairs for comparison of Phase I and Phase II results.

The SIHR was administered to all groups (including groups E_1 and C_1 of the pilot study) both at the beginning and at the end of each class in both courses. This instrument provided a total of 89 paired scores, which were grouped into 6 paired averages for the 3 E groups and the 3 C groups. Further manipulation grouped all scores on each instrument into two average scores before training and two average scores after training.

Marvin's matrix (MMS) was administered to groups E_2, E_3, and C_2, and C_3 at the same time that the other instruments were applied. Like How Supervise?, this self-perception instrument contains three patterns. It does not, however, combine the three scores into a total score. The result of using this instrument, therefore, is a triple pair of scores for each of the participants. Group means were computed for comparing the experimental and control groups.

Question 4. How effective is the Phase II training in changing supervisory behavior on the job?--Only one instrument was used to measure the attainment of this intermediate objective. That instrument is the MMO (see Appendix C-6), which was modified to obtain the perceptions of the participants' superiors and subordinates. The initial mail-out to the superiors and subordinates of all participants in groups E_2, E_3, C_2, and C_3 was made at the start of the training. The Background Data form (Appendix C-1) served to supply the names and divisions for superiors and subordinates. Business-reply envelopes were provided, along with a copy of a letter from the City of Oklahoma City Personnel Director (Appendixes A-9 and A-10) to insure the confidentiality of the returns by removing the data from the organizational channels of communication. All of the superiors of the 63 participants in the combined groups E_2, E_3, C_2, and C_3 returned both the pre-training and the post-training survey forms

Of the 63 participants in the 4 groups, only 48 were supervisors (see Tables 3 and 4, supra). These 48 supervisors listed a total of 474 subordinates. All of the 474 subordinates were surveyed at the start of their supervisors' training and again two months after the training. Pre-training returns were received from 66 per cent of the subordinates; post-training returns rose to 67 per cent. Table 8 contains the breakdown of returns by groups.

TABLE 8

RETURNS OF MMO INSTRUMENT FOR PERCEPTIONS OF SUPERVISORS BY THEIR SUBORDINATES

Group	Pre-Training			Post-Training		
	Out	In	%[a]	Out	In	%[a]
E_2	153	95	62	153	104	68
E_3	183	126	69	183	130	71
C_2	77	55	71	77	46	60
C_3	61	35	58	61	39	62
Total	474	311	66	474	319	67

[a]all percentages rounded

Statistical Procedures Used

The descriptive statistics used were the mean, the standard deviation, and the variance. The F test was employed to distinguish overall differences in the various comparisons that were made. The t test was used to determine the significance of changes from pretest to posttest. After the F test had shown an overall difference a 2-way analysis of variance (ANOVA) was employed, followed by Duncan's Range Test (DRT).[1] These two tests are especially suited for testing k means.

Chapter Summary

This investigation was concerned with ascertaining the effectiveness of two phases of supervisory training in

[1]B. J. Winer, Statistical Principles in Experimental Design (New York: McGraw-Hill Book Company, 1962).

changing the knowledge and behavior of municipal first-level supervisors regarding the principles of the human resource development aspect of the supervisor's job. Six hypotheses were formulated and stated in the substantive form in Chapter I. These hypotheses are restated here in the null form,[1] as they were tested in this study:

1. No difference exists between the pre-training and the post-training knowledge of the Phase I participants regarding the principles of human resource development.

2. No difference exists between the pre-training and the post-training knowledge of the Phase II participants regarding the principles of human resource development.

3. No difference exists between the pre-training and the post-training behavior of the Phase I participants regarding the application of human resource development principles, as perceived by their organizational superiors.

4. No difference exists between the pre-training and the post-training behavior of the Phase II participants regarding the application of human resource development principles, as perceived by their organizational superiors.

5. No difference exists between the pre-training and the post-training behavior of the Phase I participants regarding the application of human resource development principles, as perceived by their organizational subordinates.

6. No difference exists between the pre-training and the post-training behavior of the Phase II participants regarding the application of human resource development principles, as perceived by their organizational subordinates.

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[1]Best, op. cit., pp. 27 and 270.

In order to test the first two hypotheses, three standardized instruments were applied to both the Phase I and the Phase II trainees, at the start of their training and again at the end of each course. These instruments are:

How Supervise? Forms A and B
Supervisory Inventory on Human Relations (SIHR)
Marvin's Management Matrix (MMS)

In order to test hypotheses 3, 4, 5, and 6, a modified version of Marvin's Management Matrix, designated as MMO for this study, was sent to the organizational superiors and subordinates of the trainees in both phases of the training. An exception to the last statement is that in the Phase I groups, which contained both supervisors and non-supervisors, the MMO was sent only to the superiors of the non-supervisors. The initial application of MMO was made at the start of each course; the followup was made two months after the end of each course.

Because both phases of the training program were to be evaluated, and because the operational and administrative requirements precluded the formation of groups for the sole purpose of serving as control groups, the Phase I trainees were designated as control groups for the experimental Phase II course. The latter was a new course for the organizations involved in this study. Phase I training was the traditional fundamentals course, which has been conducted for more than five years in the program investigated by this study.

The results of testing the six hypotheses of this study are analyzed and interpreted in the next chapter. Although not directly related to testing the hypotheses, additional findings resulted from the analyses of the data developed during that testing and from the end-of-course evaluations by the participants in both the Phase I training and the Phase II training. These ancillary findings follow the results of testing the six hypotheses in the next chapter.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF EVALUATION RESULTS

The results of testing the hypotheses of this evaluation study are analyzed and interpreted in the following sections. The analyses and interpretations in the experimental phase of this study are preceded by an analysis and interpretation of the results of the pilot study. Ancillary findings are reported separately from the experimental study comparisons.

Results of the Pilot Study

Prior to testing the two experimental and the two control groups in the actual study, a pilot study was conducted using an experimental group (E_1) of 11 subjects and a control group (C_1) of 15 subjects. Each group recorded a pretest and a posttest measure on the SIHR instrument. The experimental treatment given to E_1 was the Phase II training. Group C_1 received no training. The results of the experimental effect on the subjects SIHR scores are shown in Table 9.

The significant gain shown in Table 9 for group E_1 and the lack of a significant gain for the control group is interpreted as showing that the Phase II training for group E_1

was effective. The probability of a mean change as large as 8.27 on the SIHR instrument would occur less than one time in a thousand as a result of chance. With near certainty, the Phase II training was effective according to the gains from pretest to posttest scores of the experimental group participants.

TABLE 9

RESULTS OF PILOT STUDY

Group	N	Mean Change	S.D.	t	P
E_1	11	8.27	5.00	6.0883	< .001
C_1	15	0.60	2.53	0.2371	> .05

Conducting the Experiment

The experimental study was comprised of four groups of participants in two different courses of instruction. The experimental groups (E_2 and E_3) were given the Phase II training, while the control groups (C_2 and C_3) underwent instruction in the Phase I training. The Phase II training was a new Supervisory Skill Development course that emphasized the simulation technique of instruction. It was redesignated during the conduct of this study as Keys' Supervisory Simulation Laboratory.[1] The Phase II training was the traditional

[1]Developed by Dr. Bernard J. Keys, Oklahoma Christian College Program Coordinator.

fundamentals course that has been conducted for five years in the City of Oklahoma City's training program.

Norms and Data for Instruments

Two additional instruments were added to the SIHR instrument, which had been used in the pilot study. The two extra instruments were How Supervise? and Marvin's Management Matrix (MMS).

The SIHR Manual (see Appendix C-4) contains norms and other research data for the SIHR instrument. The norms range from 61.1 to 66.2 raw scores out of a possible score of 80 for various levels of managers in more than 100 companies. Average gains from the pretest to the posttest scores recorded by 548 foremen and middle managers in different types of organizations range from 8.7 to 12.0 points. The validity reported in the most extensive research done with the SIHR instrument shows a correlation between human relations performance and SIHR scores that is significant at the .0005 level of confidence (see p. 6 of the SIHR Manual).

How Supervise? is an instrument developed by the Psychological Corporation. This instrument shows a parallel-forms reliability coefficient ranging from 0.87 to 0.91 and a reported validity of 0.65.

Marvin's Management Matrix was developed to identify action patterns that will establish a framework for further development of an individual.[1] There are no published norms

[1]Marvin, op. cit., p. 174.

or reports on its validity or reliability. As far as can be determined from the pertinent literature, this instrument has not been previously used to measure changes that might be attributed to training.

The end-of-course evaluation instruments (see Appendixes C-7 and C-8) were designed for the courses evaluated by this study. The results of their use are presented in the ancillary findings section of this chapter.

Results of Measurements

The measurements analyzed and interpreted in the following subsections resulted from the administration of (1) the SIHR, (2) How Supervise?, and (3) Marvin's Management Matrix. The last-mentioned instrument was used in two forms: (1) MMS to measure changes in the self-perceptions of the participants and (2) MMO to measure changes in perceptions of the participants by their superiors and their subordinates. The immediate evaluation objective, i.e., to measure changes in knowledge that may be attributed to the training, was sought through the pre-training and the post-training administration of the SIHR instrument, alternate forms of the How Supervise? instrument, and the MMS instrument.

The descriptive statistics on each of the experimental and the control groups involved in the experimental study are given in Tables 10 through 13. The raw data, from which those tables were drawn, are shown in Appendixes D-1 through D-4.

TABLE 10

DESCRIPTIVE STATISTICS FOR EXPERIMENTAL GROUP E_2

Test		N	Pre-Mean	Post Mean	Mean Change	s.d.	t
How Supervise?		15	37.00	42.13	5.13	7.20	2.56[a]
SIHR		15	55.40	62.73	7.33	2.90	9.81[b]
MMS	A	15	25.00	27.00	2.00	6.63	1.17
	B	15	19.93	21.67	1.73	4.53	1.48
	C	15	21.67	21.13	-0.54	3.07	0.67

[a]Significant beyond the .05 level; $p < .05$
[b]Significant beyond the .001 level; $p < .001$

Table 10 shows a significant change in the pretest-posttest scores as recorded on the How Supervise? instrument ($t = 2.56$; $p < .05$) and the SIHR instrument ($t = 9.81$; $p < .001$). No significant change was noted on any of the three patterns of the MMS instrument ($t_A = 1.17$; $p > .05$, $t_B = 1.48$; $p > .05$, $t_C = 0.67$; $p > .05$).

These results can be interpreted as showing a significant difference in the pretest-posttest scores recorded for group E_2 on the How Supervise? and SIHR instruments. However, there were no such differences observed on the MMS instrument.

Table 11 shows that group E_3 made significant increases on their pretest-posttest scores as recorded on the How Supervise? instrument ($t = 3.15$; $p < .01$), the SIHR instrument ($t = 6.64$; $p < .001$) and on pattern A of the MMS instrument

($t = 2.82$; $p < .05$). However, patterns B and C of the MMS instrument showed no significant differences ($t_B = 2.00$; $p > .05$, $t_C = 1.80$; $p > .05$).

TABLE 11

DESCRIPTIVE STATISTICS FOR EXPERIMENTAL GROUP E_3

Test		N	Pre-Mean	Post Mean	Mean Change	s.d.	t
How Supervise?		15	34.60	43.87	9.27	11.39	3.15[a]
SIHR		15	54.07	62.27	8.27	4.78	6.64[b]
MMS	A	15	22.47	25.80	3.33	4.58	2.82[c]
	B	15	17.80	19.13	1.87	4.10	2.00
	C	15	18.67	20.47	2.47	5.49	1.80

[a]Significant beyond the .01 level; $p < .01$
[b]Significant beyond the .001 level; $p < .001$
[c]Significant beyond the .05 level; $p < .05$

These results can be interpreted as showing a significant change occurring in the pretest-posttest scores of group E_3 as a result of the supervisory training classes. Patterns B and C of the MMS instrument failed to show a significant difference.

Table 12 shows a significant change in the pretest-posttest scores as recorded on the How Supervise? instrument ($t = 3.20$; $p < .01$) and the SIHR instrument ($t = 4.72$; $p < .01$). No significant change was noted on any of the three patterns of the MMS instrument ($t_A = 0.25$; $p > .05$, $t_B = -0.90$; $p > .05$, $t_C = -0.88$; $p > .05$).

TABLE 12

DESCRIPTIVE STATISTICS FOR CONTROL GROUP C_2

Test		N	Pre-Mean	Post Mean	Mean Change	s.d.	t
How Supervise?		19	37.11	44.68	7.58	10.33	3.20[a]
SIHR		19	53.84	56.84	3.00	2.77	4.72[a]
MMS	A	19	27.00	27.21	0.21	3.71	0.25
	B	19	18.89	19.32	-0.57	4.59	-0.90
	C	19	19.95	19.16	-0.79	3.90	-0.88

[a]Significant beyond the .01 level; $p < .01$

These results can be interpreted as showing a significant change in the pretest-posttest scores of group C_2 as a result of the supervisory training. This was only true, however, for the How Supervise? and the SIHR instruments; no such change was noted on the MMS instrument.

TABLE 13

DESCRIPTIVE STATISTICS FOR CONTROL GROUP C_3

Test		N	Pre-Mean	Post Mean	Mean Change	s.d.	t
How Supervise?		14	32.64	37.79	5.15	9.66	1.96
SIHR		14	51.21	53.71	2.50	8.99	1.04
MMS	A	14	26.86	27.43	0.57	7.12	0.30
	B	14	20.57	20.86	0.29	4.07	0.26
	C	14	18.57	20.36	1.79	5.35	1.25

Table 13 shows no significant change occurring in any of the pretest-posttest scores on any of the three instruments. The values of the change scores recorded on the How Supervise? instrument were $t = 1.96$; $p > .05$. On the SIHR the values were $t = 1.04$; $p > .05$. The three patterns of the MMS yielded scores of $t_A = 0.30$; $p > .05$, $t_B = 0.26$; $p > .05$, and $t_C = 1.25$; $p > .05$. From these data it can be seen that no significant changes occurred as a result of the training given to the control group C_3, which was taught the traditional Fundamentals of Supervision course.

Testing the Hypotheses

The hypotheses of this study were initially stated in the positive form. They were restated and tested in the null form, as they are presented in the following subsections.

Results of Testing Hypothesis One

Hypothesis one was related to the Phase I supervisory training and its effects on the control groups' pretest-posttest scores. The null hypothesis tested was as follows:

Ho_1 There will be no significant difference in the pretest-posttest scores recorded for the control groups C_2 and C_3 on the How Supervise?, SIHR, and MMS instruments.

In order to test this hypothesis it was necessary to perform an analysis of variance (ANOVA) between the pretest and posttest measures on the How Supervise? instrument, the SIHR instrument, and the three patterns of the MMS instrument.

The results of these five ANOVAs are shown in Tables 14 through 18.

How Supervise? Results for the Control Groups

Table 14 shows that, when groups C_2 and C_3 were combined, the pretest-posttest comparison of their How Supervise? scores revealed no significant difference. Even though group C_2 had shown a significant pretest-posttest difference (see Table 12), the non-significance of group C_3's change was overriding. When the two groups' scores were combined they tended to cancel each other and non-significance prevailed.

TABLE 14

ANALYSIS OF VARIANCE OF HOW SUPERVISE? SCORES FOR COMBINED GROUPS C_2 AND C_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	706	1	706.00	3.09[a]
Within	14,621	64	228.45	. .
Total	15,327	65	. .	. .

[a]Not significant; $p > .05$

SIHR Results for the Control Groups

Table 15 presents the results when groups C_2 and C_3 were again combined and their pretest-posttest scores on the SIHR instrument were compared. The resulting F ratio of 1.39

was not significant ($p > .05$). It can be observed in Table 12 that group C_2 experienced a significant change between their pretest and posttest measures on the SIHR. Group C_3, however, did not experience such a change (Table 13: $t = 1.04$; $p > .05$) and when the two groups were combined the resulting effect was not significant.

TABLE 15

ANALYSIS OF VARIANCE OF SIHR SCORES FOR COMBINED GROUPS C_2 AND C_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	129	1	129.00	1.39[a]
Within	5,934	64	92.72	. .
Total	6,603	65	. .	. .

[a]Not significant; $p > .05$.

MMS Results for the Control Groups

Tables 16, 17, and 18 contain the analyses of variances for the combined control groups (C_2 and C_3) on the three patterns of the MMS instrument, respectively. These three patterns are as follows:

Pattern A: Self-perceptions regarding the statesman or people-oriented action pattern.

Pattern B: Self-perceptions regarding the entrepreneurial or production-oriented action pattern.

Pattern C: Self-perceptions regarding the innovation or creativity-orientation action pattern.

TABLE 16

ANALYSIS OF VARIANCE OF MMS SCORES ("A")
FOR COMBINED GROUPS C_2 AND C_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	2.18	1	2.18	0.0594[a]
Within	2,348.82	64	36.70	. .
Total	2,351.00	65	. .	. .

[a]Not significant; $p > .05$

Pretest-posttest scores on the action pattern A (people-orientation) for the combined control groups C_2 and C_3 showed no significant change. Table 16 reveals the F value of the change measurement to be not significant at the .05 level of confidence. The interpretation of Table 16 is that the Phase I training, as measured by the MMS instrument, was not effective in changing the participants' self-perceptions of their orientations toward working through others.

TABLE 17

ANALYSIS OF VARIANCE OF MMS SCORES ("B")
FOR COMBINED GROUPS C_2 AND C_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	2.18	1	2.18	0.0707[a]
Within	1,972.82	64	30.83	. .
Total	1,975.00	65	. .	. .

[a]Not significant, $p > .05$

Table 17 reveals that the combined scores of the two control groups, when compared on a pre-and-post-training basis, failed to reflect a significant improvement. This table presents the measured change on the entrepreneurial (product-orientation) pattern of the MMS instrument. The interpretation of this analysis is that the training received by the control groups, as measured by the MMS instrument, did not effectively change the participants' self-perceptions of their orientations toward producing worthwhile results.

TABLE 18

ANALYSIS OF VARIANCE OF MMS SCORES ("C") FOR COMBINED GROUPS C_2 AND C_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	1.52	1	1.52	0.1012[a]
Within	960.96	64	15.02	. .
Total	962.48	65	. .	. .

[a]Not significant; $p > .05$

As was the case with Tables 16 and 17, Table 18 reflects no significant change. This fact could be interpreted to mean that the control groups did not significantly change their self-perceptions regarding their creativity as a result of the training they received, insofar as the MMS instrument is capable of measuring such change.

The findings presented in Tables 16, 17, and 18 are commensurate with the findings displayed in Tables 12 and 13. The latter tables showed no significant pretest-posttest changes for either Group C_2 or Group C_3 on any of the three MMS action patterns. Since the individual comparisons were not significant, the combined-groups comparison was not expected to be significant.

Ho_1 Accepted

The null hypothesis one was accepted. The analysis of the measurements on the three instruments supported the hypothesis that no significant difference in the pretest-posttest scores recorded for the control groups C_2 and C_3 would be measured on the three instruments used.

Results of Testing Hypothesis Two

Hypothesis two was related to the Phase II supervisory training and its effects on the experimental groups' pretest-posttest scores. The null hypothesis tested was as follows:

> Ho_2 There will be no significant difference in the pretest-posttest scores recorded for the experimental groups E_2 and E_3 on the How Supervise?, SIHR, and MMS instruments.

In order to test this hypothesis it was necessary to perform an analysis of variance (ANOVA) between the pretest and posttest measures on the How Supervise? instrument, the SIHR instrument, and the three action patterns of the MMS

instrument. The results of these five (5) ANOVAs are shown in Tables 19-23.

How Supervise? Results for the Experimental Groups

Table 19 shows that, when groups E_2 and E_3 were combined, the pretest-posttest comparison of their How Supervise? scores revealed a significant change that may be attributed to the Phase II training. This finding is commensurate with the analyses shown in Tables 10 and 11. Since each group showed a significant gain in How Supervise? scores from the pre-training test to the post-training test, it was expected that the combined groups would show a significant improvement. Group E_3, which registered a t score of 3.15, contributed more to the total difference than did group E_2 (t = 2.56).

TABLE 19

ANALYSIS OF VARIANCE OF HOW SUPERVISE? SCORES FOR COMBINED GROUPS E_2 AND E_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	777.50	1	777.50	5.07[a]
Within	8,901.00	58	153.47	. .
Total	9,678.50	59	. .	. .

[a]Significant beyond the .05 level; $p < .05$

SIHR Results for the Experimental Groups

Table 20 presents the results of combining the pretest and the posttest scores on the SIHR instrument for the two experimental groups. A significant difference ($p < .001$) was noted between the pretest and the posttest scores. This finding is commensurate with the findings shown in Tables 10 and 11. Group E_3 showed a pretest-posttest change on the SIHR instrument of $t = 6.64$, while group E_2 showed a pretest-posttest change of $t = 9.81$. In this comparison, group E_2 contributed more to the overall difference than did group E_3. Both groups, however, recorded significant gains on the SIHR instrument.

TABLE 20

ANALYSIS OF VARIANCE OF SIHR SCORES FOR COMBINED GROUPS E_2 AND E_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	905	1	905.00	13.07[a]
Within	4,016	58	69.24	. .
Total	4,921	59	. .	. .

[a]Significant beyond the .01 level; $p < .001$

MMS Results for the Experimental Groups

Tables 21, 22, and 23 present the analyses of the measurements of the combined groups E_2 and E_3 on each of the

three MMS instrument's action patterns (A, B, and C), respectively.

Unlike the uniform lack of significant change on all three patterns of the MMS instrument for the control groups (see Tables 12 and 13), experimental group E_3 recorded a significant gain on pattern A of that instrument. This gain, however, was cancelled by the non-significant change recorded for group E_2 when the two experimental groups' scores were combined.

TABLE 21

ANALYSIS OF VARIANCE OF MARVIN'S MATRIX SCORES ("A") FOR COMBINED GROUPS E_2 AND E_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	106.5	1	106.50	2.33[a]
Within	2,649.1	58	42.57	. .
Total	2,755.6	59	. .	. .

[a]Not significant; $p > .05$

Table 21 shows a non-significant gain in the self-perceptions of the participants of the combined experimental groups regarding their orientations toward working through others. On the basis of this analysis, the training appears to have been ineffective in changing the participants' self-perceived action patterns.

TABLE 22

ANALYSIS OF VARIANCE OF MARVIN'S MATRIX SCORES ("B") FOR COMBINED GROUPS E_2 AND E_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	35.2	1	35.20	1.6892[a]
Within	1,208.6	58	20.84	. .
Total	1,243.8	59	. .	. .

[a]Not significant; $p > .05$

Table 22 shows a non-significant change in the self-perceived action patterns of the participants of groups E_2 and E_3. Tables 10 and 11 indicated no significant change for either group in the pretest-posttest measures of their self-perceptions regarding the entrepreneurial action pattern. Accordingly, no significant change was expected when the scores of the two groups were combined.

TABLE 23

ANALYSIS OF VARIANCE OF MARVIN'S MATRIX SCORES ("C") FOR COMBINED GROUPS E_2 AND E_3

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between	6.00	1	6.02	0.2855[a]
Within	1,222.97	58	21.09	. .
Total	1,228.97	59	. .	. .

[a]Not significant; $p > .05$

As was the case with the entrepreneurial pattern, groups E_2 and E_3 recorded no significant changes on pattern C of the MMS instrument, i.e., no significant changes in the orientation of the participants toward creativity were noted. Groups E_2 and E_3 showed no significant changes on this pattern of the MMS instrument either as separate groups (see Tables 10 and 11) or as a combined group (see Table 23). The interpretation of Table 23 is that the training was ineffective in changing the self-perceptions of the participants regarding their creativity.

Ho_2 Rejected

The null hypothesis two was rejected on the basis of the significant changes recorded by the experimental groups in their pretest-posttest scores on the How Supervise? and the SIHR instruments. The analysis of the measurements on those two instruments rejects the hypothesis that no significant difference in pretest and posttest scores would be recorded for the experimental groups. Ho_2 was rejected on the basis of the How Supervise? measurements at the .05 level of confidence and for the SIHR instrument at the .001 level. The non-significant changes recorded on the MMS instrument are of insufficient weight, in view of the lack of statistical data pertaining to the use of that instrument, to warrant acceptance of null hypothesis two.

Results of Testing Hypothesis Three

Hypothesis three pertained to the Phase I training and its impact on supervisory behavior. The null form tested was:

Ho_3 No difference between the pre-training behavior and the post-training behavior of the Phase I groups (C_2 and C_3) is perceived by their superiors.

Tables 24 and 25 show the differences between the pre-training perceptions and the post-training perceptions of the superiors of groups C_2 and C_3, respectively, as they were measured by the three action patterns of the MMO instrument.

TABLE 24

CHANGES IN SUPERIORS' PERCEPTIONS OF GROUP C_2 PARTICIPANTS (N = 19) ON THREE MMO ACTION PATTERNS

Action Pattern	Mean		S.D.		t Value
	Pre	Post	Pre	Post	
A	17.63	23.00	4.81	6.96	3.58[a]
B	18.47	21.00	4.75	4.27	2.76[b]
C	17.84	19.11	3.85	4.40	1.75

[a] $p < .05$
[b] $p < .01$

Group C_2 participants were perceived to have significantly improved on two of the three action patterns. Their superiors registered the greatest change in their perceptions of the participants on pattern B, the entrepreneur or

production-oriented pattern. The next most significant change was perceived in the statesman or people-oriented pattern A. A positive but non-significant change was registered in the perceptions of the superiors regarding the innovator pattern C. The increases registered in the post-training standard deviations of the ratings on patterns A and C suggest that the people-orientation and the innovator-orientation of the participants were more widely perceived than they had been prior to the training. Group C_2 could be said to have become more heterogeneous in regard to those two behavior patterns and more homogeneous on the production-oriented behavior pattern.

TABLE 25

CHANGES IN SUPERIORS' PERCEPTIONS OF GROUP C_3 PARTICIPANTS (N = 14) ON THREE MMO ACTION PATTERNS

Action Pattern	Mean		S.D.		t Value
	Pre	Post	Pre	Post	
A	18.86	20.71	3.80	3.75	3.77[a]
B	17.86	18.71	3.39	2.70	1.70
C	19.00	21.31	3.16	3.15	3.90[a]

[a] $p < .01$

MMO Results for Control Group's Superiors

Table 26 shows a consistency in the positive changes registered for both groups (C_2 and C_3) on the people-oriented pattern A, with the more significant change ($p < .01$) recorded

for group C_3 than that for group C_2 ($p < .05$), which is shown in Table 24. Unlike group C_2, group C_3 was perceived to have improved in the behavior pattern described as innovator-oriented (pattern C) to a significant degree ($p < .01$). Again, unlike group C_2, group C_3 failed to register a significant improvement in their perceived production orientation (pattern B). A further difference between the two groups lies in the uniformly smaller standard deviations registered on all three post-training measurements for group C_3. As previously suggested, group C_2 was perceived to be more heterogeneous on patterns A and C after the training than before the training. Group C_3 may be said to have become more homogeneous on all three action patterns.

When the t values for both groups were compared and treated as individual scores all six values for the three patterns were shown to be positive. A chi square test of the

TABLE 26

SUPERIORS' PERCEPTIONS OF GROUPS C_2 AND C_3 ON THREE MMO PATTERNS

MMO Action Pattern	Group C_2 (N = 19) t Values	Group C_3 (N = 14) t Values
A	3.58[b]	3.77[b]
B	2.76[a]	1.70
C	1.75	3.90[b]

[a] $p < .05$
[b] $p < .01$

six positive scores compared to the zero negative scores indicates that an overall improvement was measured, which was significant at better than the .01 level. This comparison of groups and patterns is presented in Table 26.

Ho_3 Rejected

On the basis of an overall significant change in the perceptions of the Phase I participants' behavior on-the-job, as measured by the MMO instrument, hypothesis number three in the null form was rejected. The Phase I training appears to have effectively improved the behavior of the participants as it was perceived by their superiors.

Results of Testing Hypothesis Four

Hypothesis four pertained to the Phase II training and its impact on supervisory behavior. The null form tested was:

> Ho_4 No difference between the pre-training behavior and the post-training behavior of the Phase II groups (E_2 and E_3) is perceived by their superiors.

Tables 27 and 28 show the differences between the pre-training perceptions and the post-training perceptions of the superiors of groups E_2 and E_3, respectively, as they were measured by the three action patterns of the MMO instrument.

According to Table 27, although positive changes were recorded on all three action patterns, the only significant change in the perceptions of the superiors of group E_2 was

in the people-oriented pattern A. Group E_2 was perceived to be more homogeneous in its orientations toward people and productivity (patterns A and B) and more heterogeneous in its innovation pattern C as a result of the training. The overall increase in the mean of the pattern C scores suggests that some participants were perceived to improve greatly while others showed lesser or negative changes.

TABLE 27

CHANGES IN SUPERIORS' PERCEPTIONS OF GROUP E_2 PARTICIPANTS (N = 19) ON THREE MMO ACTION PATTERNS

Action Pattern	Mean		S.D.		t Value
	Pre	Post	Pre	Post	
A	24.60	27.27	6.24	5.39	2.61[a]
B	21.80	23.67	4.26	3.68	1.65
C	19.53	21.00	2.56	4.72	1.14

[a] $p < .05$

Table 28 shows that, unlike the results measured for group E_2, the changes recorded for group E_3 were highly significant ($p < .001$) on all three action patterns. Despite the uniform improvement in the three behavior patterns, group E_3 (like group E_2) registered an increase in the standard deviation score on pattern C after the training. Again, an increased post-training standard deviation suggests that some participants were perceived by their superiors to be more highly improved than others in their innovative orientations.

TABLE 28

CHANGES IN SUPERIORS' PERCEPTIONS OF GROUP E_3 PARTICIPANTS (N = 15) ON THREE MMO ACTION PATTERNS

Action Pattern	Mean		S.D.		t Value
	Pre	Post	Pre	Post	
A	23.53	28.47	4.37	4.03	6.56[a]
B	19.53	23.13	4.69	3.66	8.09[a]
C	20.47	24.07	2.33	2.91	7.62[a]

[a] $p < .001$

MMO Results for Experimental Groups Superiors

Both group E_2 and group E_3 were perceived more heterogeneously after the training than before the training in regard to their innovativeness. The two groups, however, became more homogeneous regarding their people-oriented and their production-oriented patterns within two months after the training.

When the t values for both groups were compared, an overall improvement was evidenced for the Phase II participants. The chi square value for the six positive values and no negative values indicates an overall improvement that was significant at better than the .01 level. The E_2 and E_3 groups' t values on the three MMO patterns are shown in Table 29.

TABLE 29

SUPERIORS' PERCEPTIONS OF GROUPS E_2 AND E_3 ON THREE MMO PATTERNS

MMO Action Pattern	Group C_2 (N = 19) t Values	Group C_3 (N = 14) t Values
A	2.61[a]	6.56[b]
B	1.65	8.09[b]
C	1.14	7.62[b]

[a] $p < .05$
[b] $p < .001$

Ho_4 Rejected

Significant positive changes were perceived by the superiors of both groups regarding their people-orientations (pattern A). Overall positive gains were recorded on all patterns for both groups. Additionally, the entrepreneurial and innovative orientations (patterns B and C) of group E_3 increased significantly. On the basis of the evidence presented above, hypothesis number four in the null form was rejected. The Phase II training appears to have effectively improved the perceptions of the participants by their superiors.

Results of Testing Hypothesis Five

Hypothesis five pertained to the Phase I training and its impact on supervisory behavior. The null form tested was:

Ho_5 No difference between the pre-training behavior and the post-training behavior of the Phase I groups (C_2 and C_3) is perceived by their subordinates.

The same instrument used to measure the pre-and-post-training perceptions of the participants by their superiors was used to measure those perceptions by their subordinates. Whereas each participant in the control and experimental groups had a superior, only nine of the nineteen participants in group C_2 and nine of the fourteen participants in group C_3 were supervisory personnel who could be evaluated by subordinates.

Tables 30 and 31 show the differences between the pre-training perceptions and the post training perceptions of the nine supervisors in each group (C_2 and C_3) by their subordinates, respectively.

TABLE 30

CHANGES IN SUBORDINATES' PERCEPTIONS OF SUPERVISORS IN GROUP C_2 (N = 9) ON THREE MMO ACTION PATTERNS

Action Pattern	Mean		S.D.		t Value
	Pre[a]	Post[b]	Pre[a]	Post[b]	
A	20.78	21.30	5.40	5.23	0.53
B	19.51	20.30	4.86	3.99	0.74
C	18.35	17.74	5.66	5.09	0.46

[a]N = 55 (returns from subordinates of 9 supervisors)
[b]N = 46 (returns from subordinates of 9 supervisors)

No significant changes were measured on any of the three action patterns of the MMO instrument. Table 30 shows that there were positive gains on all three action patterns,

although the changes were not significant at the .05 level. The post-training perceptions of the supervisors in group C_2 were, however, more homogeneous as the uniformly decreased standard deviations indicate.

TABLE 31

CHANGES IN SUBORDINATES' PERCEPTIONS OF SUPERVISORS IN GROUP C_3 (N = 9) ON THREE MMO ACTION PATTERNS

Action Pattern	Mean		S.D.		t Value
	Pre[a]	Post	Pre[a]	Post[b]	
A	20.71	20.46	4.37	3.85	-0.06
B	18.71	19.46	3.70	2.49	0.71
C	19.91	19.82	3.34	2.96	0.00

[a] N = 35 (the number of returns for subordinates of 9 supervisors)

[b] N = 39 (the number of returns for subordinates of 9 supervisors)

Table 31 shows no significant changes on any of the three MMO patterns by the subordinates of the supervisors in group C_3. A slight negative result was shown on action pattern A. The results of the above analysis, however, reveal that group C_3, like group C_2, was more homogeneously perceived by their subordinates after the training than on the initial survey.

MMO Results for Control Groups' Subordinates

The t values for both groups of participants in the Phase I training are shown in Table 32.

TABLE 32

SUBORDINATES' PERCEPTIONS OF SUPERVISORS IN GROUPS C_2 AND C_3 ON THREE MMO PATTERNS

MMO Action Pattern	Group C_2 (N = 19) t Values	Group C_3 (N = 14) t Values
A	0.53	-0.06
B	0.74	0.71
C	0.46	0.00

Ho_5 Accepted

The null t value for group C_3 on action pattern C and the negative t value for that group on pattern A results in a chi square comparison of one negative to four positive scores. That analysis shows no significant overall improvement in the perceptions of the subordinates of the Phase I training participants. As a result, the null form of hypothesis five is accepted. No significant difference between the pre-training behavior and the post-training behavior of the Phase I participants was perceived by their subordinates.

Results of Testing Hypothesis Six

Hypothesis six pertained to the Phase II training and its impact on supervisory behavior. The null form tested was:

Ho_6 No difference between the pre-training behavior and the post-training behavior of the Phase II groups (E_2 and E_3) is perceived by their subordinates.

All participants in both group E_2 and E_3 were supervisors. Their subordinates were asked to evaluate them in the same manner and with the same instrument that the C_2 and C_3 supervisors were evaluated. Tables 33 and 34 show the results of the evaluations of the experimental groups by their subordinates.

TABLE 33

CHANGES IN SUBORDINATES' PERCEPTIONS OF SUPERVISORS IN GROUP E_2 (N = 15) ON THREE MMO ACTION PATTERNS

Action Pattern	Mean		S.D.		t Value
	Pre[a]	Post[b]	Pre[a]	Post[b]	
A	21.40	23.85	6.23	5.04	3.96[c]
B	19.45	19.18	4.39	3.71	-0.96
C	18.55	20.44	4.62	4.63	2.79[d]

[a] N = 96 (returns from subordinates of 15 supervisors)
[b] N =104 (returns from subordinates of 15 supervisors)
[c] $p < .001$
[d] $p < .01$

Significant changes are shown in Table 33 for group E_2 on patterns A and C. The interpretation of Table 33 is

that the subordinates of the supervisors in group E_2, after two months following the training of those supervisors, perceived them to be significantly more people oriented (pattern A) and significantly more innovative (pattern C) than they had been prior to the training. The negative t value (-0.96) for pattern B, while not a significant change, indicates a decrease in the perceived production orientation of the supervisors by their subordinates. Group E_2 was found to be more homogeneous on patterns A and B as a result of the training. The group remained almost the same on pattern C.

TABLE 34

CHANGES IN SUBORDINATES' PERCEPTIONS OF SUPERVISORS IN GROUP E_3 (N = 15) ON THREE MMO ACTION PATTERNS

Action Pattern	Mean		S.D.		t Value
	Pre[a]	Post[b]	Pre[a]	Post[b]	
A	20.22	23.67	5.83	4.64	5.34[c]
B	18.44	18.54	4.16	2.87	0.02
C	18.41	20.51	3.86	2.71	5.61[c]

[a]N = 126 (returns from subordinates of 15 supervisors)
[b]N = 130 (returns from subordinates of 15 supervisors)
[c]p <.001

The subordinates of the participants in group E_3, according to Table 34, perceived significant improvement in the behavior of their supervisors after two months following the training of those supervisors. The significant changes were

in the directions of their people orientation and their innovativeness. No significant change was measured in the production orientation of the supervisors. The reduced standard deviations on all three patterns indicates that group E_3 was more homogeneous after the training than they had been prior to it.

MMO Results for Experimental Groups' Subordinates

Table 35 shows the t values for both experimental groups that resulted from the measures of their subordinates' perceptions of them on the three action patterns of the MMO instrument.

TABLE 35

SUBORDINATES' PERCEPTIONS OF SUPERVISORS IN GROUPS E_2 AND E_3 ON THREE MMO PATTERNS

MMO Action Pattern	Group E_2 (N = 91) t Values	Group E_3 (N = 116) t Values
A	3.96[a]	5.34[a]
B	-0.96	0.02
C	2.79[b]	5.61[a]

[a] $p < .001$
[b] $p < .01$

The chi square test, applied to the data in Table 35 revealed an overall significant improvement. The one negative value and the five positive values result in a positive change significant at the .05 level.

Ho_6 Rejected

The null form of hypothesis six was rejected. Significant differences between the pre-training behavior and the post-training behavior of the supervisors in groups E_2 and E_3 were perceived by their subordinates. The positive changes were significant for the people orientation (pattern A) and the innovativeness (pattern C) of the trained supervisors. The lack of significant change in the production orientation of the participants, as measured by pattern B of the MMO instrument, supports the interpretation that the Phase II training effectively changed the trainees' human resource development behavior in the perceptions of their subordinates.

Summary of Results of Testing the Hypotheses

The hypotheses of this study were formulated to evaluate two courses of supervisory training at two levels. The two courses were (1) the Fundamentals of Supervision (Phase I) and (2) the Supervisory Simulation Laboratory (Phase II). The levels of evaluation, which also have been described as the evaluation objectives, were (1) the classroom, knowledge, or immediate level and (2) the on-the-job, behavioral, or intermediate level.

Hypotheses numbers one and two, which related to the Phase I training and the Phase II training, respectively, pertained to the immediate or level-one evaluation objective. Hypothesis number one was not supported. No significant

knowledge gain resulted from the Phase I training. Hypothesis number two was substantiated by significant knowledge gains by the Phase II participants.

Hypotheses numbers three, four, five, and six pertained to the level-two evaluation. Hypotheses numbers three and five relate to the Phase I training, hypotheses four and six to the Phase II training. Within that framework of behavior related hypotheses, hypotheses three and four applied to the perceptions of the participants' superiors; hypotheses five and six to the perceptions of their subordinates.

In the level-two or behavior evaluation phase of this study, both hypotheses three and four were substantiated. The superiors of the participants in both the control groups and the experimental groups registered significant changes in their perceptions of the participants over a period of two months following the training in both Phase I and Phase II. The significant changes recorded were uniformly found in the responses to the people-oriented pattern A of the MMO instrument. Both hypotheses three and four were substantiated by those significant improvements measured in the superiors' perceptions of their subordinates regarding the human development aspect of the training.

With regard to the perceptions of the subordinates of the supervisors in the two phases of training, hypothesis five was not supported; hypothesis six was. The participants of the Phase I training were not perceived by their subordinates

to have significantly improved on any of the three MMO action patterns. Significant positive changes, however, were recorded for the participants in both groups of the Phase II training. The internal consistency of the Phase II training was evidenced by significant improvements in the perceived behavior of both group E_2 and group E_3 on the two action patterns most related to human resource development: (1) pattern A (people-orientation) and (2) pattern C (innovativeness). Furthermore, the groups in the Phase II training were perceived to have either lost some production orientation or gained very little in that action pattern (see Table 35).

A summary of the results of testing the six hypotheses of this study is contained in Table 36. Gains in knowledge and perceptions of the participants by their superiors and subordinates are shown to be either significant or non-significant. The C groups participated in the Phase I training; the E groups in the Phase II training.

The interpretation of Table 36 is that the Phase I training did not cause significant improvements in the knowledge of human resource development facts and principles nor in the behavior of the Phase I participants as perceived by their subordinates. The Phase II training caused significant improvements in all three objective areas, which were (1) knowledge, (2) behavior perceived by superiors, and (3) behavior perceived by subordinates.

TABLE 36

SUMMARY OF THE RESULTS OF TESTING SIX HYPOTHESES

Hypothesis	Related to Gains in:	Phase of Training	Improvement Measured
1	Knowledge	I	non-significant
2	Knowledge	II	significant
3	Superiors' Perceptions	I	significant
4	Superiors' Perceptions	II	significant
5	Subordinates' Perceptions	I	non-significant
6	Subordinates' Perceptions	II	significant

The significant improvement registered for the Phase I participants in their superiors' perceptions is interpreted as support for the idea that supervisory training tends to cause a closer identification by the trained supervisor with his superior. This suggests that the identification with management that results from supervisory training is a mutually sought goal by the supervisor and his superior. Although not generalizable beyond this study, the hypothesis that supervisory training results in a mutually-sought goal of closer supervisor-management relations, rather than an "upward" only identification, has a basis in the findings that Table 36 shows regarding hypothesis number three.

Ancillary Findings

In addition to the measurements reported in testing the hypotheses, end-of-course evaluations were obtained from the participants of the experimental groups (E_2 and E_3) and the control groups (C_2 and C_3). The findings that resulted from those evaluations and from the use of Marvin's Management Matrix are presented in this section.

The Experimental Groups' Evaluations of the Supervisory Simulation Laboratory

Groups E_2 and E_3 were given a course evaluation form at the end of their respective training sessions (see Appendix C-7). The participants were asked to rate their perceived grasp of the fifteen subjects that comprised the course. They were instructed to indicate their grasp of each subject as they recalled it prior to the training and again as they felt knowledgeable in those subjects after the training. While it may have been better to gather this information both before the start of the training and again after the training, it was believed that subject titles would have little or no meaning to the participants prior to their training in those subjects. The end-of-course collection of the participants' pre-training and post-training perceived knowledge insured their understanding of the subject titles. Furthermore, the method used was believed to provide the participants an opportunity to reflect on their prior knowledge of the course content and

thus give them a basis for assessing their perceived changes in knowledge of the subject matter.

The response gradient for each of the fifteen course content items ranged from one to ten with one representing little or no understanding and ten indicating a complete grasp of the subject. The responses for each of the fifteen items were computed into pre-training and post-training mean scores for each participant. The analysis of these data provided a measure of each participant's perceived gain in knowledge of the course content. Indexes of the overall gain for each group on the course content items were also provided by the end-of-course evaluations.

Experimental Groups' Perceived Knowledge Gains

Tables 37 and 38 present the data compiled from the responses by the participants of groups E_2 and E_3, respectively. To avoid confusion in the use of the word "subject," that word will be avoided hereafter in this section. The content of the courses will be referred to as items.

Table 37 presents the perceived levels of knowledge of the fifteen participants in group E_2. Each individual's pre-training knowledge of the course content is represented by a pre-training mean that was computed from his responses to the fifteen course-content items on gradients from one to ten for each item. Similarly, his perceived knowledge of the course content is reflected in his post-training score. The

mean gains and their corresponding t values indicate the significance of each participant's perceived overall knowledge change.

TABLE 37

PERCEIVED GAINS IN KNOWLEDGE BY GROUP E_2 PARTICIPANTS (N = 15)

Participant Number	Pre-Training Mean	Post-Training Mean	Mean Gain	t Value
1	5.93	7.13	1.20	3.85[a]
2	3.87	7.27	3.40	6.94
3	4.20	7.47	3.27	5.83
4	4.07	6.93	2.86	7.86
5	4.60	7.80	3.20	8.21
6	4.67	6.93	2.26	7.33
7	3.40	8.13	4.73	9.64
8	5.27	8.07	1.80	4.60
9	4.53	8.67	4.14	9.63
10	3.93	8.40	4.47	11.74
11	2.87	7.47	4.60	12.34[b]
12	4.60	9.33	4.73	9.26
13	3.87	7.40	3.63	10.23
14	2.73	5.53	2.80	8.19
15	7.27	8.53	1.26	3.85

[a]Lowest significant gain: $p < .01$
[b]Highest significant gain: $p < .001$

Note: All gains were significant at less than the .01 level.

Participants 1, 8, and 6 were ranked as the three highest perceivers of knowledge of the course before they had been

trained. The post-training high perceivers, however, were participants 12, 9, and 10, respectively. Participants 7, 12, and 11 perceived that they had gained the most, as is indicated by their mean gain scores. All participants perceived significant knowledge gains that ranged from $p < .01$; ($t = 3.85$) to $p < .001$; ($t = 12.34$).

TABLE 38

PERCEIVED GAINS IN KNOWLEDGE BY GROUP
E_3 PARTICIPANTS (N = 15)

Participant Number	Pre-Training Mean	Post-Training Mean	Mean Gain	t Value
1	4.20	8.40	4.20	12.65
2	5.53	8.00	2.47	16.47
3	3.87	8.47	4.60	13.94
4	5.33	7.53	2.20	2.30[a]
5	3.27	6.73	3.46	11.09
6	3.41	8.33	4.92	55.28[b]
7	4.87	8.40	3.53	34.95
8	4.40	8.20	3.80	33.33
9	5.07	8.87	3.80	7.97
10	4.13	7.73	3.60	28.57
11	3.40	7.20	3.80	36.53
12	4.27	7.80	3.53	18.01
13	5.73	7.53	1.80	10.47
14	4.67	7.53	2.86	20.88
15	2.93	7.00	4.07	9.51

[a] $p < .05$
[b] $p < .0001$

Note: All gains were significant at less than the .05 level.

Similar computations were made for the perceived knowledge changes of the participants of group E_3. These are shown in Table 38.

Table 38 shows that the pre-training perceptions of the course items were highest for participants 13, 4, and 2. The post-training high perceivers were participants 9, 3, 1, and 7. Participants 6, 3, and 1 recorded the greatest mean gains. As was the case with group E_2, all of the participants in group E_3 registered significant gains in their perceptions of their knowledge of the course items. The range of significance was greater, however, for group E_3 than it was for group E_2. The t values for group E_3 ranged from 2.30; ($p < .05$) to 55.28; ($p < .0001$).

Course Content Item Gains Perceived by Experimental Groups

The mean gain recorded for each item was more significant to this study than the gain scores recorded for each participant. Participants' scores served to measure individual progress, whereas the item gain scores were useful in evaluating the course content. Each of the fifteen items on the survey form constituted a block of instruction. The differences measured between the perceived pre-training knowledge and the perceived post-training knowledge of those items was interpreted to reflect the effectiveness of the instruction in each of the fifteen items. The analyses of the perceived

gains, by items, are shown in Tables 39 and 40 for groups E_2 and E_3, respectively.

TABLE 39

PERCEIVED COURSE CONTENT GAINS BY ITEMS (N = 15) OF PARTICIPANTS IN GROUP E_2

Item Number	Pre-Training Mean	Post-Training Mean	Mean Gain	t Value
1	3.47	7.60	4.13	6.91
2	4.53	7.87	3.34	8.15
3	3.67	7.60	3.93	8.72
4	4.65	7.27	2.52	3.23
5	4.27	8.47	4.20	7.83
6	4.67	7.73	3.06	7.00
7	4.87	8.00	3.13	5.87
8	4.27	8.33	4.06	6.34
9	4.13	8.40	4.27	7.15
10	4.80	6.93	2.13	2.85[a]
11	4.93	7.67	2.74	5.50
12	5.07	8.33	3.26	5.49
13	4.47	7.73	2.26	6.07
14	3.80	8.47	4.67	8.75
15	3.53	7.80	4.27	10.06[b]

[a] $p < .05$
[b] $p < .001$

Note: All gains were significant at less than the .05 level.

Table 39 reveals that the participants in group E_2 felt that they had the least pre-training knowledge of item one (Environmental Controls and Ecology), item fifteen

(Determining Training Needs and Meeting Those Needs), and item three (Perception, Motivation, and Creativity). They perceived their best understanding prior to the training to be of item twelve (Performance Appraisal), item eleven (Employee Selection), and item seven (Decision Making).

The post-training means indicate that the participants felt they had the greatest understanding, as a result of the training, of item five (Supervisory-Subordinate Communication), item fourteen (Supervisory Training Techniques), and item nine (Counseling). Since none of these items were cited as high-knowledge areas on the pre-training evaluation, the interpretation is that they were perceived as very strong areas of training. This may be explained in part by the premise of effective superior-subordinate communication that underlies human relations training. Counseling and training techniques are applications of the communication process.

The least understanding on the post-training evaluation was recorded for item one (Environmental Controls and Ecology), item four (Environmental Goals and Objectives), and item three (Perception, Motivation, and Creativity). Since both item one and item three were in the "least understanding" category on the pre-training evaluation their continued low positions on the subsequent evaluation is interpreted to mean that the training in those items was relatively ineffective. Item four (Environmental Goals and Objectives), which dropped

from tenth place to second place between the pre-training and the post-training evaluations, reveals another area of weakness in the training. The interpretation may be that the participants overestimated their prior knowledge of that item. Since, however, both evaluations were made at the same time (after the training) the interpretation is that the participants were registering dissatisfaction with the training in that item.

Overall, the highest gain was reported in knowledge of item fourteen (Supervisory Training Techniques) and the lowest gain was reflected for item ten (Job Design and Enrichment). Despite the poor showing for items 1, 3, and 4, significantly positive changes were recorded by group E_2 for all of the fifteen course content items. The t values of the change scores ranged from 2.85; ($p < .05$) to 10.06; ($p < .001$).

A similar analysis of perceived gains in the course content was made from the responses by the group E_3 participants. The items of the course content found to be understood the most and the least are identified in Table 40.

Table 40 indicates that the participants in group E_3 perceived their pre-training knowledge of the course content to be lowest in item ten (Job Design and Enrichment), item eleven (Employee Selection), and item fourteen (Supervisory Training Techniques). Their pre-training perceptions of knowledge were highest in those areas designated as item two (Public Image Formation and Public Relations), item seven

(Decision Making, and item five (Supervisory-Subordinate Communication).

TABLE 40

PERCEIVED COURSE CONTENT GAINS BY ITEMS (N = 15) OF PARTICIPANTS IN GROUP E_3

Item Number	Pre-Training Mean	Post-Training Mean	Mean Gain	t Value
1	4.27	6.88	2.61	3.42[a]
2	5.20	7.67	2.47	4.01
3	4.27	7.47	2.20	7.90[b]
4	4.13	7.53	3.40	7.82
5	4.73	8.33	3.60	7.09
6	4.20	7.33	3.13	6.08
7	5.00	8.27	3.27	7.42
8	4.20	7.93	3.73	7.15
9	4.67	7.87	3.20	5.94
10	4.00	6.87	2.87	5.48
11	4.07	7.47	3.40	6.14
12	4.53	7.40	2.87	5.71
13	4.20	7.20	3.00	4.97
14	4.07	8.53	4.46	7.39
15	4.33	8.47	4.14	7.03

[a] $p < .01$
[b] $p < .001$

Note: All gains were significant at less than the .01 level.

Following the training, the participants in group E_3 felt that they had their best understandings of item fourteen (Supervisory Training Techniques), item fifteen (Determining

Training Needs and Meeting Those Needs), and item five (Supervisory-Subordinate Communication). Items fifteen and five were also highly cited in the preceding analysis of the responses from group E_2. This indicates that the training in the Supervisory Simulation Laboratory, which was the new title given to the Phase II training during this study, had a high degree of internal consistency.

This investigator pursued the internal consistency of that training by computing a Pearson Product-Moment Correlation between the pre-training means and the post-training means. The expectation was that the wide differences in age, education, and occupational experience among the thirty supervisors who comprised the two groups (E_2 and E_3) would preclude a high relationship between their pre-training knowledge of the course content. The post-training perceptions of the two groups, however, were expected to be related to the degree that the course was similarly taught to both groups. The pre-training correlation between the two groups' perceived knowledge of the fifteen course content items was negative. The $r = -0.3979$; $(p > .05)$ value indicates a lack of relatedness between the two groups' perceptions of their knowledge prior to the training. The post-training correlation between the mean scores of the two groups was highly positive with $r = +0.7094$; $(p < .01)$. These two correlation coefficients indicate a very high degree of internal consistency of the material taught to groups E_2 and E_3.

As Table 40 shows, group E_3 reported high gains in their perceived knowledge that were consistent with the findings for group E_2. Some further consistency is indicated in the least gains reported. Group E_3 indicated that they had the least post-training knowledge of item ten (Job Design and Enrichment), item one (Environmental Controls and Ecology), and item thirteen (Handling Disciplinary Problems). Item one was also one of the lowest rated items reported by group E_2. This consistency is interpreted to mean that Environmental Controls and Ecology was not effectively taught. A possible interpretation is that the material presented in that part of the training was not relevant to the occupations of the participants. This investigator, however, doubts the lack of relevancy of the overall topic to municipal supervisors' daily work environment. A more logical interpretation is that the instructor failed to communicate the material of that training session to the participants.

Group E_3 showed the highest mean gain for item fourteen (Supervisory Training Techniques) and the lowest mean gain for item three (Perception, Motivation, and Creativity). The t values ranged from 3.42; ($p < .01$) to 7.90; ($p < .001$), which is a tighter range of gains than the range reported for group E_2 ($p < .05$ to $p < .001$). As was the case with group E_2, significantly positive gains were perceived by group E_3 on all fifteen items of the course content.

TABLE 41

SUMMARY OF PERCEIVED KNOWLEDGE AND CHANGES IN KNOWLEDGE OF COURSE CONTENT ITEMS BY GROUPS E_2 AND E_3

Measurements	E_2	E_3
	Items	Items
Pre Training Knowledge		
Most	12, 11, 7	2, 7, 5
Least	1, 15, 3	10, 11, 14
Post-Training Knowledge		
Most	5, 14, 9	14, 15, 5
Least	1, 4, 3	10, 1, 13
Overall Gain		
Most	14	14
Least	10	3
Ranges of:		
t Values	2.85 to 10.06	3.42 to 7.90
Change Significance	$p<.05$ to $p<.001$	$p<.01$ to $p<.001$

Table 41 summarizes the significance of the analyses of the participants' perceived knowledge changes. The items in that table refer to the course content items for the Phase II training. They are presented in the table in their rank orders as the participants evaluated them. For ease of reference, only the items referred to in Table 41 are listed in numerical sequence and identified as follows:

1. Environmental Controls and Ecology
2. Public Image Formation and Public Relations
3. Perception, Motivation, and Creativity

4. Environmental Goals and Objectives
5. Supervisory-Subordinate Communication
7. Decision Making
9. Counseling
10. Job Design and Enrichment
11. Employee Selection
12. Performance Appraisal
13. Handling Disciplinary Problems
14. Supervisory Training Techniques
15. Determining Training Needs and Meeting Those Needs

Subjective Evaluations of the Course by Groups E_2 and E_3

The end-of-course evaluations (Appendixes C-7 and C-8) asked for subjective evaluations in two areas. The first of these two non-scoring evaluations by the participants was in section II of the questionnaire in which the participants were asked to indicate the three items that they felt were most valuable and the three items they saw as least valuable. The second subjective area was in section III in which comments regarding changes in the course were elicited.

Perceived Values of Course Content Items

Group E_2 indicated that item five (Superior-Subordinate Communication), item nine (Counseling), and item three (Perception, Motivation, and Creativity) were the most valuable items, while the least valuable were item one (Environmental Controls and Ecology), item four (Environmental Goals and Objectives), and item twelve (Performance Appraisal).

The preceding analysis of the perceived knowledge changes showed that group E_2 felt they had attained greater

knowledge gains in both items five and nine. Item 3 (Perception, Motivation, and Creativity) was, however, among the three items in which these participants felt least knowledgeable after their training. The interpretation of this apparent dilemma is that the participants recognized the importance of the topic but felt at a loss for understanding it. The training did not give them the knowledge they felt they needed in that area. One explanation may be that any one of the three topics (perception, motivation, and creativity) would have been an ambitious undertaking for a complete course. To attempt to combine all three of these topics in one afternoon's training appears to have lessened the effectiveness of the instruction.

The above interpretation is supported by the listing of the most valuable and the least valuable items by group E_3. Although group E_3 did not report the least knowledge of item three (Perception, Motivation, and Creativity), that item was the one for which that group registered the least gain. Like group E_2, group E_3 listed that item among the three most-valuable selections. The other two were item nine (Counseling) and item fifteen (Determining Training Needs and Meeting Those Needs). In selecting items three and nine among the three most valuable, group E_3 was consistent with group E_2.

The least valuable items, according to group E_3, were items one, four, and eight. Item one (Environmental Controls and Ecology) was also among the least valuable items reported.

by group E_2. The post-training knowledge of that item, as previously shown, was also among the least measured. Item four (Environmental Goals and Objectives) was placed in the least valuable category by group E_2, also. The third least valuable item selected by group E_3 was item eight (Leadership Styles).

With regard to the perceptions of the participants, the selection of the most valuable items and the least valuable items showed good consistency between the groups. Each group selected items three and nine among the three most valuable and items one and four among the three least valuable. Consistency was also indicated between the perceived knowledge gains and the relative value assigned to the items by the participants. An exception is the selection of item three (Perception, Motivation, and Creativity) by both groups as being among the most valuable, while that item was reported to have reflected low knowledge gains by both groups.

Comments of Experimental Groups

Seventy percent of the thirty participants who comprised the experimental groups E_2 and E_3 submitted comments. These comments reflected a very high degree of satisfaction with the course. Included in the positive comments were several that emphasized the relevance of the course to their work-related problems and the high degree of participation they had experienced in the course. Several suggestions were made regarding changes in the course.

The suggestions for change mostly related to scheduling. Approximately 30 percent of the combined groups suggested that the training be conducted for full days rather than only in the afternoons. Other scheduling comments expressed the need for more time for several of the subject areas. The exception was Environmental Controls and Ecology. About 17 percent of the participants recommended less time for that subject.

Other subjective comments related to the participants' superiors. These generally took the form of recognizing room for improvement in their own knowledge and behavior but specifying that the improvement should " . . . start at the top and then go down to the foremen."

The Control Groups' Evaluations of the Fundamentals of Supervision Course

A form of the instrument used to gather end-of-course evaluations from the experimental groups was administered to the control groups (see Appendix C-8). This instrument listed ten items that comprised the Fundamentals of Supervision course. The same procedures and instructions used with groups E_2 and E_3 were applied to groups C_2 and C_3.

Control Groups' Perceived Knowledge Gains

Tables 42 and 43 show the results of analyzing the control groups' perceived gains in knowledge on the ten items in the Fundamentals of Supervision course.

TABLE 42

PERCEIVED GAINS IN KNOWLEDGE BY GROUP
C_2 PARTICIPANTS (N = 19)

Participant Number	Pre-Training Mean	Post-Training Mean	Mean Gain	t Value (df = 9)
1	5.00	7.30	2.30	3.98[b]
2	6.20	8.90	2.70	7.93[a]
3	1.90	7.30	5.40	11.76[a]
4	6.50	9.40	2.90	5.30[a]
5	4.70	8.00	3.30	5.53[a]
6	6.70	7.00	0.30	1.00
7	5.80	4.20	-1.60	-2.12
8	5.10	7.30	2.20	6.96[a]
9	5.00	7.30	2.30	2.72
10	4.40	6.20	1.80	5.40[a]
11	3.60	5.30	1.70	5.52[a]
12	4.10	8.40	4.30	5.41[a]
13	3.70	7.00	3.30	4.18[b]
14	6.40	8.90	2.50	4.92[a]
15	2.90	6.30	3.40	9.69[a]
16	3.80	5.70	1.90	3.20[c]
17	5.70	6.70	1.00	2.11
18	4.70	5.70	1.00	2.11
19	4.10	6.20	2.10	4.64[b]

[a] $p < .001$
[b] $p < .01$
[c] $p < .05$

As Table 42 indicates, only five of the group C_2 participants failed to perceive significant knowledge gains as a result of the training. One of these five, participant

number seven, indicated a loss of knowledge. The remaining fourteen participants registered significant gains.

The other control group (C_3) also completed an end-of-course evaluation. Their perceived changes in knowledge are shown in Table 43.

TABLE 43

PERCEIVED GAINS IN KNOWLEDGE BY GROUP
C_3 PARTICIPANTS (N = 14)

Participant Number	Pre-Training Means	Post-Training Means	Mean Gain	t Value (df = 9)
1	3.50	5.50	2.00	4.13
2	3.20	6.20	3.00	10.61[a]
3	3.80	6.80	3.00	8.52
4	4.50	7.10	2.60	8.06
5	4.10	7.00	2.90	4.11
6	4.90	6.80	1.90	3.37[b]
7	3.60	7.40	3.80	5.65
8	5.00	6.90	1.90	4.68
9	3.20	6.40	3.20	5.74
10	4.00	6.30	2.30	4.27
11	4.40	7.20	2.80	4.55
12	3.90	6.80	2.90	5.16
13	4.20	7.30	3.10	4.50
14	3.00	6.90	3.90	6.46

[a] $p < .001$
[b] $p < .01$

Note: All gains were significant at less than the .01 level

All participants in group C_3 registered significant gains in their perceived knowledge of the course content. The range of significance was from $p < .001$ to $p < .01$. Greater significance in perceived knowledge gains was found for group C_3 than for group C_2.

As previously reported for the experimental groups' end-of-course evaluations, the mean gain recorded for each item of the course content was more significant to this study than the participants' knowledge gains. The participants' scores measured individual progress, whereas the item gain scores aided in evaluating the course content. This point is critical to the analysis of the control groups' end-of-course evaluations. In view of the fact that the control groups failed to show significant knowledge gains on the How Supervise? and SIHR instruments, their self-perceived significant gains in knowledge of the course content may indicate a degree of satisfaction with the training that is not supported by their pretest-posttest scores. The interpretation of the difference between the non-significant objectively measured scores and the significant but subjective self-perceptions of the participants is that the latter measured familiarity and satisfaction with the course content rather than increased knowledge, as measured by the How Supervise? and SIHR instruments.

Course Content Item Gains
Perceived by Control Groups

The differences measured between the perceived pre-training knowledge and the perceived post-training knowledge of the ten items that comprised the Fundamentals of Supervision course relate to the instruction in each of those items. Tables 44 and 45 show the results of perceived gains in the course content items for groups C_2 and C_3, respectively.

TABLE 44

PERCEIVED COURSE CONTENT GAINS BY ITEMS (N = 10) OF PARTICIPANTS (N = 19) IN GROUP C_2

Item Number	Pre-Training Mean	Post-Training Mean	Mean Gain	t Value (df = 18)
1	3.84	6.42	2.58	1.33
2	5.21	7.32	2.11	1.20
3	4.37	7.05	2.68	1.48
4	5.16	7.00	1.84	0.97
5	4.42	6.95	2.53	1.50
6	4.89	6.84	1.95	1.01
7	5.16	7.05	1.89	1.04
8	5.11	7.21	2.10	1.23
9	4.63	7.32	2.69	1.50
10	4.89	6.89	2.00	1.09

Table 44 reveals that group C_2 had the least pre-training knowledge of item one (The Functions of Management), item three (Employee Needs Related to Productivity), and item

five (Supervisory Leadership). Their best pre-training knowledge was of item two (The Nature of the Supervisor's Job), item four (Motivation of Employees), and item seven (Communicating with Employees).

Post-training knowledge was reported to be least for item one (The Functions of Management), item six (Planning and Decision Making), and item ten (Skill in Empathy and Leadership). The most post-training knowledge was reported for item two (The Nature of the Supervisor's Job), item nine (Supervisors' Attitudes and Values), and item eight (Evaluating and Counseling Employees).

The highest gain in knowledge by group C_2 was reported for item nine (The Nature of the Supervisor's Job); the lowest gain was for item four (Motivation of Employees). None of the gains, however, were significant.

Group C_3 was similarly evaluated. Their responses are tabulated in Table 45.

Unlike group C_2, group C_3 recorded significant gains in their perceived knowledge of five of the ten course content items. The most significant gain was for item eight (Supervisor's Attitudes and Values); the lowest for item one (The Functions of Management).

Group C_3 perceived the least pre-training knowledge of item six (Planning and Decision Making), item ten (Skill in Empathy and Leadership), and item nine (Supervisors' Attitudes and Values). The most knowledge was perceived to be

of item one (The Functions of Management), item two (The Nature of the Supervisor's Job), and item four (Motivation of Employees).

TABLE 45

PERCEIVED COURSE CONTENT GAINS BY ITEMS (N = 10) OF PARTICIPANTS (N = 14) IN GROUP C_3

Item Number	Pre-Training Mean	Post-Training Mean	Gain	t Value (df = 18)
1	4.28	5.93	0.95	1.15
2	4.14	6.07	1.93	1.40
3	3.93	6.93	3.00	2.22[a]
4	4.14	8.00	3.86	2.40[a]
5	3.86	8.14	4.28	2.60[a]
6	3.57	6.00	2.43	1.76
7	4.00	7.00	3.00	2.40[a]
8	4.07	8.29	4.22	2.72[a]
9	3.79	5.71	1.92	1.34
10	3.71	5.50	1.79	1.35

[a] $p < .05$

The after-training perceptions of group C_3 indicated items ten and nine were still in the "least-knowledge" category, while item one had moved from the pre-training "most-knowledge" category to the post-training "least-knowledge" category.

Item four (Motivation of Employees), which was rated among the pre-training "most" category remained in that category after the training. Other items that were reported to

be most understood after the training, which had not been indicated in either the top three or the bottom three categories of understanding prior to the training, were item eight (Supervisors' Attitudes and Values) and item five (Supervisory Leadership).

The Phase I training appears to have lacked the internal consistency that was evident in the Phase II training. Both experimental groups recorded significant positive gains for all items of the Phase II training; only one of the control groups registered significant positive changes in any of the course content items in the Phase I training. That group showed significant gains in only 50 percent of the items.

Table 46 summarizes the control groups' perceived knowledge and changes in knowledge of the following ten items that comprised the Phase I training:

1. The Functions of Management
2. The Nature of the Supervisor's Job
3. Employee Needs Related to Productivity
4. Motivation of Employees
5. Supervisory Leadership
6. Planning and Decision Making
7. Communicating with Employees
8. Evaluating and Counseling Employees
9. Supervisor's Attitudes and Values
10. Skill in Empathy and Leadership

TABLE 46

SUMMARY OF PERCEIVED KNOWLEDGE AND CHANGES IN KNOWLEDGE OF COURSE CONTENT ITEMS BY GROUPS C_2 AND C_3

Measurements	C_2	C_3
	Items	Items
Pre-Training Knowledge		
Most	2, 4, 7	1, 2, 4
Least	1, 3, 5	6, 10, 9
Post-Training Knowledge		
Most	2, 9, 8	8, 5, 4
Least	1, 6, 10	10, 9, 1
Overall Gain		
Most	9	8
Least	4	1
Ranges of:		
t Values	0.97 to 1.50	1.15 to 2.72
Change Significance	none	$p>.05$ to $p<.05$

Subjective Evaluations of the Course by Groups C_2 and C_3

In addition to scoring their pre-training and post-training knowledge of the course content, the participants were asked to indicate the three most valuable items and the three least valuable items. Also, they were encouraged to comment regarding changes they felt were needed to improve the course.

Perceived Values of
Course Content Items

The combined returns from the two control groups indicated that the most valuable items were:

Item 4: Motivation of Employees
Item 5: Supervisory Leadership
Item 10: Skill in Empathy and Leadership

The least valuable items were:

Item 1: The Functions of Management
Item 6: Planning and Decision Making
Item 9: Supervisor's Attitudes and Values

Table 46 showed that the three items listed above as the least valuable were among the items least understood by the participants after their training. Although item nine was the one that group C_2 gained the most knowledge of, it was rated by group C_3 among the three items in the "least knowledge" category.

Comments of Control Groups

Of the combined control groups (N = 33), twenty three wrote comments regarding the course. These comments generally expressed satisfaction with the course. The references to the subject matter ranged from " . . . well worth the time and effort . . . " to " . . . seemed to apply more to big business than to our jobs." A few comments related to the length of the course and expressed the view that it " . . . didn't last long enough to get details on all subjects."

Findings Related to Marvin's Management Matrix as a Change-Measuring Instrument

The use of Marvin's Management Matrix as a change-measuring instrument was an innovation in this study. The intended use of its developer was to enable an individual to position himself in a performance plane between three action patterns. The original instrument was not intended to be used on a before-and-after basis, nor was it developed for other than an individual's self-assessment. This study used the original form of that instrument, which was designated for this study as the MMS instrument, to measure changes in self-perceptions by the training participants. A modified form was used to measure changes in the perceptions of the trainees by others (their superiors and subordinates). The latter form was designated for this study as the MMO instrument.

The MMS instrument failed to register significant changes for any of the experimental or control groups. The time between the initial and subsequent administrations of the MMS was four weeks for the experimental groups and two weeks for the control groups. These times were determined by the length of the Phase II training and the Phase I training, respectively.

The MMO instrument registered significant changes for all groups in the ratings by their superiors. The subordinates' ratings of the control groups did not change significantly;

the subordinates' ratings of the experimental groups did show highly significant gains on two patterns (1) pattern A (people-orientation) and (2) pattern C (innovativeness). Because the post-training administration of the MMO instrument was delayed two months following the end of each course, the times between the initial and subsequent ratings were (1) approximately ten weeks for the control groups and (2) approximately twelve weeks for the experimental groups.

Table 47 shows the means of the ratings assigned to the participants of all groups on each of the three MMO action patterns by their superiors and subordinates, both before the training and after the training. Comparisons of these ratings show significant correlations.

The comparison of the superiors ratings with the subordinates' ratings (pre-and-post on all three patterns) was done by columns and rows. Analyses of variance resulted in F values of (1) 5.8293 for the columns, which was significant at the .01 level and (2) 3.64 for the rows, which was also significant at the .01 level.

A correlation of the superiors' ratings and the subordinates' ratings on the pre-training survey resulted in a non-significant correlation ($r = 0.1906$; $t = 0.61$). The same analysis of the superiors' and subordinates' post-training ratings showed a significant correlation at the .01 level ($r = 0.7751$; $t = 3.88$).

TABLE 47

MEANS OF PRE-TRAINING AND POST-TRAINING RATINGS OF CONTROL AND EXPERIMENTAL GROUPS BY SUPERIORS AND SUBORDINATES OF TRAINEES ON THREE MMO ACTION PATTERNS

	Pre-Training Ratings			Post-Training Ratings		
	Pattern			Pattern		
	A	B	C	A	B	C
Group C_2						
Superiors	17.63	18.42	17.84	23.00	21.00	19.63
Subordinates	20.78	19.51	18.35	21.30	20.30	17.74
Group C_3						
Superiors	18.86	17.86	17.64	20.71	18.71	19.79
Subordinates	20.71	18.71	19.91	20.49	19.46	19.82
Group E_2						
Superiors	24.60	22.20	19.53	27.27	23.67	21.00
Subordinates	21.40	19.05	18.61	23.88	18.98	20.35
Group E_3						
Superiors	23.53	19.53	20.00	28.47	23.13	24.07
Subordinates	19.98	18.44	18.49	23.67	18.57	19.89

The above findings are interpreted as suggesting that Marvin's Management Matrix (1) does not measure changes in self-perceptions over the relatively short time span of two to four weeks but (2) does effectively measure perceived behavior changes in the trained supervisors by others over a period of two months following the training. Another interpretation is that the training results for all the groups involved in this study indicates an overall internal consistency in the training.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem of this study was to ascertain the effectiveness of human resource development training for local-government that is conducted under the provisions of Title I, Higher Education Act of 1965. This problem was investigated in two courses of training for municipal employees in the Metropolitan Oklahoma City Area during 1971. The following summary of that investigation is the basis for the conclusions and recommendations presented in this chapter.

Summary

The two courses of training studied by this investigator were (1) Fundamentals of Supervision and (2) Supervisory Skill Development. The former was designated as Phase I; the latter as Phase II. Also, the latter was renamed during this study as the Supervisory Simulation Laboratory. For the purpose of evaluating the human resource development content of the overall supervisory training program, the Phase II participants were designated as experimental subjects; the Phase I participants were the control subjects. The experimental phase of this investigation studied two groups of trainees in each of the two phases of the program, which involved sixty-three

participants--thirty in the two experimental groups and thirty-three in the two control groups. The experimental phase of the investigation was preceded by a pilot study of one experimental group and one control group containing eleven and fifteen participants, respectively. The overall sample, therefore, consisted of eighty-nine municipal employees, of which forty-one were enrolled in the experimental Phase II training and forty-eight were trained in the traditional Phase I course.

While the Phase II course was considered to be advanced training, with completion of the Phase I training a prerequisite, the participants of both training courses were found to be homogeneous at the start of their training with regard to their knowledge of human resource development principles. The homogeneity of the groups permitted the use of the evaluation design in which both the experimental and control groups were trained. The training courses for the experimental groups and the control groups differed in (1) duration, (2) methods of instruction, (3) number of instructors involved, and (4) specific course content. In effect, this study compared the old supervisory training course with a new course to measure their relative effectiveness.

The methods of sampling used in this study ensured approximate equiprobability that each member of the population of first-level local-government supervisors in the Metropolitan Oklahoma City Area would be included in the evaluated training. The City of Oklahoma City Training Director

announced to all the departments in each of the several municipalities eligible to participate in the training (1) the schedules, (2) course contents, and (3) related enrollment information. Department heads were repeatedly encouraged to nominate candidates for the two courses of supervisory training. In no instance were there opportunities or need for selection of participants by the training director for either the Phase I training or the Phase II training. On the contrary, it was necessary to accept fifteen potential supervisors to form the two Phase I (control) groups that contained thirty-three participants. Among the variables that appeared to limit the enrollment of trainees were work loads, vacations, and sensitivity to the need for supervisory training by the different department heads. Because all first-level supervisors in the several local governments in the Metropolitan Oklahoma City Area had an equal probability of being selected for the training evaluated by this study, the consequences of this study are generalizable to that population.

Six hypotheses were formulated and tested in this study. These six hypotheses consisted of two pairs of three hypotheses each, which were applied to the two courses of training studied. In each set of three hypotheses, the first one related to the immediate evaluation objective of measuring changes in knowledge of the principles of human resource development that could be attributed to the training. The other two hypotheses in each set pertained to the intermediate

objective of measuring changes in the behavior of the trained supervisors that were perceived by their superiors and the subordinates and that could be attributed to the training.

To test each of the six hypotheses, three instruments were used with both the experimental groups and the control groups on a before-and-after basis. Statistical measures of the pre-training knowledge of the participants and their perceived behavior were compared with similar post-training measures. If the probability of asserting that there was a difference between two mean values of pretest and posttest scores was found to be equal to or less than .05, when no such difference existed, then the difference was said to be significant. The probability of a Type I error, which is the error that occurs when the null hypothesis is rejected when it is true, determines the level of significance of the change in scores and is conventionally set at the .05 level or less. Here the chances are five in 100 or less that the observed difference could result regardless of the applied treatment. The effects of two treatments, the Phase I training and the Phase II training, on two groups of control participants and two groups of experimental participants, respectively, were evaluated in this study.

Conclusions

On the basis of the findings of this investigation, conclusions were drawn regarding the effectiveness of the two courses of instruction that have been identified as the Phase I

training and the Phase II training of the evaluated program. Additionally, conclusions were drawn from ancillary findings regarding the validity of the measuring instrument used in this study and the perceived value of the courses that comprised the program.

The Effectiveness of the Training

The results of testing the hypotheses of this study led to the following conclusions:

1. The Phase II training (Supervisory Simulation Laboratory) caused significant changes in the knowledge of the participants, as measured by the Supervisory Inventory on Human Relations (SIHR) and the How Supervise? instruments. Hypothesis number two has been adequately substantiated.

2. The Phase II training caused significant positive changes in the behavior of the participants over a period of two months after the training, as perceived by the participants' superiors and as measured by a modified form of Marvin's Management Matrix, which this investigator designated as the Management Matrix, Others' Perceptions (MMO). Hypothesis number four has been adquately substantiated.

3. The Phase II training caused significant improvement in the perceptions of the participants by their subordinates over a period of two months following the training, as measured by the MMO instrument. Hypothesis number six has been adequately substantiated.

4. The Phase I training (Fundamentals of Supervision) was ineffective in changing the knowledge of human resource development principles as measured by the SIHR and the How Supervise? instruments. Hypothesis number one was not substantiated.

5. The Phase I training was ineffective in improving the perceptions of the participants by their

subordinates over a period of two months following the training, as measured by the MMO instrument. Hypothesis number five was not substantiated.

6. Regarding hypothesis number three, significant change was measured in the perceptions of the Phase I participants by their superiors over a period of two months following the training, as measured by the MMO instrument. The conclusion drawn from this finding, viewed in relation to the two non-significant findings regarding hypotheses numbers one and five, is that the Phase I training enhanced the status of the participants in the eyes of their superiors. In this regard, the Phase I training was effective and hypothesis number three has been adequately substantiated.

7. The Phase I training, the only supervisory training conducted prior to 1971 in the evaluated program, is generally ineffective. The homogeneity of the experimental and the control groups on the factor of knowledge of human resource development principles at the start of this study leads to the conclusion that a prerequisite of Fundamentals of Supervision for the Phase II training was not valid.

The Validity of the Measuring Instruments

Both the SIHR and the How Supervise? instruments used in this study effectively measured the changes in knowledge of human resource development principles that were taught in both the Phase I training and the Phase II training. The SIHR was the more valid of the two instruments, as indicated by the relatively higher significance levels found with that instrument.

Marvin's Management Matrix, when used on a before-and-after basis, did not measure changes in the self-perceptions

of the participants over periods of two to five weeks from the beginnings of the two courses that were evaluated. Its use, as a pretest-posttest measuring instruments, is not supported by this study.

Marvin's Management Matrix, when used to measure changes in the perceptions of the participants by their superiors and their subordinates, effectively measures such changes over periods of from ten to twelve weeks from the start of training in human resource development. Its validity in measuring perceived changes in supervisory behavior over approximately three months appears to be excellent.

The Perceived Value of the Courses

Phase I

Participants in the Fundamentals of Supervision course felt well satisfied with the course. Their perceived gains were not substantiated by their measured gains on the SIHR and How Supervise? instruments. The training was effective in increasing their confidence, and the subject matter was appropriate to their training needs.

The training director and the course instructor were satisfied that their objectives had been attained. The subject matter was appropriate as an orientation to the field of management. The amount of subject material was, however, excessive for a thirty-hour course. As a result, presentations of complex subjects and non-significant gains in knowledge were fragmented.

Phase II

The knowledge gains perceived by the experimental groups were supported by their measured gains. Consistency in the training of the experimental groups was high, and the participants expressed the view that most of the material was relevant to their jobs. A consistency was also found in their dissatisfaction with the items related to environmental control and ecology. This area of the course content lacked the relevancy indicated for the other items in the course.

The training director and the coordinating instructor felt that this course was an exceptionally valuable one, despite their own evaluations that the environmental controls and ecology subjects had not achieved the desired results. As was the case with the Phase I training, too much variety was attempted for the available training time.

Recommendations

The conclusions reached in this study indicate that the Title I, Higher Education Act of 1965 training for municipal employees provides a valuable contribution to the much-needed upgrading of local-government supervisors. Accordingly, the following recommendations are made:

1. Permanent programs of supervisory training in human resource development should be established for all municipalities and these programs should be conducted by cooperating institutions of higher learning that are located within the cities or in close proximity to them.

APPENDIX A-7

CENTRAL STATE UNIVERSITY
Edmond, Oklahoma 73034

SCHOOL OF BUSINESS

December 2, 1971

Dr. Donald L. Kirkpatrick
4380 Continental Drive
Brookfield, Wisconsin 53005

Dear Dr. Kirkpatrick:

As you may recall, I am using the Supervisory Inventory on Human Relations (SIHR) in an evaluation of supervisory training for local-government supervisors in the Oklahoma City area.

I would like your permission to bind copies of the SIHR test and manual into my dissertation.

If you have no objections to the test and manual being bound into my dissertation, please send 20 copies of each and bill me at the above address.

Sincerely,

John L. Butler
Assistant Professor, Management

APPENDIX A-8

Memo from

Don Kirkpatrick

4380 Continental Drive
Brookfield, Wis. 53005
414-781-4815

John--

Here are the tests & manuals. If you have to pay, forget it. If not, the charge is $10.--

I would like the data you collected. I'm only interested in total scores--pre-test and posttest.

Good luck in finishing the Ph.D.

Cordially,

s/ Don

APPENDIX A-9

CITY of OKLAHOMA CITY | OKLAHOMA CITY, 73102

MUNICIPAL BUILDING 200 NORTH WALKER

To: _____
(Employee Name)

_____
(Division)

Personnel Services Bulletin 71-7, April 1, 1971 informed all department and division heads of the necessity to establish formal evaluation procedures for evaluating the Title I, Higher Education Act of 1965 training program for municipal employees.

One phase of that evaluation is to gather from the people who work under the supervision of those in training an estimate of the areas in which training is most needed.

During this phase of the Supervisory Training Program, selected employees are requested to cooperate in the evaluation of the training. This is done by having the employees give their impressions on selected supervisory patterns before the training is complete and again after the training program.

In order to maintain the strictest possible confidence in this evaluation, you are asked to complete the form attached to this memo, separate it from this memo, and return it in the self-addressed stamped envelope to Jack Butler, Management Professor at Central State University. Do not sign your name or otherwise identify yourself in completing and returning the attached form.

Your comments or other responses to the attached form will be of great help in evaluating and improving the training program for municipal employees. Professor Butler will not identify individuals in the evaluation of the training.

Harold Stephens

Harold G. Stephens
Personnel Director

HGS:aw

APPENDIX A-10

CITY of OKLAHOMA CITY

OKLAHOMA CITY, 73102

MUNICIPAL BUILDING 200 NORTH WALKER

To: _____

(Name)

_____

(Division)

The individual named on the attached form has completed one of our supervisory training programs within the past three months.

Part of the evaluation of the training received by the person named on the attached form is a measure of change in how you see him now, as opposed to how you saw him prior to the completion of that training.

You were asked to complete one of the attached forms for the person referred to,at the time he started the training program. We would appreciate your cooperation in completing another of the same form, now that some time has passed since he finished the training program.

Please circle only one of the four item numbers in each of the fifteen sets of four items on the attached form. When you have completed that form, please return it in the envelope sent to you with the form. No postage will be required.

Your prompt reply will assist in the important job of evaluating the supervisory training that is being conducted for local government employees.

All responses will be maintained in strict confidence by Professor Butler. Only the total statistical changes for the groups of trainees will be reported to this office. No person will be identified in any of the evaluation procedures.

Harold G. Stephens
Personnel Director

HGS:pa

Encl

APPENDIX A-11

PILOT STUDY

Post-Training Conference

Emergency Operating Center

City of Oklahoma City

Conferees

Bob Brown	Assistant Director of Advanced Programs, The University of Oklahoma
Lloyd Hardin[a]	Assistant Personnel Director, City of Oklahoma City
Jim Smith[a]	Training Director, City of Oklahoma City
Dr. Bernard J. Keys	Title I, Higher Education Act of 1965 Coordinator for Oklahoma Christian College
Jack Butler	Central State University, Evaluator
Bud Cole[b]	Traffic Control Division
Wallace Croslin[b]	Streets Division
Walter Houlette[b]	Equipment Maintenance
Flo Self[b]	Airports

[a]Representing the Municipal Employee Training Center Coordinator (Harold Stephens, Personnel Director, City of Oklahoma City).

[b]Representatives of Group E_1, the first group to complete the new Phase II training.

APPENDIX A-12

CENTRAL STATE UNIVERSITY
Edmond, Oklahoma 73034

SCHOOL OF BUSINESS

January 24, 1972

Dr. Philip Marvin
Dean of Professional Development
University of Cincinnati
Cincinnati, Ohio

Dear Dr. Marvin:

Dr. Harold Viaille of the University of Oklahoma has your permission to use your Management Matrix in his research with rehabilitation supervisory training. He has consented to my working with him in gathering more data through the use of the matrix. I am evaluating a municipal supervisory training program for a doctoral dissertation and have agreed to give Dr. Viaille the results of my use of your matrix in my study.

The Management Matrix is one of three standardized instruments I am using. I am using the matrix on a before-and-after basis in three directions: (1) the self-perceptions of the trainee supervisors, (2) the perceptions of the trainees' superiors, and (3) the perceptions of the trainees' subordinates. I hope to establish some relationships that may indicate the impact of the training in the three areas of perceptions.

If you will grant permission to bind copies of the matrix instrument into my dissertation I will be grateful. If you are interested in a copy of the completed dissertation I will gladly send one to you. Your reply will be anxiously awaited.

Sincerely,

John L. Butler
Assistant Professor, Management

APPENDIX A-13

UNIVERSITY OF CINCINNATI
CINCINNATI, OHIO

DEAN
PROFESSIONAL DEVELOPMENT

January 28, 1972

Professor John L. Butler
Assistant Professor of Management
School of Business
Central State University
Edmond, Oklahoma 73034

Dear Professor Butler:

Feel free to bind copies of the Management Matrix in your dissertation. I would be delighted to have the opportunity to review a copy of the completed dissertation. It would be most interesting to learn of the way in which you have used the Matrix. Best wishes.

Cordially,

Philip Marvin

pm/mrv

APPENDIX B

COURSE CONTENTS

APPENDIX B-1

COURSE CONTENT OF FUNDAMENTALS OF SUPERVISION

Varying degrees of emphasis are denoted by the symbols (H): heavy, (M): medium, and (L): light.

INSTRUCTOR: Professor Bill Willcutt, Oklahoma City University

Session I: The Functions of Management (L) (3 hours)
- A. The supervisor's role in these functions
- B. History and development of management concepts

Session II: The Supervisor's Job (M) (3 hours)
- A. Nature and importance
- B. Factor's affecting the supervisor's job
- C. Fundamentals of organization

Session III: The Individual Employee (M) (3 hours)
- A. Needs and wants
- B. Causes of increased productivity
- C. Attitudes and productivity

Session IV: Motivation of Employees (H) (3 hours)
- A. Methods of motivation
- B. Satisfaction of needs
- C. Need for insight and understanding by the supervisor

Session V: Supervisory Leadership (H) (3 hours)
- A. Types of leaders
- B. Styles of leadership
- C. Influences that determine leadership patterns
- D. Successful vs. less-successful supervisors

Session VI: Supervisory Responsibilities: Planning and decision making (L) (3 hours)

Session VII: Supervisory Responsibilities (3 hours)
- A. Education and training of employees (M)
- B. Communication (H)

Session VIII: Communication: Discussion of film case study "The Grapevine" (H) (3 hours)

Session IX: Supervisory Responsibilities (3 hours)
- A. Evaluating and counseling (H)
- B. Discipline (M)

Session X: Attitudes and Methods of the Supervisor (3 hours)
- A. Attitudes and values of the supervisor (M)
  1. Importance
  2. Recognition of one's limitations
  3. Devotion to ethical values
- B. Methods and techniques of supervision (H)
  1. Skill in empathy
  2. Skill in leadership

APPENDIX B-2

COURSE CONTENT OF SUPERVISORY SKILL DEVELOPMENT

This course, of 60 hours duration, emphasizes the human resource development and leadership aspects of supervisory skills.

Course Director - Dr. Bernard Keys, Chairman, Division of Business, O. C. C.
Instructional Objectives - Dr. Stafford North, Dean of College, O. C. C.
Pre- and Post Program Evaluation - Mr. Jack Butler, Central State University

Part I - Setting Environmental Goals and Objectives (15 hours)

Session 1 Perception - Motivation and Creativity

Session 2 Environmental Control

Session 3 Ecology

Session 4 Public Image Formation - Public Relations

Session 5 Establishing Goals and Objectives

Part II - The Leadership Process (15 hours)

Session 1 Communications: Supervisory-Employee

Session 2 The Nature of Authority

Session 3 Delegation

Session 4 Leadership Styles

Session 5 Decision Making

Part III - Human Resource Development - Part I (15 hours)

Session 1 Counseling

Session 2 Job Design and Enrichment

Session 3 Employee Selection

Session 4 Performance Appraisal

Session 5 Disciplinary

Part IV - Human Resource Development - Part II (15 hours)

Session 1 Supervisory Training Techniques

Session 2 Job Instruction Training - 1

Session 3 Job Instruction Training - 2

Session 4 Integrated Leadership Simulation

Session 5 Integrated Leadership Simulation and Course Evaluation

APPENDIX C

INSTRUMENTS USED IN THE EVALUATION

APPENDIX C-1

BACKGROUND DATA

Last name, first	Job Title	Last four digits of Soc. Sec. No.
Division	Department	Your Supervisor

Your Age:____ Highest grade completed in school:____
(use 1 to 12 through high school
use 13 to 16 for years after high school)

Experience as Foreman or Supervisor:____years
(give total years, including experience in other organizations)

Have you ever attended a course in human relations?

____yes ____no _____
(if yes, when? where?)

How many people do you supervise in your present job?_____

Please list, by first and last names, all those you supervise
(continue on the reverse side if more space is needed)

1._____ 11._____

2._____ 12._____

3._____ 13._____

4._____ 14._____

5._____ 15._____

6._____ 16._____

7._____ 17._____

8._____ 18._____

9._____ 19._____

10._____ 20._____

APPENDIX C-2

THE PSYCHOLOGICAL CORPORATION
INCORPORATED IN 1921
304 EAST 45TH STREET
NEW YORK, N.Y. 10017
(212) 679-7070

October 26, 1971

Mr. John L. Butler
Management Department
Central State University
School of Business
Edmond, Oklahoma 73034

Dear Mr. Butler:

Thank you for your letter of October 11 requesting permission to reproduce How Supervise? in your doctoral dissertation.

We can understand your wish to include copies of How Supervise? with your thesis in order to provide full documentation. Let me say at once that if any member of your faculty committee who must read the thesis is not already acquainted with HS?, there is no objection to your providing him with a loose copy of the instrument itself and/or the manual along with his copy of the thesis for reading.

There is general agreement, however, that actual copies of tests should not be bound in, nor permanently filed with, theses and dissertations. Professors who are thesis advisors have concurred in the belief that it is unwise to place test copies in libraries--even within the bindings of a thesis--where the public can have free and unsupervised access to them. Beyond this, many dissertations now are available through University Microfilms which does not restrict their availability to professional persons. Any professional person who reads the dissertation would know how to gain access to the tests used if he wants and needs to do so.

We are sorry that we are unable to give you the permission you request, but we are sure you understand the reasons why it is undesirable to make test content generally available.

Cordially yours,

J. H. Ricks, Jr.

James H. Ricks, Jr.
Associate Director
Test Division

JHR/jib

P.S. An extra copy of this letter is enclosed in case you need to pass it along to your advisor or committee.

Encl.

2. Rather than continue to finance municipal training under Title I, Higher Education Act of 1965 on a year-to-year basis with emphasis on new programs every year, new Federal legislation should provide funds for continuing programs. Funds should be appropriated one year in advance of their programmed expenditure to permit effective planning and scheduling.

3. Formal evaluation should be planned for in each course of instruction. Approximately 10 percent of the programmed funds should be allocated to evaluation studies and related research to develop and maintain a program that will place the training effort where the need is greatest.

4. The present Phase I training investigated by this study should be eliminated. Two concurrent supervisory training courses could not achieve the desired enrollment of twenty participants per group in any of the groups. As previously shown, the prerequisite completion of Phase I for the Phase II training was not justified.

5. The Supervisory Simulation Laboratory, which was the Phase II training evaluated by this investigator, should be expanded to encompass several courses and revised to permit greater in-depth training in each course. This expansion should accomplish the objectives of increasing knowledge and improving supervisory behavior in a uniform manner over time, rather than continuing ineffective efforts that mark the traditional orientation or survey courses.

6. Environmental control and ecology should be made a separate course of instruction, required for all municipal employees regardless of job and grade, conducted with a minimum of classroom work and a maximum of relevant field trips. It should be presented by a person with both practical experience in municipal problems and teaching ability.

7. Human resource development should be recognized as a major function of local governments. This recommendation includes the need for a reorganization of local governments that would designate the personnel function as a line function. The selection of participants for training should

be determined by the personnel director on the basis of the individual's job-related needs for development, rather than on the administrative and personal whims of other functionally-specialized managers.

8. Because of the traditional neglect of training evaluation in general and the sparseness of studies in evaluating the training of municipal employees, further research is recommended to generate an acceptance of formal evaluation as a part of every training program.

9. Research is needed to answer the question: Does supervisory training, regardless of the course content, cause the participant's superior to rate him higher in supervisory behavior than he had rated him prior to the training?

10. Further research into the use of Marvin's Management Matrix as an instrument to measure change in self-perceptions and the perceptions of others is recommended. The "forced-choice" method of evaluating employed in that instrument recommends it as one that reduces the bias of the rater.

11. Institutions of higher learning should become more involved in the needs of local governments and should conduct research into their needs for assistance in developing and evaluating programs of human resource development.

12. The facilities of the cities and the resources of the colleges should be researched for potential areas of cooperation in adult education programs that would provide work-study opportunities for the unemployed and underemployed, while aiding the cities to acquire and maintain more effective work forces.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

Bass, Bernard M. and Vaughan, James A. Training in Industry: The Management of Learning. Belmont, Cal.: Wadsworth Publishing Company, Inc., 1966.

Belasco, James A. and Trice, Harrison M. The Assessment of Change in Training and Therapy. New York: McGraw-Hill, Inc., 1969.

Best, John W. Research in Education. 2d ed. rev. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1970.

Campbell, John P.; Dunnettee, Marvin D.; Lawler, Edward E., III; and Weick, Karl E., Jr. Managerial Behavior, Performance, and Effectiveness. New York: McGraw-Hill Book Company, 1970.

Fleishman, Edwin A.; Harris, Edwin F.; and Burtt, Harold E. Leadership and Supervision in Industry: An Evaluation of a Supervisory Training Program. Columbus, Ohio: Bureau of Educational Research, Ohio State University, 1955.

Flippo, Edwin B. Principles of Personnel Management. 3d ed. New York: McGraw-Hill Book Company, 1971.

Folley, John D., Jr. "The Learning Process." Training and Development Handbook Edited by Robert L. Craig and Lester R. Bittel. New York: McGraw-Hill Book Company, 1967.

House, Robert J., ed. Management Development: Design, Evaluation, and Implementation. Ann Arbor, Mich.: Bureau of Industrial Relations, The University of Michigan, 1967.

Jucius, Michael J. Personnel Management. 6th ed. Homewood, Ill.: Richard D. Irwin, Inc., 1967.

Kirkpatrick, Donald L. "Evaluation of Training." Training and Development Handbook. Edited by Robert L. Craig and Lester R. Bittel. New York: McGraw-Hill Book Company, 1967.

Marrow, Alfred J.; Bowers, David G.; and Seashore, Stanley E. Management by Participation. New York: Harper & Row, Publishers, 1967.

Marvin, Philip. Management Goals: Guidelines and Accountability. Homewood, Ill.: Dow Jones-Irwin, Inc., 1968.

McGehee, William, and Thayer, Paul W. Training in Business and Industry. New York: John Wiley & Sons, Inc., 1961.

Odiorne, George S. Training by Objectives. New York: The Macmillan Company, 1970.

Rizzo, John R. "The Evaluation of Management Development," in Management Development: Design, Evaluation, and Implementation. Edited by Robert J. House. Ann Arbor, Mich.: Bureau of Industrial Relations, The University of Michigan, 1967.

Terry, George R. Principles of Management. 5th ed. Homewood, Ill.: Richard D. Irwin, Inc., 1968.

Tracey, William R. Evaluating Training and Development Systems. N.Y.: American Management Association, 1968.

Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill Book Company, 1962.

Articles

Canter, R. R., Jr. "A Human Relations Training Program." Journal of Applied Psychology, XXXV (February, 1951), 38-45.

Duncan, Daniel M. "Managing the Behavior of Man." Training and Development Journal, XIX (November, 1965), 2-8.

File, Q. W. and Remmers, H. H. "How Supervise?" The Psychological Corporation Test Catalog, New York: The Psychological Corporation (January, 1971), 16-17.

Katzell, R. A. "Testing a Training Program in Human Relations." Personnel Psychology, I (Autumn, 1948), 319-30.

Kirkpatrick, Donald L. "How to Start a Objective Evaluation of Your Training Program." Journal of the American Society of Training Directors, X (May-June, 1956), 54-9.

Lawrie, J. W. and Boringer, Clayton W. "Training Needs Assessment and Training Program Evaluation." Training and Development Journal, XXV (November, 1971), 6-9.

Lindbom, Theodore R. and Osterberg, Wesley. "Evaluating the Results of Supervisory Training." Personnel, XXXI (November, 1954), 224-8.

Manley, Robert S. "Are T-Groups Brainwashing Sessions?" Training in Business and Industry, VIII (November, 1971), 28-36.

Millard, K. A. "Is 'How Supervise?' an Intelligence Test?" Journal of Applied Psychology, XXXVI (August, 1952), 221-4.

Pyle, William C. "Implementation of Human Resource Accountin in Industry." Human Resource Accounting. Edited by R. Lee Brummet, Eric G. Flamholtz, and William C. Pyle. Ann Arbor, Mich.: Foundation for Research on Human Behavior, 1969.

Solomon, Richard. "An Extension of Control Group Design." Psychological Bulletin. XLVI (March, 1949), 137-50.

Theses

Behling, Gerald L. "A Study on the Validation of the Supervisory Inventory on Human Relations." Unpublished Master's thesis, University of Wisconsin, 1959.

Canter, Ralph R. "An Experimental Study of a Human Relations Training Program." Unpublished Ph.D. dissertation, Ohio State University, 1949.

Hariton, Theodore. "Conditions Influencing the Effects of Training Foremen in New Human Relations Principles." Unpublished Ph.D. dissertation, University of Michigan, 1951.

Kirkpatrick, Donald Lee. "Evaluating Human Relations Programs for Industrial Foremen and Supervisors." Unpublished Ph.D. dissertation, University of Wisconsin, 1954.

Sorensen, Paul Gilbert. "An Evaluation of a Human Relations Training Program." Unpublished Ph.D. dissertation, Purdue University, 1957.

APPENDIXES

APPENDIX A

SUPPORTING DOCUMENTS

APPENDIX A-1

PERSONNEL SERVICES BULLETIN 71-7

April 1, 1971

TO: All Department and Division Heads

FROM: Personnel Director

SUBJECT: Title I Training - Information

The attached information has been extracted from the application submitted to the State Agency for Title I by five cooperating institutions of higher learning. Langston University, Oklahoma Christian College, Oklahoma City University, Oklahoma State University Technical Institute and the University of Oklahoma are supporting a community service and continuing education program coordinated and endorsed by this Department.

The primary area of concern is supervisory training for the improvement of skills in management of human and physical resources. The community problem is analyzed, project purposes are stated, program objectives are presented, and the educational activities are listed.

We feel the information provides a valuable backdrop to the expanded supervisory training and development program soon to be offered our Metropolitan Oklahoma City Area employees. You are urged to read the attached information material, and afford it the widest possible dissemination.

Harold Stephens

Harold G. Stephens
Personnel Director

HGS:pa

cc: N. Ross, City Manager
Dr. L. P. Martin, Program Administrator
Each participating municipality and county
Each cooperating institution

Encl.

POST TO ALL BULLETIN BOARDS

TITLE I, HIGHER EDUCATION ACT OF 1965

METROPOLITAN OKLAHOMA CITY AREA

Community Service Program

April, 1971

1. Community Problem --

The social costs of the metropolitan environment are evident: racial conflict, crime and delinquency, traffic congestion, services that never catch up with need, slums and the chronic shortage of decent moderate-priced housing, ugliness, noise, monotony, the loss of natural amenity, and the lack of recreational opportunity. All of these problems contribute to economic waste, inefficiency, and a reduction in the quality of life. This project is designed to develop an increased awareness of urban problems and to provide opportunities for municipal employees to improve those attitudes and skills that will contribute to effective decision making and problem solving.

2. Specific Aspects of the Problem --

The city is the frontier. It must be conquered if man is to live and grow in a friendly environment. However, the people who must help make this conquest by harnessing the human and physical resources of cities are often ill-equipped for their task. Many managers and supervisors were placed in their present positions without the benefits of previous supervisory experience or formal training. It is now apparent that these employees cannot function effectively and contribute to the solution of critical problems by intuition alone.

Departments within city governments are often administered by people who lack an awareness of crucial problems and, because of weak organizational skills,do not have the time or capacity to plan and implement program activities that would reduce the magnitude of problems in their area of responsibility.

Leaders in all divisions and departments of municipal government must be provided those educational opportunities that will improve their ability to analyze problems, plan and implement effective programs, and develop the human resources available to their department.

3. Extent of the Problem --

City planning is becoming the domain of highly trained specialists who have acquired the skills necessary to solve problems in the conference room and on paper. However, a breakdown often occurs when program plans are moved down the ladder for implementation. Plans and projects developed by professional planners have little chance for success if supervisors and middle management personnel lack the skills necessary to transform plans and programs into reality.

All cities in the project area have agreed that training of supervisors is their most difficult educational challenge. They are now seeking assistance from higher education institutions in the metropolitan Oklahoma City area.

4. Community Description --

The Oklahoma City metropolitan area includes approximately 700 square miles, a population of 650,000, and 16 separate units of local government. Most institutions of American society function in this community and interact with every socio-economic level.

5. Purposes --

The primary purpose of this project is to provide educational and training programs, in the form of credit courses, non-credit courses, and seminars, which meet the needs of supervisory and managerial personnel in the cooperating units of local government. Staff members from consortium institutions will provide assistance in the areas of planning, curriculum development, instruction, and evaluation.

This effort should also demonstrate the feasibility of a multi-lateral cooperative effort among institutions of higher education and local government to provide efficient, high quality education and training for employees of local government. Activities of this project should enhance local governments' ability to analyze their training needs and develop programs that will meet their educational objectives. Participating personnel from colleges and universities will be able to move into an urban laboratory where educational needs of government employees and problems of urban communities are readily observable. This laboratory will provide a vehicle for continuing research and development of relevant campus and extension courses, in the areas of pre-service and inservice education, designed to serve the needs of government employees and officials.

6. Program Design:

a. General Objectives --

(1) to develop a continuing "problem solving" relation between local government and institutions of higher education.

(2) to develop an effective training package for local government department supervisors.

(3) to schedule and conduct credit courses and seminars for municipal employees.

(4) to cooperate with local units in the evaluation of training activities.

b. Specific Objectives --

(1) to provide supervisors with basic management tools, fundamentals, and skills.

(2) to make supervisors aware of their responsibility for human resource development and provide them with the skills necessary to plan and provide coaching, counseling, and career development activities for their employees.

(3) to increase motivation among supervisors and help them to become problem seekers and problem solvers.

(4) to provide a seminar in which supervisors will learn basic principles and application of skills of creative problem solving.

(5) to increase the supervisors' awareness of environmental problems and provide the skill necessary to impact on these problems at his influence level.

(6) to increase the supervisors' effectiveness through the improvement of his ability to plan, organize, delegate, direct, coordinate, evaluate, and budget.

(7) to increase the supervisors' human relations skills so that he can become effective in reducing tensions among employees of different racial, ethnic, socio-economic, and cultural groups.

(8) to provide the skills necessary to improve the supervisors' communications with peers, subordinates, and superordinates.

(9) to allow the supervisor to obtain the personnel management skills necessary for the effective selection, orientation, training, and promotion of his employees.

c. Educational Activities (updated since writing of original application) --

(1) Supervisory Training

(a) Phase I - Fundamentals of Supervision
Six classes in 1971-72. Each class - 30 non-credit hours.

(b) Phase II - Supervisory Skill Development
Four classes in 1971-72. Each class - 60 non-credit hours.

1 Part I - Setting Goals and Objectives - 15 non-credit hours

2 Part II - Human Resource Development

a Unit 1 - 15 non-credit hours

b Unit 2 - 15 non-credit hours

c. Educational Activities -- (Cont'd)

3 Part III - The Leadership Process - 15 non-credit hours

(c) Phase III - Principles of Organization and Management - 3 semester hours credit

(d) Phase IV - Personnel Management - 3 semester hours credit. Neither "c" nor "d" above will be offered under Title I in 1971-72.

(2) Associate Degree Courses

(a) Principles of Economics - 3 semester hours credit One class in 1971-72.

(b) Business Communications - 3 semester hours credit One class in 1971-72.

(c) Two courses to be selected in Fire Protection Technology. Each course - 3 semester hours credit. Classes in 1971-72.

(3) Advanced Program Courses in Public Administration - Individually selected graduate courses - 2 or 3 trimester hours credit. Classes in 1971-72.

City and county governments in the Oklahoma City metropolitan area have assumed much of the financial support for courses offered by the Municipal Employees Training Center during 1969 and 1970. The basic support for courses leading to the Associate Degree in Civil Technology, Business Administration, and Secretarial Administration has been transferred from Title I, HEA, to the cities in the form of tuition assistance programs and direct budget support. To insure an effective financial transition and the continuation of this program, (associate degree programs were developed and supported by Title I funds during 1969-70) Title I funds should make a small financial contribution at the support level of three courses per semester for the 1971 spring and fall terms.

Training and educational courses will be provided by each cooperating institution. The courses will be either credit or non-credit and will often be drawn from regularly offered curricula of the institutions. The content of all courses and seminars will be college level or higher.

The project coordinator will work with the cooperating municipalities and the instructors for each course in order to achieve a meeting time and duration for the classes which will be most desirable to all participants. In scheduling the participation of employees in the educational courses, attention will be given to arriving at the arrangement which will best conserve the time of the employees. Comprehensive course programming will enable municipal employees to develop and attain long range job orientation goals.

APPENDIX A-2

Personnel Services Bulletin 71-19

August 20, 1971

TO: All Department and Division Heads

FROM: Personnel Director

SUBJECT: TRAINING -
Fall Semester

Ref: Personnel Services Bulletin 71-7, dated April 1, 1971

This bulletin provides procedures and guidelines for Fall semester Title I training, which is available to municipal employees in the Oklahoma City Metropolitan Area and to metropolitan county employees (Oklahoma, Canadian, and Cleveland).

In the past, many Title I training courses were applicable to one or more associate degree programs. However, a redirection of emphasis focuses primary support on training programs designed to meet the needs of supervisory and managerial personnel in the cooperating units of local government. A few formal courses will be available to give participating governments an opportunity to effect alternative forms of educational assistance, e.g., tuition reimbursement programs, etc. Oklahoma City municipal employees are urged to utilize tuition assistance for job-related courses and degree programs not supported by Title I or other training sources.

The following supervisory training courses will be offered during the Fall semester:

Fundamentals of Supervision This is a 30-hour basic course concerned with the human relations and leadership aspects of the job. The objectives of the course are to bring about a better understanding of the supervisor's duties and organizational responsibilities so he will be better prepared to direct the work in the most intelligent manner applicable to modern methods. The course is designed for the first-line supervisor or soon-to-be supervisor who has not previously taken a basic supervisory course.

Course Dates: First Fall Course - September 20 - October 1, 1971.
Second Fall Course - October 25 - November 5, 1971.
Third Fall Course - November 29 - December 10, 1971.

Class Hours: 2:00 to 5:00 p.m., Monday through Friday.

Location: Room 12 in the Emergency Operating Center (EOC), Safety and Civil Defense Department, 4600 Eastern, Oklahoma City.

Instructor: Mr. William N. Willcutt of Oklahoma City University

Credit: A non-credit course.

Enrollment: Requests for enrollment may be submitted in writing or by telephone on a first-come basis Confirmation of enrollment will be made on receipt of the request. In case of over-enrollment, names will be placed on a stand-by list or entered for enrollment in a subsequent course.

Supervisory Skill Development This is a 60-hour course designed to improve supervisory skills. Major parts of the course include: Setting Goals and Objectives, The Leadership Process, and Human Resource Development.

Course Dates: First Fall Course - September 13 - October 7, 1971.
Second Fall Course - October 25 - November 18, 1971.

Class Hours: 1:00 - 4:45 p.m., Monday through Thursday.

Location: Room 28 in the Emergency Operating Center (EOC), Safety and Civil Defense Department, 4600 Eastern, Oklahoma City

Instructor: Dr. J. Bernard Keys and other faculty members of Oklahoma Christian College.

Credit: A non-credit course.

Enrollment: Employees eligible for the course are supervisors who have previously attended one of the following: Fundamentals of Supervision, Supervisory Methods In Municipal Administration, or Management Course For First-Line Supervisors. Department and Division Heads will coordinate enrollment for this course with the Training Division.

The following college courses will be offered during the Fall semester:

Principles of Economics (2523). This is a second-semester continuation of basic principles of the economics system including the factors of supply, demand, price, value, exchange, and distribution. A survey of industrial, business, and labor

organizations. Enrollment in this course is open to all employees who have completed the first semester course in Economics.

Course Dates: August 31 - December 14, 1971.

Class Hours: 7:25 - 10:00 p.m., Tuesdays

Location: Room 207, School of Business
Oklahoma City University

Instructor: Faculty member, Langston University

Credit: A 3 credit-hour course

Enrollment: Request for enrollment may be submitted in writing or by telephone on a first-come basis. Confirmation of enrollment will be made on receipt of the request. In case of over-enrollment, names will be placed on a stand-by list.

Fire Protection Application (2153-6825) This is a 3-hour course required in the curriculum for the two-year associate degree program in Fire Protection Technology.

Course Dates: September 1 - December 15, 1971

Class Hours: 1:30 - 3:30 p.m., Wednesdays

Location: Room 109, Oklahoma State University Technical Institute, 900 North Portland, Oklahoma City

Instructor: Mr. Steiner, Oklahoma State University

Credit: A 3 credit-hour course

Enrollment: There has been pre-enrollment for this course at the University; however, final enrollment is permitted during the first class meeting.

Municipal Fire Protection (1322-6811) This is a 2-hour course required in the curriculum for the two-year associate degree program in Fire Protection Technology.

Course Dates: September 1 - December 15, 1971

Class Hours: 3:45 - 5:30 p.m., Wednesdays

Location: Room 109, Oklahoma State University Technical Institute, 900 North Portland, Oklahoma City

Instructor: Staff

Credit: A 2 credit-hour course.

Enrollment: There has been pre-enrollment for this course at the University: however, final enrollment is permitted during the first class meeting.

APPENDIX A-3

CENTRAL STATE UNIVERSITY
Edmond, Oklahoma 73034

SCHOOL OF BUSINESS

July 9, 1971

The Psychological Corporation
304 East 45th Street
New York, N. Y. 10017

Gentlemen:

The City of Oklahoma City Personnel Director has a large supply of Forms A, B, and M of the test How Supervise? by File and Remmers.

My interest is in evaluating a training program for first-level supervisors to be conducted by the Metropolitan Oklahoma City Area local governments in coordination with local colleges and universities starting in September. I plan to write a doctoral dissertation in the training evaluation field. The City of Oklahoma City has welcomed my evaluation of their training and has suggested using the aforementioned test (forms A and B) as part of the evaluation.

The test How Supervise? appears to be applicable to the groups I will be surveying to measure change in supervisory knowledge that can be attributable to the training.

Please advise me as to the currency of the test forms and manual. Has there been any revision since 1948?

Furthermore, are there any restrictions to my use of the How Supervise? materials for the purpose stated? I will receive no remuneration for the evaluation, and will use the material and data only for incorporation into my dissertation, which will not be published or further copyrighted.

Sincerely,

John L. Butler

APPENDIX A-4

THE PSYCHOLOGICAL CORPORATION
INCORPORATED IN 1921
304 EAST 45TH STREET
NEW YORK, N. Y. 10017
(212) 679-7070

July 22, 1971

Mr. John L. Butler
Central State University
Division of Business
Edmond, Oklahoma 73034

Dear Mr. Butler:

Thank you for your letter of July 9. The several forms of How Supervise? that you have are still current, although a new Manual with new data for various groups will be forthcoming in a few months. No changes have been made in the test itself.

There are no restrictions on your use of the test for the purpose you have indicated, although as stated in the Permissions section of the Copyright notice on page ii of the Catalog copies of the test are not to be bound into a thesis without special permission.

If you have further questions we hope that you will write to us again. When your dissertation is completed, we should be very much interested in seeing a copy of the abstract.

Cordially yours,

Esther R. Hollis

Esther R. Hollis
Manager
Advisory Service
Test Division

ERH:ms

APPENDIX A-5

CENTRAL STATE UNIVERSITY
Edmond, Oklahoma 73034

SCHOOL OF BUSINESS

October 11, 1971

The Psychological Corporation
304 East 45th Street
New York, N. Y. 10017

ATTN.: Miss E. R. Hollis

Dear Miss Hollis:

In your letter of July 22, 1971, you referred to a catalog for the How Supervise? tests, in which there is a "Permissions" section that contains provisions for special permission to bind the How Supervise? instruments into a thesis.

I have not seen the catalog referred to. I would like to have a copy, and would like permission to bind the How Supervise? tests (Forms A and B, the scoring Keys, and the Manual) into my dissertation. I will be using that instrument, along with others, in my research of training evaluation.

Another item that you mentioned in the July 22 letter was the expected publication of a new How Supervise? Manual. If, or when this new manual is available I would like to have a copy. In the event it is currently available, and if I have permission to bind it into my dissertation, please send twenty copies and bill me at the above address.

Sincerely,

John L. Butler
Management Department

APPENDIX A-6

CENTRAL STATE UNIVERSITY
Edmond, Oklahoma 73034

SCHOOL OF BUSINESS

April 8, 1971

Dr. Donald L. Kirkpatrick
4380 Continental Drive
Brookfield, Wisconsin 53005

Dear Dr. Kirkpatrick:

Earlier this year you conducted a workshop in Oklahoma City, during which you distributed and explained the Supervisory Inventory on Human Relations (SIHR).

I plan to evaluate a municipal supervisory training program that has been designed to improve the supervisors' "human resource development" skills. Please advise me as to your permission to use the SIHR instrument in my research.

Sincerely,

John L. Butler
Assistant Professor, Management

OK, John
Please send me
the results
Best regards,
Don K

APPENDIX C-3

Supervisory Inventory on Human Relations

by Donald L. Kirkpatrick, Ph. D., and Earl Pianty, Ph. D.

Raw Score	%-tile

Name _____ Date _____
(Please print: Last First Middle)

Your Title _____

Company _____

Time as a Foreman or Supervisor: _____ yrs. _____ mos.

Circle the last year of school completed:

Grade 1 2 3 4 5 6 7 8 — High School 1 2 3 4 — College 1 2 3 4 5

Additional education (night school, vocational school, correspondence, etc.):

Have you ever attended classes on Human Relations? Yes_____ No_____

If "yes," where? _____ When? _____

Instructions:

On the following pages are 80 items concerned with the job of supervisor. Some of them deal with principles, while others are concerned with everyday supervisory practices.

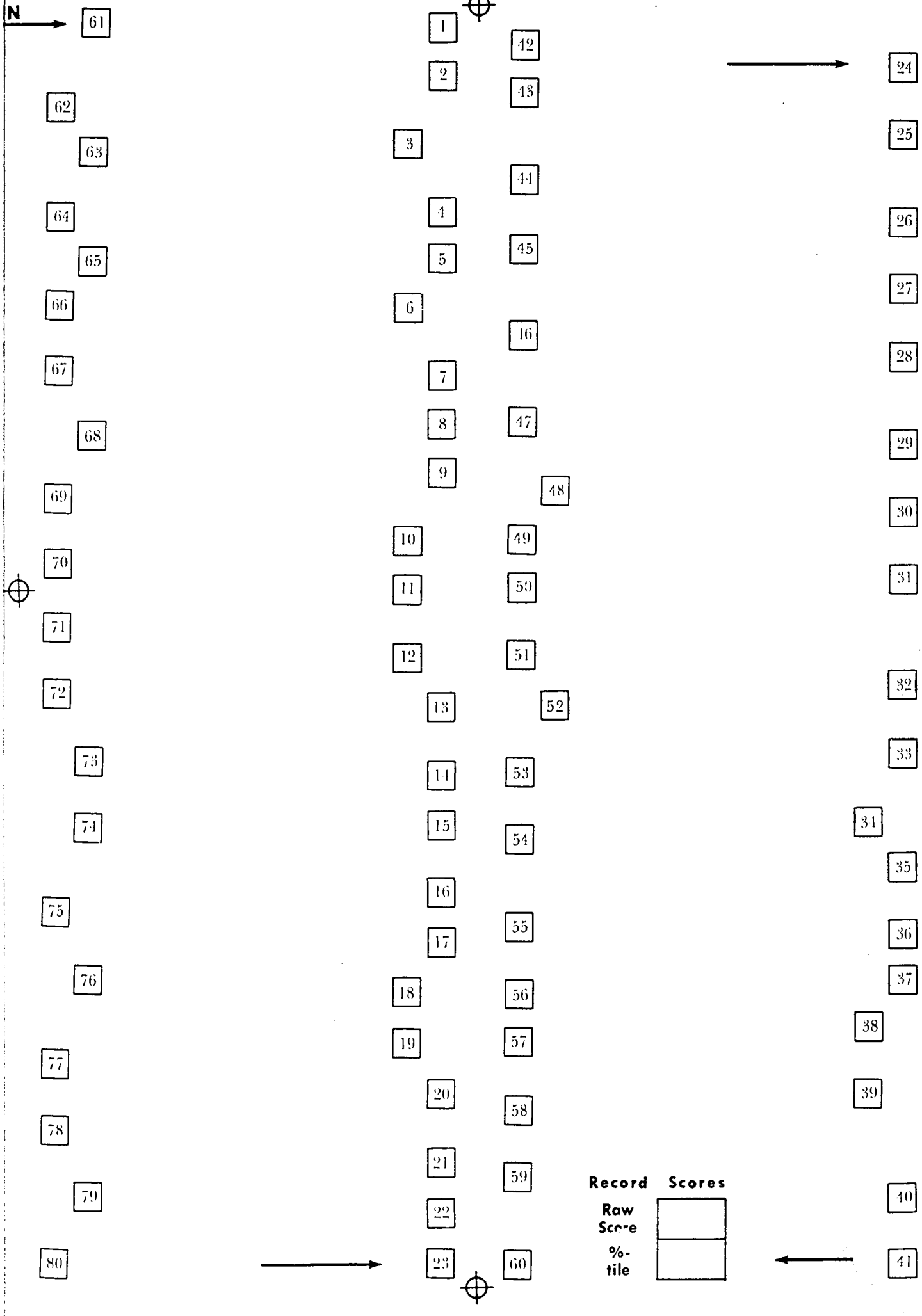
You are to read each statement and indicate whether you "agree" or "disagree" as follows:

If you "agree," mark an X in the "A" box	X DA
If you "disagree," mark an X in the "DA" box	A X

You may not be as sure about some statements as you are about others. However, if you "agree" more than you "disagree," mark the "A" box. Or, if you "disagree" more than you "agree," mark the "DA" box. BE SURE TO MARK AN ANSWER FOR EACH STATEMENT.

Dr. Donald L. Kirkpatrick
4380 Continental Drive
Brookfield, Wisconsin 53005

1. Anyone is able to do almost any job if he tries hard enough. A DA
2. People are basically the same and should be treated pretty much alike. A DA
3. We are born with certain aptitudes, capacities, and potentials and these tend to limit the things we can do. A DA
4. The only kind of recognition that means anything to an employe is more money. A DA
5. Intelligence consists of what we've learned since we were born. A DA
6. Most employes are interested in doing work of which they can be proud. A DA
7. If a supervisor knows all about the work to be done, he is therefore qualified to teach others how to do it. A DA
8. Everyone is either an introvert or an extrovert. A DA
9. Heredity refers to everything that has happened to us since we were born. A DA
10. Frustration means that something is blocking the wishes or desires of an individual. A DA
11. Teaching is complete only when the learner has learned. A DA
12. Lack of interest accounts for more loafing on the part of employes than does laziness. A DA
13. Introverts and extroverts should be put on a job where they work together. A DA
14. If we know an employe well, we can always tell what he'll do in a given situation. A DA
15. Attitudes are usually based on a careful study of the facts. A DA
16. An employe's ability to do a given piece of work is always a sure sign that he is satisfied and properly placed. A DA
17. An introvert likes to work with others and is usually the "life of the party." A DA
18. Employes are faced with frustrating situations almost every day. A DA
19. The older we are, the more fixed are our attitudes. A DA
20. The best way to overcome frustrations is to fight vigorously. A DA
21. The motivating factor among most employes is to be paid at the end of the week and to be told what to do. A DA
22. A supervisor should not be too concerned about his employes' feelings. A DA
23. An employe's attitude has little effect on his production. A DA
24. The person with the highest intelligence, best personality and most experience should always be selected for a job. A DA
25. An employe will probably get along faster and better if he has two supervisors than if he has only one. A DA
26. If an employe is dissatisfied with a job at a low level, he probably will also be dissatisfied with any job at a higher level. A DA
27. A supervisor cannot be expected to train his employes. He is too busy running his department. A DA
28. A supervisor should be able to solve his own problems without getting all the detailed facts. A DA
29. Grievances and morale problems should be handled by a special department set up for the purpose, rather than by departmental supervisors. A DA
30. People will work faster and longer if they always have a little more work ahead of them than they can possibly do. A DA
31. The best way to get the most work from an employe is to make him feel he might lose his job. A DA
32. When correcting the work an employe has been doing wrong, the supervisor should have the other employes observe so that they won't make the same mistake. A DA
33. A well-trained working force is a result of maintaining a large training department. A DA
34. A group of people can usually find a better solution to a problem than one individual can. A DA
35. A good supervisor must be able to perform all the jobs in his department. A DA
36. An employer has a right to expect that his employes will leave their problems at home. A DA
37. A supervisor should never admit a mistake to his employes. A DA
38. A knowledge of the personalities involved helps in solving a problem. A DA
39. Final responsibility for the work of his unit cannot be delegated to anyone else by a supervisor. A DA
40. A supervisor who notices that one of his men gets nervous and confused whenever he is watched should spend considerable time near him until the nervousness disappears. A DA
41. When reprimanding an employe, it is best to humiliate him in order to make the reprimand stick. A DA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42. The more details a supervisor handles by himself, the better executive he is likely to be. A DA

43. High wages and job security are the only things that are important to employes. A DA

44. The best thing a supervisor can do if he has a troublemaker in his department is to recommend a dismissal for the employe. A DA

45. In training an employe, the first thing the supervisor should do is show in detail how the job is performed. A DA

46. It's a bad policy for a supervisor to tell an employe, "I don't know the answer to your question, but I'll find out and let you know." A DA

47. A supervisor should accept and carry out any order he receives from an important representative of another department. A DA

48. In making a decision, a good supervisor is concerned with his employes' feelings about the decision. A DA

49. A supervisor would lose respect if he asked his employes for suggestions. A DA

50. A good instruction rule is to emphasize how not to do the job. A DA

51. Most supervisors fail because they don't have the technical "know-how" for the job. A DA

52. It is important to understand ourselves before we can understand others. A DA

53. In order to correct a worker who has made a mistake, a good supervisor will begin by pointing out the mistake. A DA

54. The personnel or training department should be responsible to see that training is done in all departments. A DA

55. A supervisor should be an introvert; otherwise he would spend all day talking with others in the plant and would accomplish very little. A DA

56. Most employes have a bad attitude toward the company because they feel they don't get paid enough. A DA

57. Consideration and friendliness are useless in handling tough workers. A DA

58. An employe of average intelligence should be able to do a job after he is told and shown how it should be done. A DA

59. A supervisor will get the most work from his employes if he watches them closely. A DA

60. If we have an efficient, intelligent, ambitious and likeable employe in our department, we should do everything we can to keep him there. A DA

61. The supervisor is closer to his employes than he is to management. A DA

62. A supervisor would be wasting his time talking with his employes about their families, interests, and outside-the-plant problems. A DA

63. A knowledge of learning curves and plateaus is important to a supervisor. A DA

64. If we have problems bothering us, we should keep them to ourselves and solve them the best way we can. A DA

65. A supervisor should represent his employes to top management. A DA

66. Employes who have bad attitudes should be encouraged to quit. A DA

67. As long as he gets the work done, a supervisor does not have to set a good example by his personal conduct. A DA

68. It is a good idea to tell an employe he has done a good job in front of other employes. A DA

69. The best way to train a new employe is to have him watch a good employe at the job. A DA

70. Follow-up to see how an employe is doing isn't necessary if he got started in the right way. A DA

71. Even if he thinks it is wrong, a supervisor should do whatever his boss tells him to do without questioning it. A DA

72. Criticizing an employe for his mistakes will bring better results than praising him for his good work. A DA

73. Before deciding on the solution to a problem, a list of possible solutions should be made and compared. A DA

74. A supervisor should be willing to listen to almost anything the employes want to tell him. A DA

75. The supervisor can do very little to make his employes happy because company policy controls such things as wages, vacations and bonuses. A DA

76. The training needs of a department should be determined by the supervisor in charge. A DA

77. A supervisor in a large department should never delegate any of his authority to a subordinate; he should delegate only responsibility. A DA

78. A supervisor doesn't have to be a leader if he has all the technical "know-how" for the job. A DA

79. It pays for the supervisor to spend a lot of time with a new employe to be sure he is well trained on his first job. A DA

80. Courses in human relations are of very little value. We should be learning more about the technical aspects of our job. A DA

MANUAL

Supervisory Inventory on Human Relations

by Donald L. Kirkpatrick

(SIHR)

TABLE OF CONTENTS

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PRICES

Review Set (Test and Manual)	.50
Manual	.25
Tests (per package of 20)	5.00

(all test orders plus postage)

ORDERS SHOULD BE SENT:

Dr. D. L. Kirpatrick
4380 Continental Dr.
Brookfield, Wisconsin 53005

OTHER TESTS

The following tests are also available: "Supervisory Inventory on Communication" and "Supervisory Inventory on Safety." The prices are the same as for the "Supervisory Inventory on Human Relations."

I. USES

A. To Determine the Need for Human Relations Training

A basic assumption that underlies all human relations training is that supervisors need to know certain principles, facts, and techniques before they can practice them. By testing supervisors on the *SIHR* prior to a program (pretest), a company can learn to what degree they understand and accept these principles, facts, and techniques. The responses can be used to determine which subject areas should be stressed in the program.

The number of people who incorrectly answer each statement can easily be tabulated. Emphasis should then be placed on the areas in which items are "missed" most frequently. (See Exhibit D.) In preparing to cover these items, the instructor can do a more thorough job of planning. He may want to gather research data, use effective aids, call on outside experts, and use other techniques for presenting these subjects most convincingly to those being trained. The instructor need not cover items which are correctly answered by all or nearly all of the supervisors.

B. As a Tool for Conference Discussions

Many companies use *SIHR* items for direct discussion in their training meetings. After the conferees complete the Inventory, selected items are discussed to bring out the reasoning behind the correct response. These discussions also allow conferees to defend responses that are different from those on the Scoring Key (See Exhibit E for the reasons for Scoring Key responses.)

C. To Evaluate the Effectiveness of a Human Relations Course

Where the *SIHR* covers principles, facts, and techniques that are included in a company's training course, the *Inventory* can be used as an instrument to evaluate the effectiveness of the instruction. This evaluation will indicate the extent to which the principles and facts have been learned. It will not measure changes that take place on the job. However, a change in knowledge may be necessary before behavioral change can take place.

Two approaches to this evaluation may be used:

1. A comparison of *total scores* on the pretest with those on the posttest.

   For example, the average score of all individuals on the pretest was 62; the average score on the posttest was 70.5. How significant is this improvement?

   (See Exhibit A for computation and interpretation.)

2. An analysis of the *changes in response to each item* from pretest to posttest.

   For example, on Item 1, 22 persons changed their answers from "A" on the pretest to "DA" on the posttest, and 6 persons changed their answers from "DA" on the pretest to "A" on the posttest. Is this a significant change?

   (See Exhibit B for computation and interpretation.)

Two considerations are important when using the *SIHR* to evaluate a program.

1. Pretest responses should be used in planning the course content. Emphasis should be placed on the areas in which items were "missed" most frequently.

2. The value of the *SIHR* as an evaluation tool depends to what extent the course covers the areas included in the *Inventory*.

D. To Provide Information for On-the-Job Coaching

Research has indicated that the on-the-job application of human relations principles, facts, and techniques depends to a large extent on the attitude, performance, and coaching of a man's boss. Therefore, on-the-job coaching is a necessary follow-up to any human relations program if maximum results are to be achieved.

The testing of supervisors following a program (posttest) can provide valuable information for this coaching. If the supervisor knows and understands the principles, facts and techniques, his coach can encourage and expect him to use them. If the supervisor does not know certain principles, facts, or techniques, the job of the coach becomes one of teaching this information before expecting proper behavior.

E. To Assist in the Selection of Supervisors

If the *SIHR* is used in selecting supervisors or foremen, it should be validated. The validation requires a measure of on-the-job performance and a comparison of this performance with test scores. The correlation between scores on the *SIHR* and job performance indicates the value of the Inventory in the selection of supervisory personnel. Because the *SIHR* measures human relations knowledge and understanding, only human relations performance should be used as the criterion for validating the *SIHR*. This performance should be measured as objectively as possible. (See part VII on Validity.)

F. Frequency of Use by Industry and Business

According to a recent survey of 110 organizations who have used the *SIHR,* the frequency of use was as follows:

50% A. To Determine the Need for Human Relations Training
64% B. As a Tool for Conference Discussions
47% C. To Evaluate the Effectiveness of a Human Relations Course
30% D. To Provide Information for On-the-Job Coaching
20% E. To Assist in the Selection of Supervisors

II. DESCRIPTION

The *Supervisory Inventory on Human Relations* was originally developed as a measuring tool for evaluating the institutes on "Human Relations for Foremen and Supervisors" at the Management Institute of the University of Wisconsin. Items were constructed to cover the principles, facts, and techniques included in this 26-hour course.

Items can be classified under the following topics: 1. The Supervisor's Role in Management; 2. Understanding and Motivating Employes; 3. Developing Positive Employe Attitudes; 4. Problem Solving Techniques; and 5. Principles of Learning and Training. (See Exhibit D for the specific items relating to each topic.)

The "correct" responses indicated on the self-scoring page of the *Inventory* booklet were determined by six instructors at the University of Wisconsin who were active in the teaching of the institutes on Human Relations. They agreed unanimously on 87% of the items, and five of the six agreed on the remaining items except for item No. 61 where 3 voted for each response.

III. ADMINISTRATION

The *SIHR* is easy to administer. Instructions are brief, non-technical, and self-explanatory. Each person should be allowed as much time as he wishes. (The average time to complete the *Inventory* is approximately 15 minutes.) If an examinee wishes to change his answer, he should be told to circle his first "X," for example, (X), and to mark another "X" in the other box following the item. Erasures should not be made because of the carbon paper.

It is suggested that those taking the *Inventory* be told its purpose.

IV. SCORING

The *SIHR* is scored by counting the responses automatically recorded as correct on the inside page of the Inventory booklet. This automatic recording takes place as the individual marks his answers to the items. The Inventory booklet is opened by tearing the right perforated edges. Squares marked "X" are correct. "X's" outside the squares or squares marked (X) are incorrect. The number of correct "X's" should be recorded in the box marked "Raw Score" at the bottom of the page and in the appropriate box on the front page of the Inventory booklet. The "Raw Score" is 80 minus the number incorrect.

V. NORMS AND OTHER RESEARCH DATA

A. Total Scores

The following scores have been gathered from more than 100 companies representing all types of organizations in the United States and Canada.

NORMS

Group	Number Tested	Average Scores
Foremen and Plant Supervisors	2703	61.1
Office Supervisors and Technical	803	65.9
Middle and Top Management	816	66.2

B. Item Responses

An analysis of responses was made in several organizations to determine which items were missed most frequently. Here are the results showing the 10 items most frequently answered incorrectly:

Midwestern Manufacturer

484 Foremen		113 Middle-Level Managers	
Item Number	% Incorrect	Item Number	% Incorrect
58	78%	30	68%
53	71%	53	66%
45	65%	58	59%
5	64%	45	57%
69	60%	61	55%
15	51%	5	46%
14	49%	13	43%
60	42%	61	40%
1	41%	3	38%
30	40%	14	31%

Midwestern Foundry

63 Foremen		37 Middle-Level Managers	
Item Number	% Incorrect	Item Number	% Incorrect
45	71%	53	68%
69	65%	58	68%
15	63%	30	57%
5	62%	50	57%
53	62%	61	54%
58	60%	69	54%
60	60%	7	51%
14	57%	45	51%
7	51%	77	49%
30	49%	5	46%

Midwestern Meatpacking Co.		Michigan Credit Unions	
96 Foremen		236 Office Managers	
Item Number	% Incorrect	Item Number	% Incorrect
58	78%	58	78%
69	75%	53	64%
5	71%	69	61%
53	69%	45	59%
45	66%	54	56%
15	60%	5	55%
60	55%	36	50%
1	54%	60	45%
7	51%	1	44%
30	47%	35	40%

C. Increases in Scores From Pretest to Posttest

The author of the *SIHR* conducted a human relations training program in several organizations. The *SIHR* was administered at the start of the program (pretest.) The tests were scored and returned to each person. Selected items were discussed during the course. The *SIHR* was again administered at the end of the program (posttest.) Pretest and posttest scores are listed below. All of the gains are highly significant.

Type of Organization	Number	Average Pretest Score	Average Posttest Score	Average Gain
Small Printing Co. Foremen	19	60.6	72.0	11.4
Small Mfg. Co. Foremen	38	57.6	66.3	8.7
Large Mfg. Co. Foremen	423	63.4	72.3	8.9
Middle-level Managers	68	65.0	77.0	12.0

VI. RELIABILITY

"Reliability" refers to the consistency of a person's test score. On a perfectly reliable test, for example, all individuals in the group would have the same relative standing each time the test was administered. The split-half method and the Spearman-Brown formula were used to determine the reliability of the *SIHR*. The coefficient was found to be .94.

VII. VALIDITY

The word "validity" refers to the question of whether or not a test measures what it is supposed to measure.

One type of validity concerning a paper-and-pencil test is "revelance." A test has relevant validity if it covers the principles, facts, and techniques that are taught in the course being evaluated. Since the items of the *SIHR* were constructed specifically from a Human Relations program, the *Inventory* has relevance as far as that particular program is concerned. Whether or not it has revelance in evaluating the effectiveness of another program depends on the subject content of that course. (This is also discussed in Section I, Part C of this Manual.)

Another type of validity concerns whether or not the *Inventory* is an accurate measure of job performance. To determine this, the supervisors' scores must be correlated with their on-the-job performance. A relation of +1.00 would be perfect and would mean that the best supervisor scored highest on the test, the next best one had the next highest score, etc.

In a Wisconsin paper mill, total scores on the *SIHR* were compared with performance on-the-job. In order to measure job performance, a "Ranking Committee" was established consisting of the Vice-President of Manufacturing, Manager of Manufacturing, Personnel Director, Employment Manager, and Training Director. They ranked thirty first-line production foremen in order of on-the-job performance. Three factors were considered in the ranking process: administrative skills; ability to handle and get along with subordinates; and knowledge of the work under their supervision. The rank-difference method of correlation (rho) was used to compare total scores on the *SIHR* with job performance. A resulting correlation was +.35 which is significant at the .06 level of confidence.

In an Iowa manufacturing company, total scores on the *SIHR* were compared with job performance as measured by an existing merit rating procedure. The four "Merit Committee Members" included the Assistant General Manager, General Superintendent, Personnel

Manager, and Employment Manager. Ten factors constituted the rating form. They were: quality of work; application to work; attitude and cooperation; ability to handle people; adaptability and ability to accept responsibility; safety and housekeeping; dependability; judgment; responsibility of job; and knowledge of job. Twenty-eight first-line production foremen were rated separately by the committee members and a total score tabulated. This total score was used to determine their rank order on job performance. The rank-order coefficient was used to correlate this job performance with scores on the *SIHR*. A non-significant correlation of —.15 resulted.

The most extensive research was done by Behling.[1] He developed a method of measuring *human relations* performance instead of over-all job performance.

In his research with a Wisconsin utility, Behling used the performance rating procedure described in Exhibit C. Two qualified raters completed the form for 57 first-line foremen. Their ratings were combined and correlated with scores on the *SIHR*. The correlation was significant at the .0005 level of confidence.

VIII. FURTHER RESEARCH

Companies who use the *SIHR* are encouraged to send information on norms, validity, and other research to the author. Companies desiring help and advice on their research programs on the *SIHR* may also contact the author.

IX. APPENDICES

Exhibit A

DETERMINATION OF THE EFFECTIVENESS OF A HUMAN RELATIONS COURSE BY COMPARING TOTAL SCORES ON PRETEST WITH THOSE ON POSTTEST.

A comparison of pretest scores with posttest scores for each foremen reveals the gain for each man. From this information the "t" score is computed. Reference to a "t" table reveals the significance of the change. Below are listed the steps to follow:

Step 1. Determine the mean gain (M_g) by adding all of the gains and dividing by N, the number of individuals being evaluated.

Step 2. Compute the standard deviation (S. D.) of the M_g. This is done as follows:

$$S.D. = \frac{1}{N}\sqrt{N\Sigma fd^2 - (\Sigma fd)^2}$$

where N=number of scores

Σfd = the algebraic sum of the deviations from a guessed average.

Σfd^2 = the sum of the squares of the deviations.

Step 3. Compute the estimated standard error of the mean (S_m) by the following formula:

$$S_m = \frac{S.D.}{\sqrt{N-1}}$$

Step 4. Determine "t" as follows:

$$t = \frac{M_g}{S_m}$$

Step 5. Refer to a "t" table for significance of the gains.

Following is an example showing all 5 steps:

Step 1. The gains in total score on the *SIHR* from pretest to posttest for 20 supervisors were: 1, 4, 4, 5, 5, 5, 6, 6, 8, 9, 9, 9, 9, 10, 10, 11, 13, 13, 14, 19

The mean gain (M_g) is equal to 170 (total of gains) divided by 20 or:

$$M_g = \frac{170}{20} = 8.5$$

Step 2. The standard deviations (S. D.) of the M_g is computed as follows:

---

[1] Behling, Gerald L. "A Study of the Validation of the *Supervisory Inventory on Human Relations.*" Unpublished Master's thesis, University of Wisconsin, January, 1959.

Calculation of S. D. by Use of a Guessed Average

	g (Gain)	f (Freq.)	d (Dev. from guessed av.)	fd	fd^2
	1	1	−7	−7	49
	4	2	−4	−8	32
	5	3	−3	−9	27
Guessed	6	2	−2	−4	8
Average—	8	1	0	0	0
	9	4	+1	+4	4
	10	2	+2	+4	8
	11	1	+3	+3	9
	13	2	+5	+10	50
	14	1	+6	+6	36
	19	1	+11	+11	121
	—	—	—	—	—
		20	+12	+10	344

$$S.D. = \frac{1}{N}\sqrt{N\Sigma fd^2 - (\Sigma fd)^2}$$

$$S.D. = \frac{1}{20}\sqrt{20(344) - (10)^2}$$

$$S.D. = \frac{1}{20}\sqrt{6880 - 100}$$

$$S.D. = \frac{82}{20} = 4.1$$

Step 3.

$$S_m = \frac{S.D.}{\sqrt{N-1}}$$

$$S_m = \frac{4.1}{\sqrt{20-1}} = \frac{4.1}{4.4} = .93$$

Step 4.

$$t = \frac{M_E}{S_m}$$

$$t = \frac{8.5}{.93} = 9.1$$

Step 5. Reference to the "t" table below shows that for an N of 20, a t of 9.1 is equal to a probability (P) of less than .001. This means that less than one time in a thousand will an M_E as large as 8.5 occur as a result of chance. It can be stated with near certainty then, that this program was effective according to the gains from pretest to posttest. A "P" of .05 or less is generally considered to be significant. The smaller the probability, of course, the more effective the program has been.

"T" TABLE

N	P—.05	.02	.01	.001
5	2.571	3.365	4.032	6.859
6	2.447	3.143	3.707	5.959
7	2.365	2.998	3.499	4.405
8	2.306	2.896	3.355	5.041
9	2.262	2.821	3.250	4.781
10	2.228	2.764	3.169	4.587
15	2.131	2.602	2.947	4.073
20	2.086	2.528	2.845	3.850
25	2.060	2.485	2.787	3.725
30	2.042	2.457	2.750	3.646
40	2.021	2.423	2.704	3.551
60	2.000	2.390	2.660	3.460
120	1.980	2.358	2.617	3.373
∞	1.960	2.326	2.576	3.291

Exhibit B

DETERMINATION OF EFFECTIVENESS OF A HUMAN RELATIONS COURSE BY ANALYZING EACH ITEM FOR CHANGES IN RESPONSE FROM PRETEST TO POSTTEST.

The following chi square formula can be used to determine which items show significant change from pretest to posttest:

$$X^2 = \frac{(A-D)^2}{A+D}$$

in which:

X^2 = chi square

A = changes from "Agree" on pretest to "Disagree" on posttest

D = changes from "Disagree" on pretest to "Agree" on posttest

As an example, on Item 1 of the *SIHR*, 22 persons changed their answers from "A" on the pretest to "DA" on the posttest, and 6 persons changed their answers from "DA" on the pretest to "A" on the posttest. The other supervisors answered the item the same on pretest and posttest. Does this indicate a significant change?

Using the formula, we find:

$$X^2 = \frac{(A-D)^2}{A+D}$$

$$X^2 = \frac{(22-6)^2}{22+6} = \frac{256}{28} = 9.1$$

Reference to the chi square table below shows that X^2 of 9.1 is equal to a probability of less than .01 but greater than .001.

CHI Square (X^2) Table

P=.05	.02	.01	.001
3.84	5.41	6.64	10.83

In accordance with customary interpretation, this indicates a highly significant change on this particular item. Less than one in a hundred times would a change this large result from chance alone.

Exhibit C

HUMAN RELATIONS PERFORMANCE RATING PROCEDURE FOR *SIHR* VALIDATION

Instructions

1. Two or more raters should be used who are familiar with the human relations performance of all supervisors being rated. Many problems, such as different standards, can be eliminated if the same raters evaluate all supervisors.

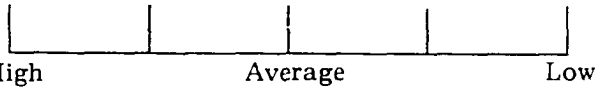
2. Each rater should consider the performance of each supervisor in relation to each of the areas. The rating which he judges as correct should be indicated on the scale by placing an "X" at the appropriate spot on that scale.

PERFORMANCE RATING FORM

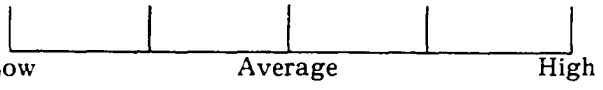
NAME_____

How does he rate on:

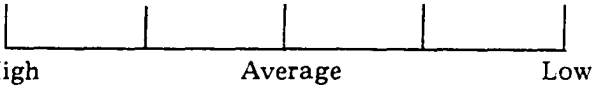
1. Friendliness and personal interest in others.



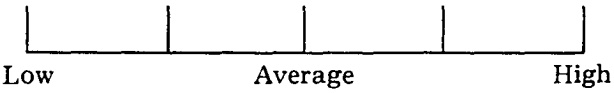
2. Openmindedness to the opinions and suggestions of others.



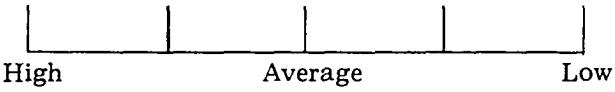
3. Training and development of subordinates.



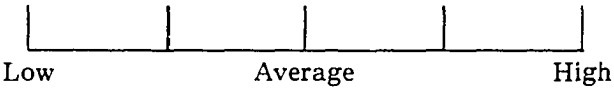
4. Confidence in himself.



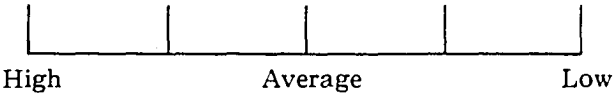
5. Friendly acceptance by subordinates.



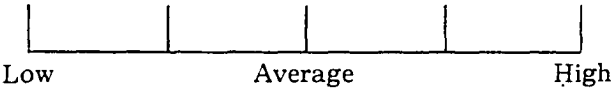
6. Job placement and assignment.



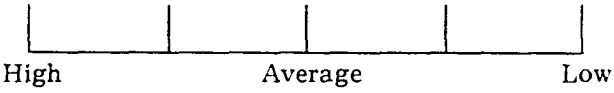
7. Ability to assist subordinates in solving their problems.



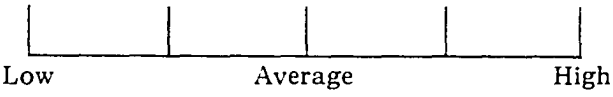
8. Personal example he sets for others.



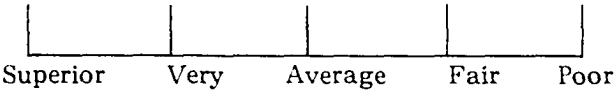
9. Ability to make accurate and fair decisions.



10. Ability to lead and to motivate others.

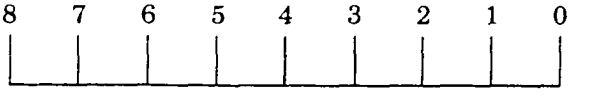


On the scale below, designate your over-all rating of this supervisor's HUMAN RELATIONS PERFORMANCE. Place an "X" on the appropriate spot.



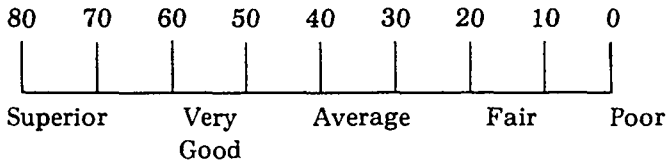
SCORING

Each of the bars in the first 10 items should be divided into 8 equal parts:



The number of points to be given each item is dependent on where the "X" appears. For example, an "X" just above "Average" should be given 4 points. The

final over-all scale should be divided into 8 equal parts weighted as follows:



In scoring the ratings, the total points for each supervisor should be computed. A score of 160 points is possible, consisting of 8 points each on the first 10 items and 80 points on the final over-all scale. The score for each rater should be combined. If two raters are used, a total of 320 points is possible. This total score may be used as the criterion for evaluating the effectiveness of the *SIHR* scores for selection purposes.

Exhibit D

DETERMINATION OF SUBJECT AREAS TO BE STRESSED IN TRAINING

The subject areas that should be stressed in a human relations training program are those in which the related items are most frequently missed by the people who are to be trained. The first step in tabulating the "wrong" responses is to prepare a work sheet with a line for each item, 1 through 80. After the tests have been scored, a tabulation should be made to determine how many times each item was answered incorrectly.

An analysis can then be made according to the subject area breakdown described below:

1. The Supervisor's Role in Management
   Items 25, 35, 39, 42, 47, 51, 55, 61, 65, 71, 77, 78, 80
2. Understanding and Motivating Employes
   Items 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 13, 14, 16, 17, 18, 20, 21, 24, 26, 30, 31, 37, 40, 41, 43, 46, 48, 49, 52, 53, 57, 59, 60, 62, 67, 68, 72, 74, 75
3. Developing Positive Employe Attitudes
   Items 15, 19, 22, 23, 29, 36, 44, 56, 66, 79
4. Problem Solving Techniques
   Items 28, 34, 38, 64, 73
5. Principles of Learning and Training
   Items 7, 11, 27, 32, 33, 45, 50, 54, 58, 63, 69, 70, 76

Exhibit E

REASONS FOR SCORING KEY RESPONSES

1. DA We know that desire is extremely important if we are going to do our best. However, we do have varying aptitudes, capacities, potentials, abilities, health, emotional stability, and physical characteristics, which limit the things we can do. Desire can only bring us up to a point of living up to these limitations. (See Item 3.)
2. DA There are certain characteristics of people that are basically the same. For example, nearly all of us have a desire for security, appreciation, a happy family life, a feeling of satisfaction and achievement and a desire to be accepted by other people. However, we differ in our attitudes, intelligence, emotional stability, interests, outside activities, personal problems, physical characteristics, and many factors. Therefore, it is important for a supervisor to treat each person as an individual. The things that motivate one person to his best performance may not motivate another person.
3. A These aptitudes may be seen in such areas as music, sports, mechanical, and general intelligence. We can do a great deal to develop these to the maximum extent by means of training, experience, education, and personal effort. However, we are limited by the talent or capacity with which we are born.
4. DA Employes are not only interested in more money, they are also influenced and motivated by non-financial factors such as a pat on the back, recognition in the company's house organ, being given a challenging job, etc.
5. DA A well-accepted definition of intelligence is "The capacity to learn." This item contains a good definition of "knowledge" but not "intelligence."
6. A This is another way of saying that most employes are interested in self-satisfaction and in obtaining a feeling of achievement by doing a good job.
7. DA Knowledge of a job or of a subject is not the only qualification of being a teacher. Other qualifications for teaching include an ability to communicate, patience, and a knowledge of teaching techniques. Therefore, even if the supervisor knows all about the work to be done, he also needs certain teaching skills in order to teach others how to do it.
8. DA "Introvert" and "extrovert" describe extreme personality patterns. Most of us are "ambiverts" which means that we are somewhere in between.
9. DA "Heredity" refers to the things we inherit while "environment" refers to everything that has happened to us since we were born.
10. A One of the synonyms for "frustrate" is "balk." This suggests the interposing of obstacles or hinderances.
11. A This puts the burden on the teacher and implies that if the learner has not learned, it is the fault of the teacher and not of the learner. Supervisors must accept this definition if they are going to be effective trainers and instructors on the job. If, for example, the learner is not interested in learning the job, part of the teacher's challenge is to get him interested and motivated to learn.
12. A A good way to illustrate this principle is to consider the situation where a person does not want to do any gardening or work around the house. However, if a friend calls and says "Let's play golf," his "laziness" may immediately turn into enthusiasm and he is eager and anxious to play golf even though it requires more work and effort.
13. DA An introvert is a person who likes to be by himself and does not want to be bothered by other people. An extrovert is one who likes to be with people, likes to converse with them, socialize with them, etc. If these two people are placed on a job where they must work together, the chances are that the extrovert may be satisfied with the situation because he has somebody he can talk to. However, the chances are great that the introvert will be unhappy and become more and more upset by the extrovert who continues to talk and socialize. The reason for this question is to point out that possible "personality clashes" on the job may be caused by this very situation. The solution is not to try to talk the introvert into being satisfied with such a situation; the solution may be to place him on a job where he works by himself.
14. DA The word "always" in this sentence makes it "DA." If the statement said "The better we know an employe, the better we can predict his behavior in a given situation" then the answer would be "A."

15. DA For most persons, attitudes are usually based on feelings and emotions rather than on a careful study of the facts. Most of our attitudes have been taught us by our parents or have developed because of first impressions or because of unusual things that have happened to us. It is a rare person who withholds his attitudes until he has carefully studied the facts of the situation.

16. DA Even if an employe does a job well, this is not a sure sign that he is satisfied and properly placed. He may be doing it well because it will offer him an opportunity to advance to a higher level position and he may be quite dissatisfied with the job.

17. DA An introvert is a person who likes to be by himself.

18. A Referring back to Item 10, we realize that frustration means that something is blocking the wishes or desires of an individual. Therefore, nearly all of us are faced with some frustrations each day—at home, on the way to work, at work, or wherever we may be.

19. A This does not mean that all old people are fixed in their ideas and attitudes while young people are flexible and open-minded. The intent of this question is to indicate that for most people, the older we are the more fixed our attitudes become. This is because we are able to rationalize that our attitudes are correct because we have had more experiences to justify them.

20. DA There are at least three possible ways to approach frustration. One is to fight vigorously in order to overcome it. The other two approaches are to withdraw from it and not worry about it or to analyze it carefully and then decide on what course of action to take. Probably the best approach to face a frustrating situation is to stop and analyze why the situation is frustrating, how serious it really is, and what is the best approach for solving it.

21. DA There are two significant points to be illustrated by this question. In the first place, people are motivated by more than money as indicated in Item 4 above. Also, most employes do not like to be "told" what to do. They would prefer to be "asked." In addition, many employes would prefer to be told *what* needs to be done and to make some of their own decisions on just *how* it should be done.

22. DA We all recognize that a supervisor must get things done through people. Also, we recognize that an employe's feelings have a great deal to do with how well he does his work. Therefore, a supervisor must be concerned with the feelings that his employes have toward their jobs, toward supervision, and toward the company.

23. DA If an employe has a positive attitude toward his job and toward the company, he will be more apt to be an effective worker.

24. DA The purpose of this question is to emphasize the need for matching a person to the job. For example, some jobs do not require a high degree of intelligence. Therefore, selecting a person with high intelligence might be a mistake because that person will not be challenged, he will be unhappy, and he is apt to quit. Likewise, some jobs require a person who does not have an outgoing personality. It is more important in these jobs to find a person who likes to work by himself. Also, sometimes the more experience an employe has, the more difficult it will be to train him to do the job the way the supervisor wants it done. For example, a golf pro would probably prefer to train a person who has never played golf than one who has been "hacking" at the ball for many years.

25. DA It is a well accepted principle of organization that every employe should only have one "boss."

26. DA As was indicated in Item 16, an employe may be very dissatisfied with a job at a low level simply because it does not challenge him and because he has qualifications which make him better suited for a high level job.

27. DA One of the most important supervisory jobs is to train his employes. The time he spends in this particular phase of his job can reap real benefits. Unfortunately, many supervisors and foremen delegate the job of training to other hourly employes and many times they have to spend a great deal of time correcting mistakes that are made because the employe was not properly trained.

28. DA A basic principle of problem solving is that it is necessary to get the detailed facts. These facts will help a supervisor decide what is the best solution to a problem and will prevent, in many cases, a decision that he will regret.

29. DA One of the main jobs of a supervisor is to maintain good working relations and high morale among his employes. Therefore, it is essential that he be the key person in handling grievances and handling problems dealing with the morale of his employes. If these things are delegated to a staff department, he will not be effective in maintaining good relations.

30. DA People do not usually try harder unless they feel they are accomplishing something. If a situation occurs where the job controls the person, there is more apt to be frustration and discouragement than there is to be motivation and greater effort. On the other hand, this does not mean that people should run out of work. According to Parkinson, who has written a number of "laws" which apply to industry, a person will fill up whatever time is available to do a job that needs to be done. Therefore, if a person has a job that usually requires four hours, he will take eight hours to do it if he has eight hours available and this is the only job to be done. The proper balance is to have enough work to keep the person busy but at the same time to give it to him in such a way that he will be able to have a feeling of achievement and accomplishment before a new assignment is given.

31. DA The days of the "bull of the woods" are gone. Today it is important to motivate a person rather than to scare him into feeling he might lose his job if he does not do well.

32. DA It is a basic principle of human relations that a person should be corrected or reprimanded in private. If a person is criticized in front of other people, usually the person who is criticized will resent the situation and will have a very bad attitude toward the foreman or supervisor. Likewise, those who observe will also develop a lack of respect for a supervisor who does it.

33. DA A well-trained work force is a result of effective supervision. The job of training must be a line function.

34. A There are two reasons for this answer. First, a group of people can suggest more possible solutions to a problem. Also, a group of people usually help to sell themselves if they are involved in helping to solve a problem. Therefore, the solution might be a better one because it is better accepted, and therefore, better implemented.

35. DA Many supervisors today are successful even though they are unable to perform all the jobs in their department. As a matter of fact, in a number of companies, many people are promoted to supervisory jobs in departments where they do not even know the operations that are performed. Obviously, if they are going to be successful, they must learn what goes on in those departments but they do not have to know how to perform all the jobs. Some people agree with this item because they say "How can you train a person to do a job unless you are able to do the job yourself?" Well, the answer to this question is that you cannot personally train an employe to do a job if you are unable to perform the job. Therefore, in this situation, you must call on an operator to help you with the training process. However, this does not mean that you turn over the entire job of training to that employe.

36. DA The wording in this question may seem to be a bit "tricky." Maybe an employer does have a "right to expect" that his employes will leave their problems at home. However, the intent of this question is to point out that it is not realistic for any supervisor or manager to expect that employes can check their problems at the gate when they come in and pick them up when they leave at the close of their shift. Supervisors must expect that a number of employes will bring their problems right in the plant and that part of the job of supervision is to see that these problems do not affect their productivity and safety.

37. DA If a supervisor or a foreman makes a mistake, he should be willing to admit it. Admitting the mistake tends to build respect rather than lose respect.

38. A In solving a problem, a knowledge of facts as well as personalities helps solve a problem.

39. A The key word in this statement is "final." A supervisor *can* delegate the responsibility for work to one of his subordinates. However, if his boss asks him about the work, the supervisor cannot say "I have delegated that responsibility to one of my subordinates; therefore, you cannot hold me responsible for it." Obviously, as far as his boss is concerned, the supervisor is still responsible for the work.

40. DA If a person becomes nervous and confused whenever he is watched, more watching would just make him more nervous and more confused. Therefore, the solution to this problem lies in the ability of the supervisor to find out why the man becomes nervous and confused.

41. DA When reprimanding an employe, it is important to maintain a positive attitude on the part of the employe toward his supervisor and toward his future performance on his job. Therefore, humiliation will not result in this but would result in resentment and a desire for the employe to "get even." Therefore, when reprimanding an employe, it is best to do it in private and to do it in a way which will make the employe feel that he is fairly treated.

42. DA One of the characteristics of an executive is the ability to *delegate* details so he has more time for major problems and decisions. Therefore, the ability to handle details is not an important qualification of an executive.

43. DA Although high wages and job security are important to employes, there are other factors that are also important. These include a desire for appreciation, the need to be accepted by other employes, a desire to do interesting work, and the need for self satisfaction.

44. DA If a supervisor has a troublemaker in his department, the first step is to find out why the person is behaving as he is. If he can get to the source of the problem, perhaps he can come up with a solution to create a better attitude and better performance on the part of the worker. A dismissal is the last resort.

45. DA The key words in this statement are "the first thing." If a supervisor begins by showing in detail how the job is performed, he is apt to confuse and overwhelm an employe. Before he explains the details of the job, it is better to give an overview of the job to be done as well as the reason for it and the importance of the job. Also, it is a good idea to find out whether or not the employe has done anything like this before so he can instruct accordingly.

46. DA If a supervisor does not know the answer to a problem, it is good practice to admit it, find out, and let the employe know.

47. DA Item 25 indicated that an employe should have only one supervisor. Therefore, he should take orders only from his boss. In case he receives an order from an important representative of another department, he should carry it out only if he feels that his immediate boss would want him to do it. If he feels it may be in conflict with what his boss wants him to do, he should have this important representative discuss it with his boss.

48. A According to Professor Norman Maier at the University of Michigan, the acceptance of a decision is just as important as the quality of that decision. In other words, even if a decision is based on logic and facts, it will probably not be properly implemented unless the employes who have to carry out that decision are sold on it. Therefore, in making a decision, a good supervisor should be concerned with his employes feelings toward that decision.

49. DA In most cases a supervisor would gain respect if he asked his employes for their suggestions. Employes dislike a supervisor who thinks he has all the answers and is never willing to get suggestions from his subordinates.

50. DA The key word is "emphasize." This does not mean that a supervisor should not point out hazards and other aspects of the job. However, in instructing a person on a job, the supervisor should emphasize how the job should be done.

51. DA According to research, about 75% of supervisors who fail, do so because they lack the supervisory and management skills for doing the job. Less than 25% of them fail because they do not have enough technical knowledge.

52. A If we expect to understand people, the best place to start is by understanding ourselves.

53. DA When we correct a worker who has made a mistake, we want to end up with a worker who has a positive attitude toward his supervisor and toward his job. Therefore, the way in which we correct that worker is very important. There are more indirect ways of doing it than by immediately pointing out the mistake. For example, the supervisor may start out by praising the good things the worker has done. Or, he may start out with an indirect approach which asks, "How are things going, Bill?" When he asks such a question as this, there is a good chance that the worker will discuss the problem and the mistake that has been made. If the worker brings it out, there is a much better chance that the situation can be handled without resentment being aroused.

54. DA Line management has the responsibility to see that training is done. Therefore, the existance of the staff department does not take away from the line manager his responsibility to see the training is done in his department. The line manager may call on the training department for assistance.

55. DA An introvert is one who likes to be by himself. A supervisor cannot be successful if he keeps to himself. He must get things done through people, and therefore, he must be willing and anxious to have personal contact with them.

56. DA Bad attitudes on the part of the workers can be caused by many things. In recent research, the money factor was not as important in creating bad attitudes as were such factors as the administration of company policy, the competence of supervision, the lack of recognition, and similar factors.

57. DA A supervisor who uses consideration and friendliness usually gains respect from all types of workers whether they be easy-going or tough. Being considerate and friendly does not mean that they let workers push them around. They can still be firm in their dealings.

58. DA This question is concerned with the effective techniques for teaching an employe how to do a job. Obviously, in order to teach a person to do a job, he must be told and shown how it should be done. However, there are other factors involved in effective teaching. These include preparing the person by getting him in the right frame of mind, by getting him interested in learning the job, and by finding out what he knows about the job. Also, it is important to explain why things are done a certain way so that the employe will have a better understanding. And even if these things are effectively done, there is still a good chance that an employe will not be able to do a job. Therefore, it is important for a supervisor to stay with an employe to see whether or not he is able to do the job on the first trial. It is a serious mistake in many instances for a supervisor to assume that the employe should be able to do the job because he has been told and shown how to do it. If a supervisor believes this, he usually leaves an employe on his own after he has explained it and shown the job. And, frequently, that employe finds himself in a very frustrating and embarrassing situation of not being able to do the job. A specific example of this might be if we were to teach a person how to drive a car. No matter how many times we tell and show him how to do it, there is still a very good chance that he would not be able to do it on his first trial.

59. DA According to Item 6, most employes are interested in doing work of which they can be proud. Therefore, if we provide the right job for the person and give him the challenge and responsibility for doing it, the chances are very good that he will do it well. If we watch him closely, there is a chance that he may become nervous, frustrated, and he may not do the job as well.

60. DA This does not suggest that if we have such an ideal worker we should try to get rid of him. The intent of this question is to be sure that we do not hold a person back from being promoted to a better job within our own organization. Instances occur every day where excellent performers quit a company because they found out that some supervisor held them back from a possible promotion.

61 A The answer to this question depends on the meaning of the word "closer." The intent of the question was to show that supervisors are closer in terms of personal contact with their subordinates than they are with higher level management. On the other hand, if a supervisor is part of management, you can't get any closer than that. Therefore, either answer to this question is equally good.

62. DA By talking with his employes about their families, interests, and outside-the-plant problems, a supervisor can get to know them better. As was indicated in Item 14, the better we know an employe, the better we are able to predict what he will do. Also, the better we know an employe, the better we are able to assign him to his proper jobs, to motivate him and to deal with him on a daily basis.

In addition, a supervisor who takes time to be concerned about the personal interests and problems of employes will usually have better working relationships with them.

63. A Research has shown that learning is not a continuous and gradual process. There are times in the learning process when a person is apt to remain at a certain level or even to go back to a level below that which he has attained. It is important for a supervisor to understand this. In teaching an employe, therefore, he should expect the employe to have periods in which he does not seem to be learning anything and where he performs at a lower level.

64. DA One of the best ways to solve our problems is to find a good listener. Therefore, if we as supervisors have problems, we should tell them to a person we trust. Likewise, we should encourage our subordinates to bring their problems to us.

65. A Every supervisor should represent his employes to top management. This means if they have problems, the supervisor should communicate them to his boss if he feels his boss should know about them. Also, if they have suggestions for improvement, the supervisor should communicate these to higher level management so that they can be considered. In addition, if higher level management develops a policy or a practice that will affect employes, a supervisor should give his honest reaction and if he feels it will be bad for employe morale or productivity, he should communicate this to higher level management.

66. DA This question is very similar to Item 44. The first thing a supervisor should do is to find out *why* an employe has a bad attitude. Perhaps there are corrective actions that can be taken to change it from a negative attitude to a positive attitude. Only as a last resort should a supervisor encourage the employe to quit and find another job.

67. DA The attitudes and productivity of subordinates are very frequently determined by the example that is set by their supervisor. Therefore, if a supervisor expects his subordinates to perform in a satisfactory or outstanding manner, he must set an example by his own personal conduct. His actions will have more impact on their attitudes and behavior than will his words.

68. A Occasionally, praising an employe in front of other employes may have bad effects on the other employes. For instance, they may become jealous of the employe who received the praise and even go so far as to ridicule him. However, in most cases, praising an employe in front of other employes has several advantages. First of all, it makes the employe himself feel even better than he would if he were praised in private. Also, in the usual situation, the other employes will have more respect for the supervisor because he has praised an employe in front of them. Also, some employes may see this as a motivating factor for themselves—in other words, if they do good work, they too will be praised by their supervisor.

69. DA In the first place, one of the key words in this statement is "watch." As has been mentioned in some of the other items dealing with training, we do not learn very much by just watching a person do the job. In addition to seeing what goes on, we as learners must also hear a description of what is happening and find out the reasons for it. Another significant point has to do with the person who should be training a new employe. One of the most important parts of a supervisor's job is to train new employes. Therefore, he should take an active part in the training process and not delegate it completely to another employe.

70. DA Even if an employe gets a good start on the job, the supervisor must still follow-up to see how he is doing and be sure that no problems arise which can change his attitude or his performance. Also, follow-up can provide the supervisor with an excellent opportunity to praise an employe for good work and to show him that he is personally interested in his success on the job.

71. DA There are times when a supervisor receives instructions or orders from his boss to do something which he feels is wrong or will have damaging results. In cases like this, it is the duty of the supervisor to tell his boss what he thinks. After the boss understands the supervisor's feelings, he may or may not change the instruction. After that, it is up to the supervisor to carry out the instructions.

72. DA Research has shown that criticizing an employe for his mistakes may bring about better performance on the part of an employe, depending to a large extent on how the criticism is done. In addition, praising an employe for good work provides the motivation to encourage the employe to do good work. In the long run, constant criticism will tend to make an employe discouraged and will probably result in poorer work while continued praise will not have this possibly detrimental effect.

73. A One of the best ways to solve a problem is to prepare a list of possible solutions. The list of possible solutions provides an opportunity to compare one with another to pick the best one.

74. A In the first place, until the supervisor listens, he does not know what the employe wants to talk about. Even if he feels that the employe is going to tell him all about the vacation he took last week, the employe may want to offer a suggestion for improving performance on the job. Also, if the employe wants to talk about a personal problem that is bothering him, it is important for a supervisor to listen because the employe may feel much better after he has told the supervisor. And, if he feels better and has a better attitude toward the supervisor, the chances are that his productivity will be improved. There is one other reason why it is important for a supervisor to be a good listener. Employes form opinions concerning their supervisors and one of the things that they expect is a supervisor who is willing to listen. Any supervisor who has a reputation of being "too busy" to listen or just does not want to listen to employes, will find that his employes will not talk to him very much, even when they have suggestions or ideas for improvement.

75. DA Some foremen and supervisors are fortunate because they are able to recommend increases in pay and other kinds of tangible benefits. Other foremen are not in such a position because of union contracts. However whether or not a supervisor is able to control such things as wages, vacations, and benefits, he is able to motivate and create positive attitudes by other means. For example, Item 74 dealt with listening. By being a good listener, he can do much to make his employes happy. Also, he can use such other techniques as giving them credit for doing a good job, showing recognition, giving them assignments in line with their interests and capabilities, and correcting unsafe working conditions.

76. A A supervisor is the key person in his department in regard to training. Some companies do not even have a training department; therefore, he is the training department. In larger companies where training departments exist, the supervisor should still be the key person in determining the training needs of the people in his department. The staff department (training) is there to assist him if he needs help.

77. DA It is an accepted principle of organization that a supervisor should delegate authority commensurate with responsibility. In other words, if he holds a subordinate responsible for achieving certain results, he should also give him the authority to see that those results are achieved.

78. DA Technical "know how" is only one of many qualifications that are necessary for a supervisor. Other qualities are communication skills, training ability, and administrative skills.

79. A The most important time to spend with an employe is during his first few days on the job. During this time, the typical employe is eager to do a good job but he is nervous. The supervisor can capitalize on his eagerness and at the same time can do much to overcome the nervousness that goes with a new job. Therefore, by spending a lot of time with his new employe, a supervisor can create positive attitudes towards the company, toward the job, and toward the supervisor. If he does not spend considerable time with a new employe, the employe may become disgusted, discouraged, and quit to find a job where he will feel more "at home."

80. DA This question has two parts to it. The first part of it is a "DA" part. Courses in human relations can be of real value in teaching some of the skills and knowledges and correcting attitudes of supervisors. On the other hand, the last part of the statement should be "A." At the same time we are learning more about human relations and administrative aspects of our jobs, we should also be learning more about technical aspects and keeping up to date in these areas.

APPENDIX C-5

MARVIN'S MANAGEMENT MATRIX (MMS)

INSTRUCTIONS: Here are 15 groups of statements consisting of four statements in each group. Please circle the number of the statement in each group that best identifies or describes the way you handle your job and how you feel about it.

1-1 You want to know what has worked, not what might work.
1-2 You'll listen to anyone's ideas.
1-3 You seek out the ideas,counsel, and opinions of others.
1-4 You are tolerant of those who want to change things around.

2-1 Most jobs that you have worked on have resulted in significant contributions.
2-2 You've selected assignments that have a good future.
2-3 You'd be much further ahead if you hadn't been assigned so many things that turned out to be unimportant.
2-4 Some of your time has been wasted on things management should never have undertaken.

3-1 When new products are introduced, you let others work the "bugs" out before you buy.
3-2 You constantly ask yourself the question, "How can it be done a better way?"
3-3 You think of ways products you use can be improved.
3-4 You frequently find products to be poorly designed.

4-1 You are agreeable to going along with the thinking of others.
4-2 If others seek your advice, you use this as your opportunity to get your ideas across.
4-3 You define functions, responsibilities, and authority, and you make authority match responsibility.
4-4 Your door is always open, but you expect others to think for themselves.

5-1 You rarely get worked up about things.
5-2 You measure up to what is expected from you in output.
5-3 You're one of the top producers of results, even though others do the work.
5-4 You're busy with so many things that your output can't match that of others.

6-1 You've changed the whole approach to your present job.
6-2 You've initiated a lot of changes in the work you do.
6-3 From time to time you've made a change in the way you are doing your work.
6-4 You cooperate with established ways of working without upsetting things.

7-1 You recognize that job descriptions serve little purpose.
7-2 You allow others a lot of freedom to do what they want.
7-3 You give direction to programs through precisely formulated policies.
7-4 You let those who will assume authority do so.

8-1 You don't run risks that can be avoided.
8-2 You avoid running risks except under rare circumstances.
8-3 You're not afraid to gamble on being a winner.
8-4 You'll gamble on good odds anytime.

9-1 You introduce more new ideas than your associates.
9-2 You think of new ways of doing things from time to time.
9-3 You've introduced one new idea that you can recall.
9-4 Your work doesn't give you the opportunity to do things in new ways.

10-1 You pinpoint centers of conflict and establish grounds for agreement.
10-2 You don't pry into the affairs of others.
10-3 You'll yield a point rather than displease someone.
10-4 Once your mind is made up you prefer not to change it.

11-1 You adjust to change day-to-day; you don't overorganize.
11-2 You plan programs and hold performance to schedule.
11-3 You're not a planner; you're a doer.
11-4 You recognize that plans rarely work out.

12-1 Your ideas are the ones used.
12-2 You frequently say to yourself, "I wish I'd thought of that."
12-3 Your ideas are rarely put into practice.
12-4 From time to time, yours is the idea that is adopted.

13-1 You don't take sides.
13-2 You have clear-cut convictions about many matters, but will change your mind when sound reasons are presented.
13-3 You try to avoid situations that give rise to controversial viewpoints.
13-4 You avoid arguments by any means possible.

14-1 The main reason you don't accomplish everything you set out to do is because there are always inevitable road-blocks to overcome.
14-2 You don't push things just because of a personal conviction that they should be undertaken.
14-3 When it comes to getting difficult jobs done, you match the performance of co-workers.
14-4 If you want something done, you find a way to get it done.

15-1 You recognize that doing things new ways generally creates costly and unnecessary confusion.
15-2 You contribute to programs initiated by others.
15-3 It's only part of the time that you're willing to work on someone else's idea.
15-4 Most of the worthwhile ideas you work on are yours.

APPENDIX C-6

MARVIN'S MANAGEMENT MATRIX (MMO)

DO NOT PUT YOUR NAME ON THIS FORM

An anonymous survey of how you see _____ is needed to evaluate the training he will receive or has received. No other use will be made of this survey.

Please circle ONLY ONE of the numbers to the left of each group of four statements that best identifies how you think he handles his present job and how he feels about his present job. Please choose one statement in each group--the one that fits him best--even if you can't be absolutely sure.

- - - - - - - -

1-1 He wants to know what has worked, and what might work.
1-2 He will listen to anyone's ideas.
1-3 He seeks out the ideas, counsel, and opinions of others.
1-4 He is tolerant of those who want to change things around.

- - - - - - - -

2-1 Most jobs that he has worked on have resulted in significant contributions.
2-2 He seems to have selected assignments that had a good future.
2-3 He would be much farther ahead if he hadn't been engaged in so many things that turned out to be unimportant.
2-4 Some of his time has been wasted on things he never should have undertaken.

- - - - - - - -

3-1 When new procedures are introduced, he lets others work out the "bugs" before he tries them.
3-2 He seems to continually ask himself, "How can it be done in a better way?"
3-3 He thinks of ways that our procedures can be improved.
3-4 He frequently finds our procedures to be poorly designed.

- - - - - - - -

4-1 He is agreeable to going along with the thinking of others.
4-2 If others seek his advice he uses that as an opportunity to get his ideas across.
4-3 He defines functions, responsibilities, and authority, and he delegates authority to match responsibility.
4-4 His door is always open, but he expects others to think for themselves.

- - - - - - - -

5-1 He rarely gets worked up about things.
5-2 He measures up to what's expected of him in output.
5-3 He is one of the top producers of results, even though others do the work.
5-4 He seem to be busy with so many things that his actual output can't match that of others in similar positions.
- - - - - - -

6-1 He has changed the whole approach to his present assignment.
6-2 He has initiated a lot of changes in the work he is doing.
6-3 From time to time he has made a change in the way he works.
6-4 He cooperates with established ways of working without upsetting things.
- - - - - - -

7-1 He recognizes that job descriptions serve little purpose.
7-2 He allows others a lot of freedom to do what they want to do.
7-3 He gives directions to programs through precisely formulated policies.
7-4 He lets those who will assume authority do so.
- - - - - - -

8-1 He doesn't run risks thst can be avoided.
8-2 He avoids running risks except under rare circumstances.
8-3 He is not afraid to gamble on being a winner.
8-4 He will gamble on good odds anytime.
- - - - - - -

9-1 He introduces more new ideas than his associates.
9-2 He thinks of new ways of doing things from time to time.
9-3 He has introduced one new idea that I can recall.
9-4 He seems to feel that his work doesn't give him an opportunity to do things new ways.
- - - - - - -

10-1 He pinpoints centers of conflict and establishes grounds for agreement.
10-2 He does not pry into the affairs of others.
10-3 He will yield a point rather than displease someone.
10-4 Once his mind is made up he prefers not to change it.
- - - - - - -

11-1 He adjusts to change day-to-day; he doesn't overorganize.
11-2 He plans programs and holds performance to schedule.
11-3 He is not a planner, he is a doer.
11-4 He recognizes that plans rarely work out.
- - - - - - - -

12-1 His ideas are the ones used.
12-2 He frequently says, or seems to say, "I wish I'd thought of that."
12-3 His ideas are rarely put into practice.
12-4 From time to time, his is the idea that is adopted.
- - - - - - - -

13-1 He doesn't take sides.
13-2 He has clear-cut convictions about many matters, but will change his mind when sound reasons are presented.
13-3 He tries to avoid situations that give rise to controversial viewpoints.
13-4 He avoids arguments by any means possible.
- - - - - - - -

14-1 The main reason why he doesn't accomplish everything he sets out to do is because there always seems to be inevitable roadblocks to overcome.
14-2 He doesn't push things just because of a personal conviction that they should be undertaken.
14-3 When it comes to getting difficult jobs done, he matches the performance of others in similar positions.
14-4 If he wants to get something done, he will find a way to get it done.
- - - - - - - -

15-1 He recognizes that doing things new ways generally creates costly and unnecessary confusion.
15-2 He contributes to programs initiated by others.
15-3 It is only part of the time that he is willing to work on someone else's idea.
15-4 Most of the worthwhile ideas he works on are his own ideas.
- - - - - - - -

APPENDIX C-7

SUPERVISORY SKILL DEVELOPMENT

Course Evaluation

I. Knowledge of Facts and Concepts

Listed below are statements related to the course you are now completing. Please indicate, by placing numbers under the Before and After headings, the progress you feel you have made. Number 1 is the lowest, meaning little or no knowledge of the facts and concepts in the subject area; number 10 is the highest, meaning a complete grasp of the subject.

Before	After	
_____	_____	1. Environmental controls and ecology
_____	_____	2. Public image formation and relations
_____	_____	3. Perception, motivation, and creativity
_____	_____	4. Environmental goals and objectives
_____	_____	5. Supervisory-subordinate communication
_____	_____	6. Nature and delegation of authority
_____	_____	7. Decision making
_____	_____	8. Leadership styles
_____	_____	9. Counseling
_____	_____	10. Job design and enrichment
_____	_____	11. Employee selection
_____	_____	12. Performance appraisal
_____	_____	13. Handling disciplinary problems
_____	_____	14. Supervisory training techniques
_____	_____	15. Determining and meeting training needs

II. Please list the three subjects from the above list that you feel were most valuable, and the three that were least valuable. Just place the numbers from the above list that identify the subjects into the following spaces:

_____ / _____ / _____
Most Valuable

_____ / _____ / _____
Least Valuable

III. Your comments regarding changes to be made in this course are earnestly solicited. (continue on reverse side if more space is needed)

YOU MAY SIGN THIS EVALUATION OR NOT--It is CONFIDENTIAL

APPENDIX C-8

FUNDAMENTALS OF SUPERVISION

Course Evaluation

I. Knowledge of Facts and Concepts

Listed below are statements related to the course you are now completing. Please indicate, by placing numbers under the Before and After headings, the progress you feel you have made. Number 1 is the lowest, meaning little or no knowledge of the facts and concepts in the subject area; number 10 is the highest, meaning a complete grasp of the subject.

Before	After		
_____	_____	1.	The functions of management
_____	_____	2.	The nature of the supervisor's job
_____	_____	3.	Employee needs related to productivity
_____	_____	4.	Motivation of employees
_____	_____	5.	Supervisory leadership
_____	_____	6.	Planning and decision making
_____	_____	7.	Communicating with employees
_____	_____	8.	Evaluating and counseling employees
_____	_____	9.	Supervisor's attitudes and values
_____	_____	10.	Skill in empathy and leadership

II. Please list the three subjects from the above list that you feel were most valuable, and the three that were least valuable. Just place the numbers from the above list that identify the subjects into the following spaces:

_____	_____
/ /	/ /
Most Valuable	Least Valuable

III. Your comments regarding changes to be made in this course are earnestly solicited. (continue on reverse side if more space is needed)

YOU MAY SIGN THIS EVALUATION OR NOT--It is CONFIDENTIAL

APPENDIX C-9

SUPERVISORY TRAINING NEEDS

_____ is being considered for supervisory training. This survey is intended to indicate the areas of supervisory knowledge and skills that may be most beneficial to his development as an effective supervisor. Also, it will help to evaluate the effectiveness of the training he receives.

Please circle one of the numbers to the right of each statement to express your view of the degree to which that statement applies to him. In all instances a low number means it applies little; a high number indicates a high degree of applicability.

1.	Trains and develops subordinates.	1	2	3	4	5	6	7
2.	Sets a good example for subordinates.	2	3	4	5	6	7	1
3.	Tends to create problems.	3	4	5	6	7	1	2
4.	Complains about the people he has to work with.	4	5	6	7	1	2	3
5.	Suggests improvements in his work.	5	6	7	1	2	3	4
6.	Other supervisors come to him for help.	6	7	1	2	3	4	5
7.	Resolves problems effectively.	7	1	2	3	4	5	6
8.	Tends to be overbearing toward subordinates.	1	2	3	4	5	6	7
9.	Receives cooperation from subordinates.	2	3	4	5	6	7	1
10.	Other supervisors find him difficult to work with.	3	4	5	6	7	1	2
11.	Displays good public relations.	4	5	6	7	1	2	3

12.	Decisions he makes are often wrong.	5	6	7	1	2	3	4
13.	Deals with others on basis of equality.	6	7	1	2	3	4	5
14.	Willing to assume responsibility.	7	1	2	3	4	5	6
15.	Is tactful in reducing friction when it occurs.	1	2	3	4	5	6	7
16.	Lacks confidence in himself.	2	3	4	5	6	7	1
17.	Lacks interest in advancement.	3	4	5	6	7	1	2

APPENDIX C-10

Please DO NOT put your name on this survey

SUPERVISORY PRACTICES SURVEY

From your position, working under the direct supervision of _____, do you agree or disagree that the following statements apply to him? If you agree, please check the space to the left of each statement; if you disagree, please check the space to the right.

AGREE			DISAGREE
_____	1.	Trains and develops those working for him.	_____
_____	2.	Sets a good example for his workers.	_____
_____	3.	Creates problems.	_____
_____	4.	Complains about the people he has to work with.	_____
_____	5.	Looks for ways to improve my job.	_____
_____	6.	Other supervisors come to him for help.	_____
_____	7.	Good at solving problems.	_____
_____	8.	Too bossy.	_____
_____	9.	Workers cooperate willingly with him.	_____
_____	10.	Seems to work well with other supervisors.	_____
_____	11.	Good at dealing with the public.	_____
_____	12.	Often makes wrong decisions.	_____
_____	13.	Deals with workers as equally as expected.	_____
_____	14.	Seems willing to assume responsibility.	_____

AGREE		DISAGREE
_____	15. Does a good job of reducing friction.	_____
_____	16. Not very confident in himself as a leader.	_____
_____	17. Not interested in advancement.	_____

You may write any comments you wish on this form. Your answers to this survey will be held in strict confidence. Your assistance is appreciated in helping to develop a meaningful supervisory training program.

APPENDIX D

RAW DATA COLLECTED

RAW DATA OF PARTICIPATING SUBJECTS

The raw data collected on the participating groups E_2, E_3, C_2, and C_3 were entered on IBM cards for final analysis. The card format is shown below.

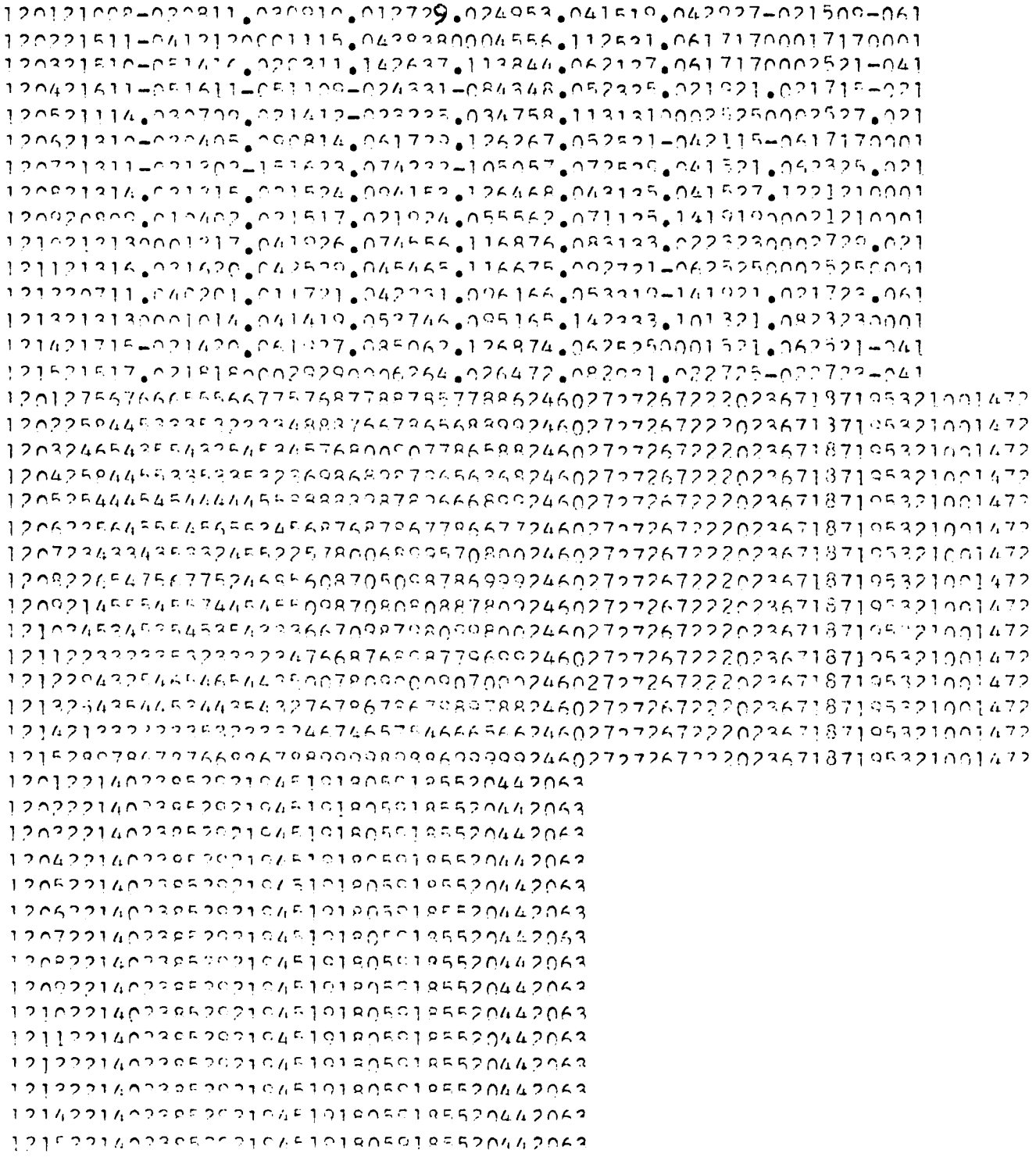
DATA CARD FORMAT

Information	Column(s)
First Card	
1. Group--Experimental or Control	1
2. Group Number--2 or 3	2
3. Subject Number within the Group	3-4
4. Time--Spring, Fall, or Winter	5
5. How Supervise? scores--Pre, Post, and Change	6-33
6. SIHR Scores--Pre, Post, and Change	34-40
7. Marvin's Matrix Scores, Pre, Post, and Change	41-61
8. Card Number--(1)	62
Second Card	
1. Duplicate of first five columns of first card	1-5
2. Course Evlauations(Before)	6-20
3. Course Evaluations(After)	21-35
4. Superior's Ratings of Subjects	36-68
5. Card Number--(2)	69
Third Card	
1. Duplicate of first five columns of second card	1-5
2. Subordinates Ratings of Subjects	6-38
3. Card Number--(3)	39

NOTE: The decimal places which appear in the raw data are actually "plus" (+) signs. However, the machine used to print the cards did not have a "plus" print key in its repertoire but printed a period instead. Even so, the machine used in the actual calculations of the statistical tests read the sign as a "plus" and not as a period.

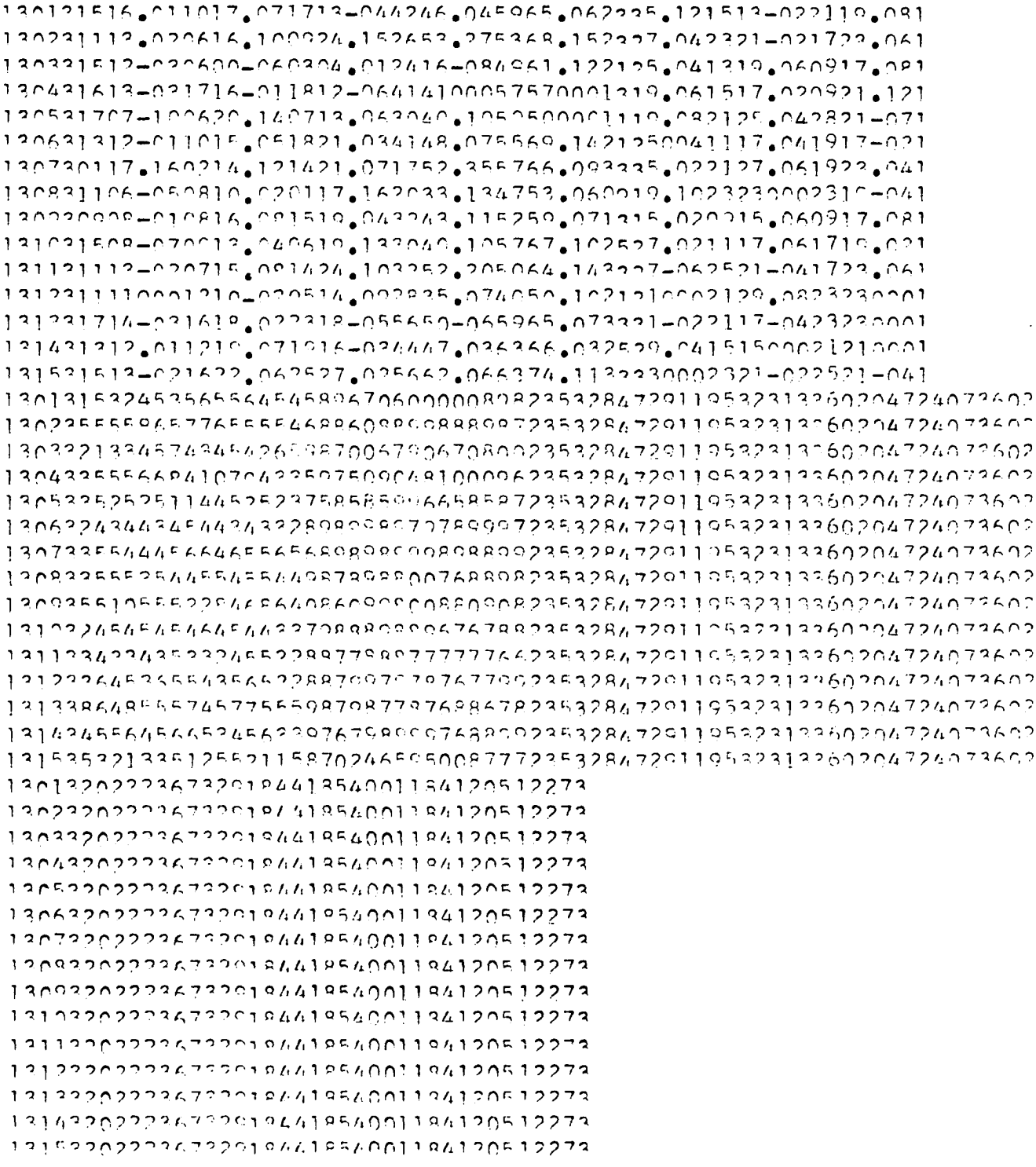
APPENDIX D-1

RAW DATA FOR GROUP E_2



APPENDIX D-2

RAW DATA FOR GROUP E_3

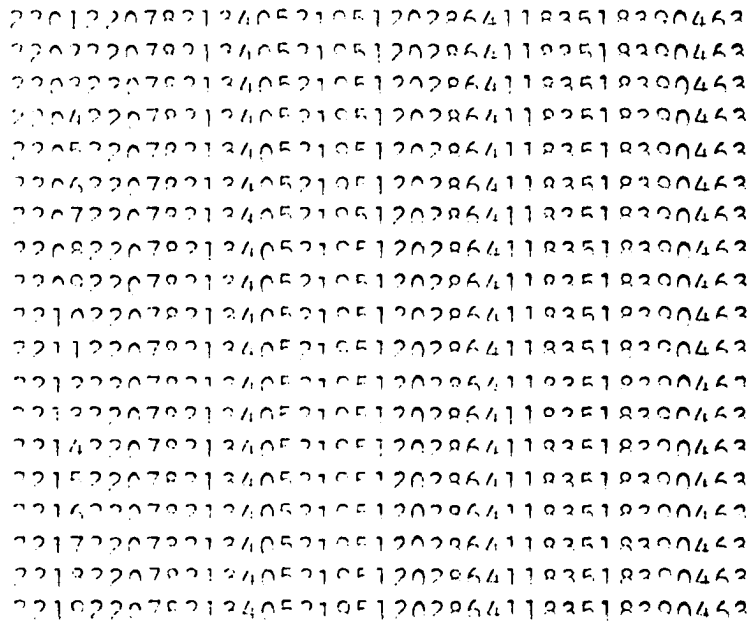


APPENDIX D-3

RAW DATA FOR GROUP C_2

APPENDIX D-3 (Cont'd)

RAW DATA FOR GROUP C_2 (Cont'd)



APPENDIX D-4

RAW DATA FOR GROUP C_3