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AN ANALYSIS OF CHANGES IN ATTITUDES OF SUPERVISORS AND
MANAGERS TOWARD SUPERVISORY PRACTICES, COMPANY POLICIES,
AND SUPERVISOR OPINIONS

The University of Oklahoma

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THE UNIVERSITY OF OKLAHOMA
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AN ANALYSIS OF CHANGES IN ATTITUDES OF SUPERVISORS AND MANAGERS
TOWARD SUPERVISORY PRACTICES, COMPANY POLICIES,
AND SUPERVISOR OPINIONS

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
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degree of
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BY
LYNDA WILLIS CLARK

Norman, Oklahoma

1982

AN ANALYSIS OF CHANGES IN ATTITUDES OF SUPERVISORS AND MANAGERS
TOWARD SUPERVISORY PRACTICES, COMPANY POLICIES,
AND SUPERVISORY OPINIONS

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AN ANALYSIS OF CHANGES IN ATTITUDES OF SUPERVISORS AND MANAGERS
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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

The need for improving worker productivity is a well documented concern of contemporary business and industry. Management personnel in business and industry have realized for decades that improved technology and efficiency seem to be key factors releasing human potential, an item of equal importance for the attitude of the work staff.¹ File explained:

"In a very real sense the supervisor is the key person in industrial production. From the lowest to the highest levels, the supervisor reflects attitudes and initiates practices which greatly influences worker efficiency. To the worker, his actions are direct expressions of company policy. His knowledge and insight concerning human relations in industry are, therefore, of crucial importance. A measure of this knowledge and insight is an important tool in industrial production."²

¹Steven H. Appelbaum, "Attitudes and Values: Concerns of Middle Managers," Training and Development Journal, (October, 1978), p. 52.

²Quentin W. File and H.H. Remmers, How Supervise Manual, (New York: The Psychological Corporation, 1971 Revision), p. 3.

It is generally agreed that some form of training, be it formalized classroom instruction or on-the-job development, takes place at nearly all levels in most modern organizations.¹ The past three decades have witnessed an unparelled growth in the number of formalized instruction efforts initiated in organizational settings. The need for, and methodologies of training evaluation have received attention in the training literature. To date, however, these admonitions and recommended methodologies have gone unheeded.² Bunker and Cohen stated:

"Training evaluation is one of the most under-researched and neglected areas of industrial/organizational psychology. Ironically, this trend toward continued avoidance of the evaluation issue comes at a time when the measurement of training impact would appear to be increasingly more important. The need for efficient, economical, and valid training programs becomes more paramount."³

Training evaluation was characterized, in the 1950's, by collecting participants' reactions (in rating form) to how the training was conducted and whether the participants liked the training. Brinkerhoff writes:

"The focus for evaluation can be related to any or all of the three major stages: planning, delivering, and recycling.

Planning:

1. What are the needs for training?
2. What are the strengths and weaknesses of past training approaches?
3. What is the current status (e.g., perceptions, attitudes, knowledge levels, etc.) of potential trainees?

¹Kerry A. Bunker and Stephen L. Cohen, "The Rigors of Training Evaluation: A Discussion and Field Demonstration," Personnel Psychology: A Journal of Applied Research, Vol. 30, No. 4, 1977, p. 525

²Ibid

³Ibid

Delivery:

1. What problems emerge as training progresses?
2. What are the nature and likely causes of defects in the training?
3. Has the training accomplished its intended objectives?
4. What other (planned, suspected, etc.) results is the training producing?

Recycling:

1. Have trainee's needs been met?
2. Are reasons/problems for the training changing? getting better? getting worse?
3. Is more, less or different training needed?"¹

In summary, Brinkerhoff elaborated:

"Evaluation is an important part of any training and development effort. It is more than an assessment of outcomes or effects. Evaluation is systematic inquiry into training contexts, needs, plans, operation and effects. It should help collect information to decide what's needed, what's working and how to improve it and what's happened as a result."²

Results of supervisory training can be measured by testing before and after training, and then determining whether significant improvement has occurred.

An examination of the literature revealed studies involving the evaluation of supervisory training programs. The studies reported positive results based on data gathered by a variety of evaluation instruments. The evaluation

¹Robert O. Brinkerhoff, "Making Evaluation More Useful," Training and Development Journal, (December, 1981), p. 67.

²Ibid., p. 66.

instrument common to the majority of the supervisory/management studies researched was the How Supervise? instrument developed by File.¹

The How Supervise? instrument contains items which assumes the supervisor has a responsibility both to management and to his/her workers and that proper discharge of this responsibility can and should be made to the advantage of both.² The instrument has two forms, A and B, each form is divided into three general areas: (1) Supervisory Practices, (2) Company Policies, and (3) Supervisor Opinions. The first two sections deal with the specific actions which the supervisor would endorse as desirable for either himself or the company as a whole to initiate. The third section deals primarily with problems in human relations which face the supervisor in day-to-day contact with workers.³

The use of How Supervise? in conjunction with supervisory/management training programs has been established. Reports of results obtained when the instrument was adjunct to training courses or college courses in management have been consistently positive.⁴ The majority of supervisory/management studies, using the How Supervise? instrument, reported total scores before and after training. Studies involving the validity and reliability of the How Supervise? instrument are discussed in Chapter II.

The extensive search of available literature in supervisory/management training programs, using the How Supervise? instrument, revealed no research

¹Q.W. File, "The Measurement of Supervisory Quality in Industry," Journal of Applied Psychology, 1945.

²File and Remmers, How Supervise Manual, p. 14.

³Ibid., p. 14

⁴Ibid.

was conducted to determine which areas measured by the instrument were significantly changed or unchanged due to training.

Objectives of the Study

The objectives of the study were: (1) to identify areas that are being significantly changed due to training, and (2) to determine the relationship between and within each of the following areas: (A) Supervisory Practices, (B) Company Policies, and (C) Supervisor Opinions.

Statement of the Problem

This descriptive study was designed to ascertain if there were any statistically significant changes in participants' attitudes concerning Supervisory Practices, Company Policies, and Supervisor Opinions while participating in a training program designed to bring about positive changes in these areas.

Significance of the Study

This study was conducted to ascertain changes in participants' attitude concerning Supervisory Practices, Company Policies, and Supervisor Opinions following attendance in a training program designed to bring about positive changes in these areas. Supervisory/management training programs should find the results of this research beneficial in their own evaluation and curriculum design in present and future training.

A number of studies have identified the relationship between scores on How Supervise? and ratings and rankings are subject to contamination by such factors as the "halo" or "leniency" effects. Nevertheless, such procedures are

frequently employed in view of the difficulty often found in obtaining other criterion data.¹

File and Remmers stated:

"The chief value of the use of How Supervise? in connection with supervisory training programs is that it enables management to determine whether or not established programs effectively impart such knowledge. Administration of How Supervise? to candidates for supervisory training can reveal the areas in which the group as a whole is weak. Either Form A or Form B will yield scores which are sufficiently reliable for this purpose."²

Quarterly and annual evaluations are completed on the industrial supervisory/management training program this study investigated. The evaluation instruments used are: (1) pre and post content test, (2) pre and post How Supervise?, and (3) pre and post Supervisory Style Survey. The t test is used in the analysis of the differences observed in pre and post content test and How Supervise? A t test is a commonly used parametric test to determine the statistical difference of observed differences in the mean values for groups, which is most effective in using continuous data. The evaluation is designed to measure the effectiveness of the industrial supervisory/management training program as an agent to introduce favorable managerial change.

Raphael and Wagner writes:

"Inappropriate or peripheral factors are often measured. Much research has centered on the trainee's reactions to the program or the amount of knowledge gained; behavioral measures have been lacking."³

¹File and Remmers, How Supervise Manual, p. 8.

²Ibid., p. 14

³M.A. Raphael and E.E. Wagner, "Training Surveys Surveyed," Training and Development Journal, (December, 1981), p. 46.

Consequently, a better understanding of the changes in supervisors' and managers' attitudes toward Supervisory Practices, Company Policies, and Supervisor Opinions will reveal areas where significant changes did or did not occur as the result of training.

Zenger and Hargis commented:

"Training programs can be fined-tuned in content and methodology. Only with good assessments of effectiveness can programs be made more relevant and practical. Until good research is provided, management support will be based primarily on faith and emotions, both of which can change radically."¹

The indepth analysis of the industrial supervisory/management training program investigated in this study gave direction to the areas, specified in the study.

Hypotheses to be Tested

The rationale underlying the hypotheses of the study evolved from a study of the three areas found in the evaluation instrument, How Supervise?.

Specifically, the null hypotheses to be tested in this study were:

Hypothesis 01: There is no significant differences at the .05 level between the participants' pre-test and post-test scores relating to Supervisory Practices as measured by the How Supervise? instrument.

Hypothesis 02: There is no significant differences at the .05 level between the participants' pre-test and post-test scores relating to Company Policies as measured by the How Supervise? instrument.

Hypothesis 03: There is no significant differences at the .05 level between the participants' pre-test and post-test scores relating to Supervisory Opinions as measured by the How Supervise? instrument.

Hypothesis 04: There is no significant relationship at the .05 level between Supervisory Practices, Company Policies, and Supervisor Opinions as measured by the participants' pre-test and post-test scores from the How Supervise? instrument.

¹Jack Zenger and Kenneth Hargis, "Assessing Training Results: It's Time to Take the Plunge!," Training and Development Journal, (January, 1982), p. 53.

Limitations

Limiting factors were those primarily involving the population and instrument content. The limitations were: (1) the study was limited to an industrial supervisory/management training program. The implications and findings can only be generalized to the population in the industrial supervisory/management training program; and (2) the study was limited to the consideration of the three areas contained in the How Supervise? evaluation instrument: Supervisory Practices, Company Policies, and Supervisor Opinions, in Forms A and B.

Operational Definitions

For the purpose of this study, the following definitions were established:

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, may be closely related to the real feelings or attitude of the individual.¹

How Supervise?: The evaluation instrument, consisting of Forms A and B, which measures general aspects of supervision.²

Low, Substantial: Statistical terms used in the study to indicate the relationship of the variables. Garrett expresses relationships as "r from $\pm .20$ to $\pm .40$ is low; present but slight and r from $\pm .70$ is substantial or marked."³

¹John Lawrence Butler, "Evaluating Title I, Higher Education Act of 1965 Human Resource Development Training for Metropolitan Oklahoma City Area Local Government Supervisors," (unpublished Ph.D. dissertation, University of Oklahoma, 1972), p. 8.

²File and Remmers, How Supervise Manual, p. 3.

³Henry E. Garrett, Elementary Statistics, (New York: David McKay Company, Inc., 1962), p. 100.

Management: The function of getting things done through others.¹

Manager: An individual who is responsible for individuals in supervisory and non-supervisory positions.

Pre-Test: Form A of How Supervise?, which was administered to a group of supervisors and managers before training.

Post-Test: Form B of How Supervise?, which was administered to a group of supervisors and managers upon completion of training.

Supervisor: An individual who is responsible for individuals in non-supervisory positions.

Training Program: The 12 day First-Level Supervisory Course for supervisors and managers employed at Tinker Air Force Base conducted at the Management Training Center located at Oscar Rose Junior College, Midwest City, Oklahoma.

The evaluation of any training program should be made an integral part of program design including curriculum, development, and revision efforts to determine if the training program delivered what it intended. The scope of evaluation determines what types or levels of learning are emphasized, no matter what the curriculum indicates. Training programs must identify weaknesses and strengths of their program to maintain effectiveness and viability.

Organization of the Study

The introduction to the investigation was presented in Chapter I. Included were the introduction, objectives of the study, statement of the problem, significance of the study, hypotheses to be tested, limitations, operational definitions, and organization of the study.

Chapter II presents a review of the literature pertinent to the research investigation. The three major categories, Theoretical Background, Related Studies and Dissertations, and Supervisory/Management Training are presented.

¹Harold Koontz and Cyril O'Donnell, Principles of Management, (New York: McGraw-Hill Book Company, 1955), p. 3.

Chapter III presents the research design and methodology of the study. Included are the introduction, population for the study, collection of data, methods of statistical analyses, and summary.

Chapter IV presents the analysis and interpretation of the data collected and analyzed for the study. The data is presented in table and graph formats.

Chapter V presents the findings, conclusions and recommendations for future research based on the analysis of the data gathered in the research investigation.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

The review of the literature serves two purposes: (1) to explain the theoretical base for the research and (2) to set the current research into perspective to show "the state of the art."¹ The focus of this study involved an analysis of industrial supervisors' and managers' attitudes toward Supervisory Practices, Company Policies, and Supervisor Opinions upon completion of training. Many studies have been conducted on supervisory/management training programs, however, the researcher did not find any studies that related specifically to the analysis of the three areas, Supervisory Practices, Company Policies, and Supervisor Opinions, contained in the How Supervise? evaluation instrument.

The literature reviewed in this chapter was selected on the basis of its relevance to the problem this study investigated. The review of the literature was classified into three major categories, which are: Theoretical Background, Related Studies and Dissertations, and Supervisory/Management Training.

Theoretical Background

The development of an organization as a social-system evolved from the research at Western Electric's Hawthorne plant, near Chicago, from 1924 to

¹Mildred Hillestad, Research: Process and Product, Service Bulletin No. 1, (St. Peter, Minn: Delta Pi Epsilon, 1976), p. 104.

1932. Mayo and Roethlisberger, industrial psychologists at Harvard, and William Dickson, a Western Electric engineer, carried out several studies to determine if a relationship existed between improved working conditions and productivity. The longest experiment consisted of five women who assembled telephone relays, the experiment lasted from April 1927 to June 1932, and the following conclusion was reached: "it was not the wages but improved morale, supervision, and interpersonal relations that led to greater output."¹ Many recent re-evaluations have raised serious doubts about the way the Hawthorne experiments were carried out.² Rice stated:

"For whatever the flaws in conduct and subsequent interpretations of the Hawthorne studies, they did spur efforts to humanize the work place, to find more sensitive ways to mobilize workers, rather than regarding them as assembly-line robots that could be kept producing by fear and discipline."³

The Hawthorne study was classic and identified a link between supervision, morale, and productivity which became the foundation of the Human Relations movement.⁴ Wren stated:

"In short, the outcome of the Hawthorne research was a call for a new mix of managerial skills. These skills were ones which were crucial to handling human situations: first, diagnostic skills in understanding human behavior and second, interpersonal skills in counseling, motivating, leading and communicating with workers. Technical skills alone were not enough to cope with the man discovered at the Hawthorne Works."⁵

¹Roethlisberger, F. J., and Dickson, W. J. Management and the Worker (Cambridge: Harvard University Press, 1939), pp. 14-18.

²Berkeley Rice, "The Hawthorne Defect: Persistence of a Flawed Theory," Psychology Today, (February, 1982), p. 72.

³*Ibid.*, p. 74.

⁴Daniel A. Wren, The Evolution of Management Thought, (New York: The Ronald Press Company, 1972), p. 283.

⁵Wren., p. 290.

The micro phase of the human relations movement started to probe human behavior in industry in the first three decades of the twentieth century, it was not until the 1930's and 1940's that the greatest outpourings of behavioral research would appear.¹ The human relations movement was interdisciplinary, drawing from the contributions of sociologists, psychologists, and anthropologists. The basic premise in their research into the social facet of man was a Gestaltist notion that all organized behavior involved some human "multiplier effect."²

Moreno's and Lewin's work, reflecting the Gestalt psychology, involved analysis of groups. Lewin's "field theory" held that group behavior was an intricate set of symbolic interactions and forces which not only affected group structure but also modified individual behavior.³ Lewin, Lippitt, and White examined the effects of supervision. Their study involved thirty ten year old boys in six groups. Each group was supervised by an adult trained to act in either democratic, autocratic, or laissez-faire manner. Results indicated authoritarian leadership impaired initiative, bred hostility, and aggressiveness while other styles were more effective in creating better morale and attitudes.⁴ Lewin added to the study of subordinate participation in decision making and the use of the groups to achieve changes in behavior.

¹Ibid., p. 322.

²Ibid., p. 323.

³Kurt Lewin, Resolving Social Conflicts, (New York: Harper and Row, 1948), pp. 136-41.

⁴K. Lewin, R. Lippitt, and R.K. White, "Patterns of Aggressive Behavior in Experimentally Created "Social Climates," Journal of Social Psychology, Vol. 10, 1939, p. 271.

Moreno's work involved the development of a sociogram chart. The sociogram consisted of pairing and ranking individual's preferences for other individuals. Psychodrama and sociodrama were also the contributions of Moreno and together these ideas formed a basis for "role playing" techniques and for the analysis of interpersonal relations.¹ Moreno and Lewin brought a new focus to the group rather than the individual. Their work led to further studies of social change, social control, collective behavior, and in general the effects of the group on the individual.²

Coch and French's research was based on the theoretical work of Lewin. Coch and French's work involved the effect of worker participation in decision making in the introduction of technological and work method changes at Harwood Manufacturing Company. The research involved trying out two forms of employee participation. The groups were divided into three classifications: total-participation, experimental (participation by elected representatives) and control groups which had no participation in the changes of technological and work method changes.³

The findings were: (1) control groups that had no participation had reduced output, greater absenteeism, turnover, and increased expression of worker dissatisfaction, (2) experimental groups (participation by elected

¹J. L. Moreno, "Who Shall Survive?: A New Approach to Human Interrelations," (Washington, D.C.: Nervous and Mental Disease Publishing Co., 1934), p. 11.

²Daniel A. Wren, The Evolution of Management Thought, (New York: The Ronald Press Company, 1972), p. 323.

³Lester Coch and John R. P. French Jr., "Overcoming Resistance to Change," Human Relations, Vol. 1, No. 4 (1948), pp. 512-32.

representatives) had a drop in output at the time of the introduction of the change, but they recovered quickly and their output soon exceeded the standards prior to the change, and (3) total-participation group experienced a sharper drop in output but made the more impressive recovery and stabilized at a higher level.¹

These results suggest that a restructuring of interpersonal relations between workers and authority figures in industry could result in productivity increases and favorable changes in worker-management attitudes. Coch and French, as well as Lewin's research, influenced other studies which provided evidence that participation by subordinates could lead to higher levels of production, satisfaction and efficiency.² Gibson, Ivancevich, and Donnelly stated:

"Despite the considerable research, many unanswered questions remain regarding the relationships between subordinate participation, production, and acceptance of change. Moreover, whether actual participation or perceived participation is the more important factor bearing on organizational effectiveness is not completely settled. It may be that all subordinates do not aspire to participate, but do desire the opportunity to do so when the occasion arises. Nevertheless, the tendency in much of the current literature on development methods and strategies is to take the position that active participation is a cardinal requirement for successful OD programs. This position is much more a matter of espousing a set of values than a matter of scientific evidence."³

Leadership

Leadership has long been a focus of theorist and researchers. Much of the early work on leadership focused on identifying the traits of effective

¹Ibid., pp. 512-32.

²Wren, p. 325.

³James Gibson, John Ivancevich, and James Donnelly, Jr., Organizations, (Dallas, Texas: Business Publications, Inc., Revised Ed., 1976), p. 405.

leaders. This approach was based on the assumption that a finite number of individual traits of effective leaders could be found.¹ Thus, most research was designed to identify intellectual, emotional, physical, and other personal characteristics of successful leaders.²

Stogdill reviewed thirty-three studies and found that there is a general trend which indicates that leaders are more intelligent than followers.³ Stogdill reported that leadership and intelligence were probably correlated, however, the relationship was not strong. Stogdill's attempt to classify these studies resulted in his identification of the following traits being associated with leadership: intelligence, achievement, responsibility, participation, and status.⁴ Gibson, Ivancevich, and Donnelly stated:

"A number of theorists argue for the use of a particular style to bring about end results such as high production and satisfaction. The style, or personal-behavioral, leadership approaches that have been the most widely utilized in practice appear to be the University of Michigan work and the Ohio State Studies."⁵

The Institute for Social Research at the University of Michigan under the direction of Likert began as early as 1945 to set up a series of empirical studies, in a variety of organizations, to determine what kinds of organizational structures, what principles and methods of leadership resulted in the highest productivity, the least absenteeism, the lowest turnover, and the greatest job

¹James Gibson, John Ivancevich, and James Donnelly, Jr., Organizations, (Dallas, Texas: Business Publications, Inc., Revised Ed., 1976), p. 183.

²Ibid., p. 183.

³Ralph M. Stogdill, "Personal Factors Associated with Leadership," Journal of General Psychology, (1948) XXV, p. 40.

⁴Ibid., p. 40.

⁵Gibson, Ivancevich, and Donnelly, p. 185.

satisfaction.¹ These series of studies led to the identification of two distinct styles of leadership; job-centered and employee-centered. The employee-centered leader stressed the interpersonal relationships on the job and the job-centered leader focused on getting out production and was more concerned with the technical aspects of the job.²

The effect of these two leadership styles was tested by Morse and Reimer at the Institute for Social Research. The experiment lasted for one year and involved 500 clerical employees in four divisions. In two of the four divisions, an attempt was made to make decision making process more participative, whereas in the other two divisions, the closeness of supervision was increased and the decision making centralized. Production increased under both systems. Productivity was measured in each department before the experiment and after it had been carried out for one year. Questionnaires were used to obtain employee sentiments. The findings revealed that production went up in the groups where the level of decision making had been lowered, but it went up even more where the level had been raised.³ The research of Morse and Reimers shows that productivity and worker attitudes do not necessarily move together.

The major thrust in the leadership style research developed after World War II. This "classic" piece of research was the Ohio State Studies. Stogdill, Shartle and associates, using factor analysis, isolated a two-dimensional view of leadership, (1) initiating structure: which the leader acted to further the work

¹Ibid., p. 186.

²Ibid., p. 186.

³Nancy C. Morse and E. Reimer, "The Experimental Change of a Major Organizational Variable", Journal of Abnormal Psychology, (January, 1956), pp. 120-129.

objectives of the group; and (2) consideration: which the emphasis was on the needs of the followers and upon interpersonal relationships.¹ The research investigation of Stogdill and Shartle lead to the development of a "situational" approach to leadership. Wren stated:

"The analogies between the Ohio State and the Michigan studies of leadership are substantial: (1) both held a new view which was antithetical to a trait or a single continuum approach; and (2) both identified two dimensions of leader behavior. The emphasis was on man in the group, on social motivation, on redesigning organizational tasks to yield greater worker satisfaction, on participation in decision making, and on developing new dimensions of leadership."²

In summary, Wren concluded:

"The group was the process, social man the product. Management was exhorted to turn its attention to the social side of man, to get people involved, and to thereby couple worker satisfaction and higher productivity. Social man may have been born at Hawthorne, but his nurturance and elementary education were at Yale, Harvard, Michigan, M.I.T., and Ohio State."³

Related Studies and Dissertations

The practice of management as a science compels the modern manager to formulate a personal set of norms and values.⁴ The question concerning management philosophy is a matter of how procedures and methods are followed in managing. Within the organized framework of the firm, management's philosophy of the powers of its people is a pervasively radiating influence which shapes the structure of the organization. When the organized activities of the

¹Ralph M. Stogdill and Carroll L. Shartle, "Methods in the Study of Administrative Leadership," (Columbus: Ohio State University, Bureau of Business Research, 1955), No. 80).

²Daniel A. Wren, The Evolution of Management Thought, (New York: The Ronald Press Company, 1972), p. 336.

³Ibid., p. 344.

⁴Ibid., p. 284.

firm are viewed as a social system, the philosophies which managers have about the potential abilities of subordinates are communicated in their attitudes and actions and expressed in setting standards of work performance.

A variety of management philosophies are expressed by Likert: "Measurements now being made available by social science research reveal that managers achieving better performance (in other words, greater productivity, higher earnings, lower costs, and so forth) differ in leadership principles and practices from those achieving poorer performance. This variation reflects important differences in basic assumptions about the ways of managing people."¹

The American sociologist Thomas was the first to set forth the theorem "If men define situations as real, they are real in their consequences."² Merton, professor of sociology at Columbia University, elaborated this concept—The Self Fulfilling Prophecy. Merton defined this concept by stating that when one predicts an event, the expectation of the event changes the behavior of the "prophet" in such a way as to make the event more likely to happen.³

According to Merton, the Self-Fulfilling Prophecy is, in the beginning, a false definition of a situation. This false definition causes a new behavior that makes the false conception come true. This perpetuates a circle of error, for the prophet will cite the actual course of events as proof that he was right from the very beginning.⁴

Rosenthal, a Harvard professor, coined the term "Pygmalion Effect." In his early studies, Rosenthal supervised experiments on laboratory rats.

¹Rensis Likert, New Patterns of Management, (New York: McGraw-Hill, 1961), p. 3.

²Robert K. Merton, Social Theory and Social Structure, (New York: The Free Press, 1968), p. 24.

³Ibid., p. 24.

⁴Robert K. Merton, Social Theory and Social Structure, (New York: The Free Press, 1968), p. 24.

rats were randomly chosen and students were informed that some of the rats were "maze bright" or "maze dull." The rats that were thought to be "maze bright" or "maze dull" by the students actually turned out to be that way. The students even found the "maze bright" rats to be more pleasant to handle and more cooperative.¹

In the mid-60's, Rosenthal and Jacobson tested the Pygmalion Effect in an elementary school in a lower-class neighborhood. At the beginning of the school year, they gave all the children in eighteen classrooms (three each of the six grade levels) a nonverbal IQ test. They disguised the test as one that would predict "intellectual blooming."² Rosenthal and Jacobson randomly selected twenty percent of the children in each room after the children completed the IQ test. They told the teachers that the children that were randomly selected could be expected to show remarkable gains during the coming year on the basis of their IQ test. In actuality, the difference between these experimental children and the control group was solely in the teachers' minds.³ The children were retested eight months later. The experimental children (intellectual bloomers) showed an overall IQ gain of four points over the IQ gain of the control group. Their excess in gain was two points in verbal ability and seven points in reasoning. It made no difference whether the child was in a high-ability or low-ability classroom.⁴

¹Robert Rosenthal, "The Pygmalion Effect Lives," Psychology Today, (September, 1973), p. 58.

²Robert Rosenthal, "The Pygmalion Effect Lives," Psychology Today, (September, 1973), p. 58.

³Ibid., p. 58.

⁴Ibid., p. 59.

Rosenthal and Jacobson's data indicated that there was no difference in the amount of time teachers spent with the students. This suggests that the quality of interaction that took place between the teachers and their students determined the IQ gains. The teachers thought the brighter students were more appealing, more affectionate, and better adjusted than the other students. In summary, Rosenthal and Jacobson stated:

"Thus, it was not the increased IQ that caused the teachers to like or dislike their pupils, but whether or not they had done what had been expected of them."¹

Many studies have reanalyzed Rosenthal's and Jacobson's work. Rosenthal's response to the other research concerning the Pygmalion Effect, is as follows:

"By now 242 studies have been done, with all sorts of subjects and situations. Of these, 84 found that prophecies, i.e., the experimenters' or teachers' expectations, made a significant difference. But we must not reject the theory because "only" 84 studies support it; on the contrary. According to the rules of statistical significance, we could expect five percent of those 242 studies (about 12) to have come out as predicted just by chance. The fact that we have 84, seven times more than chance would dictate, means that the Pygmalion Effect does exist in certain circumstance. Moreover, it is not limited to young children and rats; adolescents and adults are affected too."²

Livingston, Harvard professor of business, believes that the Pygmalion Effect can be found at the root of most business problems.³ Livingston explained:

"What managers expect of employees and the way managers treat them largely determines their performance and career progress. In other words, subordinates, more often than not, meet their superior's

¹Ibid., p. 59.

²Ibid., p. 59.

³J. Sterling Livingston, "Pygmalion in Management," Harvard Business Review, (July-August 1969), p. 82.

expectations. A unique characteristic of superior managers is their ability to create high performance expectations that subordinates fulfill."¹

Livingston cited the case study of Metropolitan Life Insurance Company on how the manager can learn to become a positive Pygmalion. Oberlander, manager of the Rockaway District Office of the Metropolitan Life Insurance Company, grouped what he considered to be his superior salesmen with his best assistant manager in one unit in order to stimulate the salesmen's performance. This group soon became known in the company as the "Super Staff."² Oberlander put the average salesmen with an average assistant manager, and the remaining low producers with the least able assistant manager. Both the superior and the poor groups accepted the roles expected of them and greatly increased or decreased their sales, which illustrates how the Pygmalion Effect can hinder as well as help.³

Berlew, management professor at M.I.T., and Hall, from the University of Michigan, studied the first five years of the careers of forty-seven young American Telephone and Telegraph Company managers. They found that what higher management expected of these college graduates greatly determined their subsequent performance and success.⁴ There was a .72 correlation between how much a company expected and how much the new managers contributed during the five-year period. The new managers who were given demanding and challenging jobs performed better and were more successful in the next several

¹Ibid., p. 82.

²Ibid., p. 82.

³David E. Berlew and Douglas T. Hall, "The Socialization of Managers: Effects of Expectations on Performance," Administrative Science Quarterly, (September, 1966), p. 208.

⁴Ibid., p. 82.

years than the new managers who were given less demanding assignments.¹ Livingston supports Berlew and Hall's conclusion that the first year is a critical period of learning for new trainees. He states that a young person's first manager is likely to be the most influential person in his or her career.²

King, professor of business administration at Kansas State University, studied the Pygmalion Effect in business and industry. King was interested in the effects of supervisor expectations on job performance of disadvantaged workers, mostly blacks and other minorities, who were unemployed or underemployed. King's study was conducted on the welder trainee program at Texas State Employment and Education Agency. Five welding trainees were selected at random, and the supervisors were told that these five had an exceptionally high aptitude for welding.³ King's research on experimental effects in organizational change set out to find what achieved better production: the simple power of expectation or actual job enrichment programs.⁴ King utilized a clothing pattern manufacturer's four-plant operation as a laboratory for one year. Each plant's supervisor was instructed differently:

Plant 1: Job enrichment was instituted, and supervisors were told that this would result in higher levels of output.

Plant 2: Job enrichment was instituted, but supervisors were told that there would be not great change in productivity.

¹Ibid., p. 208.

²J. Sterling Livingston, "Pygmalion in Management," Harvard Business Review (July-August 1969), p. 83.

³Albert Sidney King, "Managerial Relations with Disadvantaged Work Groups: Supervisory Expectations of the Underprivileged Worker," (D.B.A., dissertation, Texas Tech University, 1970).

⁴Ibid.

Plant 3: Instead of job enrichment, only job rotation was instituted, but supervisors were told that this would greatly increase production.

Plant 4: Only job rotation was instituted, but supervisors were told that they should not expect any change in production.¹

The results of this experiment were that plants one and three had significant increases in production. Plants two and four remained the same as in pretest conditions.² King concluded that the actual innovation of job enrichment does not have as much effect on the increase of productivity as the expectations of increase.³

Based on Rosenthal's research, as well as other research involving expectations, a four-factor "theory" was proposed by Rosenthal.

"People who have been led to expect good things from their students, children, clients, or what-have-you appear to: (1) create a warmer social-emotional mood around their "special" students (climate); (2) give more feedback to these students about their performance (feedback); (3) teach more material and more difficult material to their special students (input); and (4) give their special students more opportunities to respond and question (output)."⁴

Supervisory/Management Training

Supervisory/management training programs may take any of several forms, but such training almost always implies the need for some change in the attitudes or behavior of the trainee. The programs are designed to bring about change in knowledge, skills, attitudes, or performance of trainees. This section, in the review of related literature, will identify current trends in supervisory/management training and studies that dealt with the evaluation of these training programs.

¹Ibid.

²Ibid.

³Robert Rosenthal, p. 60.

⁴Ibid.

Trends

Lee and Stinson analyzed four thousand two-hundred and sixty-six articles from journals that cover topics pertaining to supervisory and management development. Their data revealed a drastic loss of interest in first-line supervisory training.¹ Lee conducted a follow-up sampling in 1977, which indicated no significant change in the 1969 ratios. Lee remarked:

"Although no research has been done on changes in training departments' budget allocation, my acquaintance with changes in a dozen or so companies' training activities over the years lead me to be convinced that actual training activity ratios follow the literature ratios. And a poll I conducted in an industrial area of Southeastern Ohio tends to confirm this. Of the 153 supervisors polled who attended a program sponsored by the International Management Council in 1973, 101 claimed to have had no formal training of any kind during the previous 12 months. Only 30 had had more than six hours of formal training during this period. The virtual elimination of regular first-line supervisory training in many firms seems to me to be throwing the baby out with the bathwater."²

In summary Lee said:

"Failure to provide training support coupled with the other reductions in the attractiveness of first-line supervisory job may account for the steady increase over the years of promotion rejection rates in the firms I am familiar with. One personnel manager claimed that about half of the promotion to supervision offered today are rejected in his company.³

Lee believes that management will respond to this problem by restoring some of the attractiveness of the job, which will be by providing more support through training.⁴

¹James Lee and John Stinson, "The Deemphasis of Supervisory Training," Training and Developmental Journal, (February 1975), p. 39.

²James A. Lee, The Gold and Garbage in Management Theories and Prescriptions, (Ohio University: Ohio University Press, 1980), p. 460.

³Ibid., p. 461.

⁴Ibid.

Middlebrook's study analyzed the trends that have developed in middle management training and development since 1963. Primary data were acquired from a questionnaire mailing to two-hundred and fifty-one members of American Society for Training and Development. Middlebrook's study revealed that organizations are spending a greater percentage of their training and development money on middle management.¹ The data also revealed that the techniques of training middle managers have not changed in the past fifteen years and there was a lack of a systematic approach in updating training and curriculum.²

Boisselle's study investigated the problems being experienced by companies in the Colorado Springs region in providing training for first-level supervisors. The effort was made to determine what type of programming would be required for a community college to deliver supervisory training to manufacturers and support businesses within the community. Boisselle used three survey questionnaires to survey company supervisors, and college activities and opinions on existing training programs.³ Major conclusions of the study were: (1) there was a need to provide first-level supervisor training, (2) companies placed a high importance on training, (3) the primarily reason for no training was the lack of a formal training department, (4) there was interest in having a community college provide training for supervisors, (5) companies primarily desired the ability to designate training subjects and scheduling

¹Billy J. Middlebrook, "Analysis of Trends in Middle Management Training and Development between 1963 and 1979," (Ph.D. dissertation, North Texas State University, 1980).

²Ibid.

³Arthur Henry Boisselle, "Community College Supervisory Training for Business and Industry," (Ph.D. dissertation, Colorado State University, 1979).

flexibility to accommodate their operating schedules, (6) all companies placed a high importance on having specific objectives and goals for program outcomes, and (7) the top five ranked important subjects which should be included in a training program were: communication skills, human relations, motivation of subordinates, group dynamics, and control of work quality.¹

Boisselle used a one-way analysis of variance to identify significant differences in the individual items between manufacturers and support business and companies and supervisors with consideration of whether or not the company had a training program. The hypotheses were tested at the .05 level of significance.²

Morse believes that educators must be concerned for training relevance and unless training was clearly tied to the individual employee's job performance and career development it was not worth the time or the money.³

Morse elaborated:

"Unfortunately, all too many training people drift into offering a cafeteria assortment of neatly-packaged, standardized courses which they then peddle from department to department, or location to location. That such a training is so often not relevant is demonstrated by the speed with which the axe is wielded whenever top management faces budget problems or a need to cut costs."⁴

Clark's study was designed to gather data regarding competencies needed by middle managers in industrial firms located in the Oklahoma City

¹Boisselle, pp. 88-94.

²Arthur Henry Boissell, "Community College Supervisory Training for Business and Industry," (Ph.D. dissertation, Colorado State University, 1979).

³Gerry E. Morse, "Focus on the Individual: The Mandate for Effective Education and Training," August, 1971, (Keynote Address, American Management Association, New York City.).

⁴Ibid.

metropolitan area. Clark's population was comprised of eighty firms within the Standard Metropolitan Statistical Area, grouped into four different size classifications.¹ A questionnaire was the major data collection instrument, which received a sixty-nine percent (69%) rate of return. Clark's study revealed:

1. Junior college courses designed for middle managers in the Oklahoma City metropolitan area lack relevancy for current and prospective middle managers.
2. Additional courses should ~~be designed~~ that are applicable to the geographic area studied. Courses should include competencies demanded by management of the industrial organizations in the geographic area surveyed.
3. Survey respondents were cognizant of their curriculum needs, and showed a willingness to cooperate with educators by identifying criteria needs in the development of an industrial middle management curriculum.
4. Middle Management competencies may vary according to the size of the firm. This should have a bearing on planning a curriculum for the geographic area involved.

Butler's research involved eighty-nine municipal employees, representing three cities in the Metropolitan Oklahoma City Area. The study lasted six months involving three experimental groups and three control groups. The three experimental groups had forty-one first-level supervisors and the control group contained forty-eight municipal supervisors and potential supervisors. Three instruments were used to evaluate the effectiveness of two courses of instruction in the resource development training program. The three instruments were: How Supervise?, Forms A and B, Supervisory Inventory on Human Relations and Marvin's Management Matrix. The reliability coefficient

¹ Charles E. Clark, "A Study of Curriculum Needs of Middle Managers in the Oklahoma City Metropolitan Area," (Ph.D. dissertation, University of Oklahoma, 1979), p. 37.

² Ibid., p. 93.

range for the How Supervise? was .87 to .91 with validity of .65¹ The reliability and validity of the Supervisory Inventory on Human Relations and Marvin's Management Matrix was not reported by Butler. The conclusion reached by Butler was that both courses of instruction in the human resource development training provided a valuable contribution to upgrading of local government supervisors.² Butler recommended:

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.
2. 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.
3. 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.
4. 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.
5. The facilities of the cities and resources of 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.³

¹John Lawrence Butler, "Evaluating Title 1, Higher Education Act of 1965 Human Resource Development Training for Metropolitan Oklahoma City Area Local Government Supervisors," (Ph.D. dissertation, University of Oklahoma, 1972), pp. 173-4.

²Ibid, p. 15.

³Ibid., p. 175

Fleishman's research dealt with supervisory courses away from the organizational setting. His findings revealed that the climate of leadership differed from the organizational climate and upon return to the organization, the supervisors performed less effectively.¹ Fleishman commented:

"The results clearly indicated that the foreman is more responsive to the day-to-day climate in which he operates than to any special course of training he may have been give."²

Smith's research involved the industrial supervisory/management program this study also investigated. His study dealt with overall program effectiveness in participant's attitude, knowledge, and on-the-job behavior after training. The data gathering instruments were: Course Content Test, How Supervise?, and Supervisory Style Survey. The sample consisted of twenty-five first-level civilian supervisors at Tinker Air Force Base.³ The data gathering instruments, How Supervise? and Course Content Test, was uniformly administered before training and upon completion of training. The Supervisory Style Survey (on-the-job behavior) was filled out by the participant's immediate supervisor six weeks prior to attending the training program and six weeks after completing the twelve day training.

The How Supervise? instrument was reported to have a reliability range of .74 to .91, this instrument was used to measure the participants' attitudes. The Course Content Test was an achievement test that contained one hundred multiple-choice items which reflected the content of subjects taught in the

¹E.A. Fleishman, E. F. Harris, H. E. Burt, "Leadership and Supervision in Industry: An Evaluation of a Supervisory Training Program," (Ohio State University: Bureau of Educational Research, 1955), No. 33

²Ibid.

³Smith, p. 48.

course. The reliability, using a Kuder-Richardson Formula #8, was reported as .91. The Supervisory Style Survey was developed to measure any changes in supervisory on-the-job behavior after training. Kuder Richardson Formula #8 was used to establish reliability. The reliability reported for the Supervisory Style Survey was .91.¹

The results of Smith's study were: (1) there was a significant improvement in the supervisory on-the-job behavior, (2) there was a significant improvement in the level of supervisory knowledge, and (3) there was not a significant relationship between the participants' attitude and knowledge scores.²

Smith's finding revealed a significant improvement in supervisory on-the-job behavior upon completion of training.³ Fleishman's research revealed that supervisors performed less effectively. The differences in Smiths and Fleishman's research findings may be explained by Rosenthal's "Pygmalion Effect" or Merton's Self Fulfilling Prophecy" concept. McGehee and Thayer believes that the supervisor may inject his personal regard for the training into the ratings of trained personnel.⁴ McGehee and Thayer explain:

"If he is favorable toward training, his judgement 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."⁵

¹Ibid., pp. 52-53.

²Ibid., pp. 48.

³Smith, p. 48.

⁴William McGehee and Paul W. Thayer, Training in Business and Industry, (New York: John Wiley and Sons, Inc., 1961), pp. 259-260.

⁵Ibid., p. 259.

Belasco and Trice cite three obstacles in the 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.¹

Belasco and Trice do not support pretesting, however, they emphasize that there is no single, simple, foolproof way to deal with the problems of control and contamination.²

The primary objective of training evaluation is to assess changes that may be attributed to training. Different studies involving the evaluation of supervisory/management training were reported with significant and insignificant findings in overall program effectiveness. Problems can be encountered in evaluating training unless a systematic approach is used with reliable data gathering instruments. Relevance, reliability, and freedom from bias are characteristics of any instrument used in evaluating training. McGehee and Thayer believe that instruments that appear to be relevant have no value in assessing the outcome of training if they lack reliability.³

The most frequently used instrument for evaluating supervisory/management programs has been the paper-and-pencil inventory How Supervise?, Forms A and B.⁴

¹James A. Belasco and Harrison M. Trice, The Assessment of Change in Training and Therapy, (New York: McGraw-Hill, Inc., 1968), pp. 22-32.

²Ibid.

³McGehee and Thayer, p. 265.

⁴Donald 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. 17.

How Supervise? Instrument

The How Supervise? instrument contains items which deal with problems generally of concern to a person who supervises workers.¹ The items for How Supervise? were obtained through conferences with industrial supervisors, industrial relations personnel, and an examination of the literature dealing with industrial supervision. The two How Supervise? forms, A and B, contains seventy items each and were developed from a pool of two-hundred and four items.² The "best" answers were obtained by administering the questionnaire to thirty-seven supervisory staff members of the government's Training Within Industry program and to eight individuals who have written books and articles in the field of industrial relations or mental hygiene.³ The final selection of items was accomplished by administering two experimental forms, one-hundred and two items each, to seven-hundred and fifty supervisors in ten industries.⁴ The industries varied in size, geographical location, internal organizational makeup, and type of product made. The total score was obtained for each of the seven-hundred and fifty supervisors from the two forms. The data from the highest twenty-seven percent (27%) and the lowest twenty-seven percent (27%) were separated for further study.⁵ Items that did not discriminate were discarded and the one-hundred and four remaining items were divided to make up the seventy item in each form, A and B.⁶

¹File and Remmers, How Supervise Manual, p. 3.

²Ibid., p. 8.

³Ibid., p. 8.

⁴Ibid., p. 8.

⁵Ibid., p. 8.

⁶File and Remmers, How Supervise Manual, p. 8.

Forms A and B were released in 1943, and were originally constructed to yield equivalent scores when administered to comparable groups. Since the original publication, the instrument has been revised two times and used in numerous studies in business and industry.¹

File and Remmers reported results of four studies that showed a reliability coefficients of near .80.² The Spearman-Brown formula was applied to the alternate correlations to estimate the reliability of the two forms (A and B) used in combination by the four studies.³ File and Remmer report:

"Comparison of the raw score equivalents on the two forms, for each of seven percentile points, indicates that within the score range studied, scores on Form B are between two and ten points higher than scores on Form A, with a median of four points. The mean Form B score exceeds the mean Form A score by five points. Thus, scores on Form B averaged less than three-eighths of a standard deviation higher than scores on Form A. In view of the recommended uses of How Supervise?, this difference is not considered sufficiently great to justify the construction of separate norms for the two forms."⁴

File and Remmers summarized available research, published and unpublished, relating to the validity of the How Supervise? instrument. The correlation values ranged from a low of $r = 0.29$ to a high of $r = .79$.⁵ The studies testing the reliability of the How Supervise? instrument ranged from $r = .74$ to $r = .91$.⁶

¹Ibid., p. 7.

²Ibid., pp. 9-10.

³Ibid., p. 10.

⁴Ibid., p. 11.

⁵Ibid., p. 11.

⁶Ibid.

Studies have explored the relationship between the total scores on How Supervise? and ratings and rankings of on-the-job performance. The coefficients of correlation of How Supervise? with other test ranged from $r = .22$ to $r = .67$.¹ Maloney researched the readability of Forms A and B, using the Flesch method, and found that the required reading skills equal to those of a typical high school graduate.²

The How Supervise? instrument's principal use is in conjunction with training programs, which accounts for the high correlations. The How Supervise? has been found to correlate with various supervisory performance criteria, but it is basically a measure of knowledge and attitudes.³

The inclusion of the How Supervise?, Forms A and B, instrument in this study is prohibited by the publisher, therefore, the following explanation concerning the instrument is needed for the readers understanding.

Forms A and B, of the How Supervise? instrument, contains one-hundred and forty statements, each form has seventy statements divided into three major sections. The three major sections per form are: Supervisory Practices, Company Policies, and Supervisor Opinions.

The Supervisory Practices section contains seventeen statements on each form, A and B, that list practices followed by different supervisors, the respondent makes one of three choices per statement, desirable, uncertain, or undesirable. An example is as follows.

"11. Prohibiting conversations between
coworkers on routine jobs. D ? U⁴

¹Ibid.

²Ibid.

³File and Remmers, p. 7.

⁴Ibid., Form A

The Company Policies section contains twenty-four statements on each form, A and B that list methods used by different companies in handling their relations with employees, the respondent makes one of three choices per statement, desirable, uncertain, or undesirable. An example is as follows:

"24. Fining employees for violation of
rules. D ? U¹

The Supervisory Opinions section contains twenty-nine statements on each form, A and B, that list opinions held by various supervisors in similar positions to the respondent. The respondent makes one of three choices per statement, agree, uncertain or disagree. An example is as follows:

"55. Ability to handle workers is inborn,
not learned. A ? DA"²

File and Remmers reported a reliability coefficient range of .59 to .80 when Forms A and B are used together as a single measure.³ The researcher addressed the instrument's reliability from three directions: (1) overall reliability of Forms A and B to the training program investigated, (2) reliability of each section, contained in Forms A and B, to determine representativeness in each section, Supervisory Practices, Company Policies & Supervisor Opinions, and (3) to determine the consistency of the instrument in measuring the separate traits upon repeated measures. The reliability procedures and findings are in Chapter IV.

¹Ibid., Form A

²File and Remmer, p. 7.

³Ibid., Form A

The How Supervise? instrument's principal use is in conjunction with training programs, which accounts for the high correlations. The How Supervise? has been found to correlate with various supervisory performance criteria, but it is basically a measure of knowledge and attitudes.¹

Summary of Research

The following major categories of supervisory/mangerial training have been identified: (1) Theoretical Background, including the development of the organization as a social system and the dynamics of leadership impact upon subordinates, (2) Related Studies and Dissertations, which identifies characteristics that influence the shape of the organizational structure and how it effects productivity, and (3) Supervisory/Management Training which includes trends and related studies of supervisory/managerial training.

The analysis of pertinent research identifies patterns that currently exist pertaining to supervisors and managers in organizational structures. The human relations movement called for a new mix of management skills which is still being probed in today's industries. Numerous viable research investigations have explored various degrees of worker participation, methods and strategies of leadership in a variety of organizational settings to increase productivity and bring about a higher job satisfaction for employees.

Trends in management training have not changed in the past two decades, studies were identified that called for a more systematic approach to updating training and more emphasis on training evaluation. Obstacles in training evaluation included control and contamination. The evaluation instrument, How Supervise?, used in this research investigation was explained and the instrument's major use identified.

¹Ibid.

With the review of literature providing background information, an attempt was made to determine if there was a significant change in supervisors' /managers' attitudes toward Supervisory Practices, Company Policies, and Supervisor Opinions upon completion of training. The methods used to accomplish this purpose are set forth in the following chapter.

CHAPTER III

METHODOLOGY

Introduction

This descriptive study was designed to ascertain if there is any statistically significant change in participants' attitudes concerning Supervisory Practices, Company Policies, and Supervisor Opinions while participating in a training program designed to bring about positive changes in these areas. Best stated:

"Descriptive research describes and interprets what is. It is concerned with conditions or relationships that exist, practices that reveal; beliefs, point of view, or attitudes that are held; processes that are going on; effects that are being felt; or trends that are developing."¹

The purpose of this chapter was to describe the methodology used in the study. The chapter was organized in four major categories: population for the study, collection of data, methods of statistical analyses, and summary.

Population for the Study

The population for the study consisted of all supervisors and managers at Tinker Air Force Base, who completed the First-Level Supervisory Course at

¹John W. Best, Research in Education, 2nd ed., (Englewood Cliffs, New Jersey: Prentice-Hall, 1970), p. 116.

the Management Training Center located at Oscar Rose Junior College, Midwest City, Oklahoma.

The First-Level Supervisory Course is a twelve day course consisting of seven hours of instruction per day. A total of eighty-four hours of training is given per class. Each First-Level Supervisory Course presented allows a maximum of twenty supervisors and managers per class and all participants must be employed at Tinker Air Force Base, Midwest City, Oklahoma.

Class folders were retrieved from the Management Training Center's files to determine the total population for the research investigation. The total population consisted of one thousand and six supervisors and managers who had completed the First-Level Supervisory Course.

The decision for selecting the total population was made by considering the consequences of making a Type I as opposed to a Type II error. The alpha level used in this study was the .05 level of significance.

Linton and Gallo commented:

"the .05 level is accepted as the most appropriate choice. . .because it has historical justification, and it is accepted by editors of scientific journals as an appropriate alpha risk. At the same time, it minimizes the risk of a Type II error better than more stringent levels."¹

The beta level for any research cannot be precisely controlled; neither can its size be easily estimated.² Many statisticians believe the beta level is inversely related to the alpha level and size of the sample.³

¹Marigold Linton and Philip S. Gallo, Jr., The Practical Statistician: Simplified Handbook of Statistics, (Monterey, California: Brooks/Cole Publishing Company, 1975), p. 49.

²Ibid., p. 48.

³Ibid.

Linton and Gallo stated:

"The experimenter can reduce the probability of making a Type II error by (1) using an alpha level of .05 rather than a more stringent one, as of .025 or .01 and (2) by using as many subjects as can be reasonably obtained."¹

Collection of Data

The data needed in the research investigation were the participants' total scores in Supervisory Practices, Company Policies, and Supervisor Opinions contained in Form A and B of the How Supervise? instrument.

Class folders were retrieved from the Management Training Center's files and each participants' completed How Supervise? (Forms A and B) were matched and eight scores were recorded for each participant. Form A was administered to each participant before training, therefore, this form represented the four scores for the following areas: Supervisory Practices, Company Policies, Supervisor Opinions and total score of Form A. The four scores obtained from Form A were dependent variables used in the study.

Form B was administered to each participant upon completion of training, therefore, this form represented scores in four areas, also contained in Form A. The four areas were: Supervisory Practices, Company Policies, Supervisor Opinions and total score of Form B. The four scores obtained from Form B were dependent variables used in the study.

¹Marigold Linton and Philip S. Gallo, Jr., The Practical Statistician: Simplified Handbook of Statistics, (Monterey, California: Brooks/Cole Publishing Company, 1975), p. 49

Methods of Statistical Analyses

To statistically analyze the relationship between and within the areas, Supervisory Practices, Company Policies, and Supervisor Opinions, Pearson's product-moment correlation and analysis of variance were selected. Pearson's product-moment correlation is a parametric procedure measuring the degree of association between two quantitative variables.¹

Downie and Heath explained:

"Correlation is basically a measure of relationship between two variables. Most correlation coefficients tell us two things. First, we have an indication of the magnitude of the relationship and second, it gives information about the direction of the relationship. ²When the two variables are continuous, it is the best statistic to use."

For this study, the researcher was concerned with the degree of relationship between pre and post test scores relating to Supervisory Practices, Company Policies, and Supervisor Opinions. Pearson's *r* measured the statistical relationships that exist in each of the areas contained in the How Supervise? instrument.

The formula for calculating Pearson's Product-Moment Correlations is:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}}$$

The relationship of pre-test scores and post-test scores are identified for each area, Supervisory Practices, Company Policies, and Supervisor Opinions, and total scores. To determine the proportion of common variance between the two sets of variables in each area, the correlations are squared to yield the

¹Linton and Gallo, Jr., p. 122.

²N.M. Downie and R.W. Heath, Basic Statistical Methods, (New York: Harper and Row, 1974), 4th ed., p. 82.

coefficient of determination. The coefficient of determination enabled the researcher to conceptualize the strength or intensity of each correlation found in each of the four areas: Supervisory Practices, Company Policies, Supervisor Opinions, and Total Scores.

The dependent variables (pre- and post-test scores) and the dependent variables (post-test scores) in each area, Supervisory Practices, Company Policies, Supervisor Opinions, and Total Scores of Forms A and B were plotted to assist the researcher in determining the direction and magnitude of the relationships. The scatter diagram also provided the researcher a visual check on the factors which influenced the value of the coefficient which had to be taken into account for interpretation.

The analysis of variance (Anova) and the Tukey's Multiple Comparison test were used to test all null hypotheses.

Linton and Gallo elaborated:

"Analysis of variance is applicable to simple, two-condition experiments, but it can be expanded to analyze research with any number of independent variables and with any number of levels of those variables. With minor modification, it can be used to analyze between subjects, within subjects, and complex designs. Analysis of variance is one of the most powerful and flexible statistical test of significance."¹

"The analysis of variance was a within-subjects Anova also called a randomized block design."² The data taken from the How Supervise? instrument was pre and post scores from Forms A and B, in the following areas: (1) Supervisory Practices, Company Policies, Supervisor Opinions, and Total scores. A total of eight scores, four from Form A and four from Form B, per participant was recorded for analysis.

¹Linton and Gallo, Jr., p. 122.

²Schuyler W. Huck, William H. Cormier, and William G. Bounds, Jr., Reading Statistics and Research, (New York: Harper and Row, 1974), p. 281.

The dependent variables were pre- and post-test scores obtained from Forms A and B in four areas: (1) Supervisory Practices, (2) Company Policies, (3) Supervisor Opinions, and (4) Total Scores. The statistical model was a within-subjects, which represented the pre-post measurement of training in each of the areas. This determined the interaction of the two factors, measurement of attitude in each area before and after training.

Tukey's test is a multiple comparison technique that enabled the researcher to determine which differences between means are significant and which are not. the Tukey test (studentized range statistic) uses the values obtained from the analysis of variance (Anova) summary table.

The general formula for calculating Tukey's multiple comparison test is:

$$q = \frac{X_L - X_S}{\sqrt{\frac{MS_{wg}}{N_g}}}$$

Huck, Cormier and Bound elaborated:

"a researcher cannot stop his analysis after getting a significant F; he must locate the cause of the significant F. To do this, he must perform a follow-up analysis."²

The Statistical Package for the Social Sciences (SPSS)³ programs for Pearson's product-moment correlation, Scattergram, and analysis of Variance were used to determine the relationships and to test the significance at the .05 level of each hypothesis stated.

¹Albert E. Bartz, Basic Statistical Concepts, (Minnesota: Burgess Publishing Company, 1981), 2nd ed., p. 123.

²Huck, Cormier and Bound, p. 68.

³Nie, Norman H., et. al. Statistical Package for The Social Sciences, (New York: McGraw-Hill Book Co., 1970), p. 276-402.

The researcher computed Tukey's Multiple Comparison technique using the values from the analysis of variance (ANOVA) summary table.

Summary

The procedures used in the statistical analyses for each hypothesis were:

Procedure one involved retrieving How Supervise?, Forms A and B from the Management Training Center's files and recording eight scores per participant for one-thousand and six industrial supervisors and managers employed at Tinker Air Force Base. Procedure two involved writing computer programs, using the Statistical Package for the Social Sciences (SPSS) format.¹ Procedure three was the punching of data cards and running three programs: Pearson's product-moment correlation, scattergram, and analysis of variance (Anova). Procedure four consisted of determining the reliability of the How Supervise?, Forms A and B, to the training program investigated. Procedure five involved determining the reliability for each area: Supervisory Practices, Company Policies, Supervisor Opinions and Total Scores of the How Supervise? instrument, Forms A and B. Kuder-Richardson Formula #21 and Pearson's product-moment correlation were used to test the reliability of all the areas in the How Supervise? instrument. Procedure six involved the analyses of the data for each area: Supervisory Practices, Company Policies, Supervisor Opinions, and Total Scores, to determine the correlation coefficient and coefficient of determination. The scattergram was used to determine the linear relationship that existed in each area. The researcher drew the regression line from the data provided. The scattergrams are found in Appendix A. Procedure seven involved the test of

¹Nie, Norman H., et. al., p. 176-402.

significance analysis of variance, for each hypothesis. The F ratios for each hypothesis were identified and the F distribution table was used to determine significance at the .05 level.¹ Procedure eight involved the evaluation of the pairs of means for Supervisory Practices, Company Policies, Supervisor Opinions and Total Scores. The q (Tukey's Multiple Comparison technique) values for each hypothesis were identified and the critical values table was used to determine significance at the .05 level².

¹Edward W. Minium, Statistical Reasoning in Psychology and Education, (New York: John Wiley and Sons, Inc., 1970), pp. 449-453.

²Albert E. Bartz, Basic Statistical Concepts, (Minnesota: Burgess Publishing Company, 1981), 2nd ed., p. 423.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of Chapter IV is to present the data gathered concerning supervisors' and managers' attitudes toward Supervisory Practices, Company Policies, and Supervisor Opinions upon completion of training designed to bring about positive changes in these areas. The data were gathered from the evaluation instrument, How Supervise?, Forms A and B. The total population, used in the study, consisted of one thousand and six supervisors and managers employed at Tinker Air Force Base that completed the First-Level Supervisory Course at the Management Training Center, located at Oscar Rose Junior College, Midwest City, Oklahoma.

How Supervise?, Form A, was uniformly administered before training to each supervisor/manager and How Supervise?, Form B, was uniformly administered to each supervisor/manager upon completion of the twelve day training course. The two forms, A and B, of the How Supervise? evaluation instrument, constituted the data used in this research investigation.

The data were studied and analyzed to determine if there were significant differences at the .05 level between the supervisors' and managers' pre-test, Form A, and post-test, Form B, relating to Supervisory Practices, Company Policies, and Supervisor Opinions as measured by the How Supervise? instrument.

Chapter IV was divided into major sections to give an organized and concise presentation of the findings. The findings were the results of the analysis and interpretation of the data gathered for this research investigation. The six major sections are as follows:

1. Statistical analysis involving the reliability of Forms A and B, of the How Supervise? instrument to the training program investigated.
2. Statistical analysis involving the reliability of each area: Supervisory Practices, Company Policies, Supervisor Opinions, and Total Scores of the How Supervise? instrument.
3. Statistical analyses relating to Hypothesis I.
4. Statistical analyses relating to Hypothesis II.
5. Statistical analyses relating to Hypothesis III.
6. Statistical analyses relating to Hypothesis IV.
7. Summary of the analyses relating to all hypotheses tested.

Forms A and B Reliability

Pearson's product-moment correlations was used to determine the reliability of the How Supervise?, Forms A and B, to the training program investigated. The Statistical Package for the Social Sciences (SPSS) was used to determine the coefficient of correlation and coefficient of determination that existed.¹ Table 1 depicts the substantial relationship ($r = .52$) that existed between the two variables, Forms A and B of How Supervise?. The strength of the relationship (r^2) was .27, which indicated homogeneity of the groups and that the majority of the cases were clustered close to the mean.

The test of reliability confirms Files and Remmers reported reliability range ($r = .59$ to $.80$) when Forms A and B are used together as a single

¹Nie, Norman H., et. al. Statistical Package for the Social Sciences, (New York: McGraw-Hill Book Company, 1970), pp. 276-299.

TABLE 1
RELIABILITY COEFFICIENTS FOR ALTERNATIVE FORMS
A AND B OF HOW SUPERVISE?

Number	Form A		Form B		r	r ²
	Mean	S.D.	Mean	S.D.		
1006	53.5	6.4	58.8	6.7	.52	.27

measure.¹ Files and Remmers reported that higher coefficients would be expected when the forms are used together.² The researcher found a substantial correlation coefficient ($r = .52$) involving one thousand and six industrial supervisors and managers, with the proportion of variance being .27 (r^2).

The substantial relationship ($r = .52$) between Forms A and B was established. A scattergram was computed using the Statistical Package for the Social Sciences (SPSS) to determine the pattern of the relationship.³ The scattergram subprogram printed a plot of data points, computed the linear regression coefficient, the intercept, the slope, and the standard error of estimate.

Figure 1 is a graphic presentation which depicts the linear relationship found between Forms A and B of the How Supervise? instrument is in Appendix A. The interpretation of the scattergram is as follows: The vertical axis indicated the dependent variable, Form A, with the horizontal axis indicated by

¹File and Remmers, How Supervise? Manual, p. 7.

²Ibid., p. 7.

³Nie, Norman H., et. al. Statistical Package for the Social Sciences, (New York: McGraw-Hill Book Company, 1970), p. 294.

the dependent variable, Form B. The data points are represented by asterisks (*) when a single case falls into a printing position. If two through eight cases falls into the same position, the actual number of cases is printed. Nine or more cases are represented by the number nine. The scale is determined by the highest and lowest value for each variable in the graph. The researcher drew the regression line from the data provided, so the reader could conceptualize the "goodness of fit."

Based on the correlation of coefficient ($r = .52$), the direct linear relationship and proportion of variance ($r^2 = .27$) the researcher concluded that the How Supervise? Forms A and B, evaluation instrument had reliability to the training program investigated.

The validity of How Supervise?, Forms A and B, to the program investigated was based on its relevance to the principles, objectives, and techniques that are taught in the course evaluated. The examination of the three sections of the How Supervise? instrument, Supervisory Practices, Company Policies, and Supervisor Opinions, were compared with the contents of the First-Level Supervisory Course. This comparison indicated a strong "face-relevance" validity which was one of the reasons this evaluation instrument, How Supervise?, was adopted by the Management Training Center.

The data gathered and analyzed for each hypothesis tested reveals the extent of the effectiveness of the training in changing participants' attitudes in the following areas: (1) Supervisory Practices, (2) Company Policies, and (3) Supervisor Opinions. The scattergrams for each area investigated can be found in Appendix A.

Area Reliability of How Supervise?

The reliability was approached from two directions. First, the researcher had to determine if each area of the How Supervise? instrument was measuring the trait as it was intended to measure and secondly was each area of the instrument measuring the same trait consistently upon repeated measures.

Pearson's product-moment correlation was used to determine if each area: Supervisory Practices, Company Policies, and Supervisor Opinions, was measuring separate traits as the instrument was designed to accomplish. The Statistical Package for the Social Sciences (SPSS) was used to compute the correlations.¹ Table 2 shows the correlations ranging from .31 to .44 for Form A and .43 to .50 for Form B, thus indicating each of the areas are measuring separate traits as the instrument was designed.

Table 2

CORRELATION COEFFICIENTS OF ALL AREAS IN THE
HOW SUPERVISE? INSTRUMENT

	Form A Reliability	Form B Reliability
Supervisory Practices with Company Policies	.31	.50
Supervisory Practices with Supervisor Opinions	.39	.43
Company Policies with Supervisory Opinions	.44	.48

¹Nie, Norman H., et. al. Statistical Package for the Social Sciences, (New York: McGraw-Hill Book Company, 1970), pp. 276-299.

To determine the consistency of the instrument, How Supervise?, to measure the separate traits upon repeated measures, Kuder-Richardson Formula #21 was computed by the researcher. The formula is as follows:

$$r_{el} = \frac{1 - M(n-M)}{Ns^2}$$

The M is the mean with n representing the number of items for each area with s^2 being the standard deviation squared for variance. Table 3 shows the reliability of each area contained in both forms (A and B) of the How Supervise? instrument.

Table 3
RELIABILITY OF THE AREAS CONTAINED IN THE
HOW SUPERVISE?, FORMS A AND B

AREA	FORM A RELIABILITY	FORM B RELIABILITY
Supervisory Practices	.33	.30
Company Policies	.55	.65
Supervisor Opinions	.50	.66
Total Scores	.70	.80

¹Julian C. Stanley, Educational Measurement, 2nd ed., edited by Robert L. Thorndike. (Washington D.C.: American Council on Education, 1971), p. 415.

Supervisory Practices has seventeen items with a mean of 14.4 and a standard deviation of 1.8 on Form A. Form B had a mean of 14.3 with a 1.8 standard deviation in the Supervisory Practices area. The computed reliability, using Kuder-Richardson Formula #21, was .33 on Form A and .30 on Form B. Based on the low reliability, the researcher concluded that the Supervisory Practices area of Forms A and B is not as strong as parts II and III.

Company Policies has twenty-four items with a mean of 16.1 and a standard deviation of 3.4 on Form A. Form B had a mean of 18.7 with a standard deviation of 3.4 on Form B. The computed reliability using Kuder-Richardson Formula #21 was .55 on Form A and .65 on Form B. Based on the substantial reliability, the researcher concluded that the Company Policies area of Forms A and B was reliable.

Supervisor Opinions has twenty-nine items with a mean of 22.9 and a standard deviation of 3.1 on Form A. Form B had a mean of 25.7 and a standard deviation of 2.9 on Form B. The computed reliability, using Kuder-Richardson Formula #21 was .50 on Form A and .66 on Form B. Based on the substantial reliability found, the researcher concluded that the Supervisor Opinions area of Forms A and B was reliable.

The Total Scores includes all three sections for a total of seventy items on each form, A and B. Form A had a mean of 53.5 and a standard deviation of 6.4 on Form A. Form B had a mean of 58.8 and a standard deviation of 6.7 on Form B. The computed reliability using Kuder-Richardson Formula #21 was .70 on Form A and B, the instrument does measure the separate traits consistently upon repeated measures with exception of the Supervisory Practices area.

Analyses of Hypothesis I

The first hypothesis to be tested and the results were as follows:

Hypothesis 01: There is no significant differences at the .05 level between the participants' pre-test and post-test scores relating to Supervisory Practices as measured by the How Supervise? instrument.

In order to test this hypothesis it was necessary to perform Pearson's product-moment correlation and analysis of variance (Anova) between the pre-test, Form A and post-test, Form B, of the How Supervise? instrument. A scattergram subprogram was performed to indicate the strength of the linear relationship between the two variables, Forms A and B, Supervisory Practices. The scattergram found in Appendix A was performed to give the reader and the researcher a better understanding of the strength of association that existed.

Table 4 contains evidence that the correlation coefficient found was a low positive correlation ($r = .24$) with .05 (r^2) proportion of variance between Forms A and B, pertaining to Supervisory Practices.

TABLE 4
CORRELATION OF HOW SUPERVISE? FORMS A AND B
SUPERVISORY PRACTICES

Number	Form A		Form B		r	r^2
	Mean	S.D.	Mean	S.D.		
1006	14.4	1.8	14.3	1.8	.24	.05

Table 5 presents the results when data from Forms A and B, involving the Supervisory Practice area, were subjected to a one-way analysis of variance (Anova). The resulting F ratio ($F = 10.8$) was significant at the .05 and .01 level

of significance. The tabled F distribution to be significant was 2.71 for the .05 level and 4.31 for the .01 level of significance.

TABLE 5
ANALYSIS OF VARIANCE OF HOW SUPERVISE? FORMS A AND B
SUPERVISORY PRACTICES

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio
Between Groups	9	249.7	27.7	10.8*
Within Groups	996	2551.5	2.5	
Total	1005	2801.2	+	+

*Significant at the .05 and .01 level

Tukey's multiple comparison tests revealed a q of 2 between the means. The table value for q to be significant at .05 level is 2.77 and 3.64 at the .01 level of significance.¹ Based on Tukey's multiple comparison test (q = 2), the differences between the means is not large enough to yield a significant q. An occurrence of finding a significant F (F = 10.8) and not finding a q value of significance (q = 2) is possible, however, it is quite rare.² The hypothesis is accepted based on the non-significance of q.

¹Bartz, p. 423.

²Ibid., p. 288

Analyses of Hypothesis II

Hypothesis two pertained to the Company Policies area of the How Supervise? instrument, Forms A and B. The null hypothesis tested was as follows:

Hypothesis 02: There is no significant differences at the .05 level between the participants' pre-test and post-test scores relating to Company Policies as measured by the How Supervise? instrument.

Tables 6 and 7 contains the differences between the pre-training attitudes, Form A, and the post-training, Form B, of the supervisors/managers, pertaining to the Company Policies area of How Supervise? instrument. Pearson's product-moment correlation, strength of association and analysis of variance (Anova) and Tukey's Multiple Comparison Test were the statistical computations performed on the data relating to Company Policies.

The correlation shows substantial relationship ($r = .46$) with .21 (r^2) proportion of variance between Forms A and B pertaining to Company Policies. The scattergram plot (Appendix A) depicts the linear relationship that existed between the two variables, Forms A and B.

The data contained in Table 7, reveals a significant change ($F = 17.8$) in the participants' attitudes upon completion of the training as measured by Forms A and B of the How Supervise? instrument.

Attitudes were significantly changed in the Company Policies area following participation in the supervisory/managerial training program, however, the researcher can account for twenty-one percent in the proportion of variance (r^2), therefore, strong inferences can not be made. The null hypothesis was rejected based on the substantial relationship ($r = .46$) with the strength of association being ($r^2 = .21$), and the F ratio ($F = 17.8$), and a q value ($q = 28.8$) which was significant at the .05 and .01 level. The null hypothesis was rejected.

TABLE 6
CORRELATION OF HOW SUPERVISE? FORMS A AND B
COMPANY POLICIES

Number	Form A		Form B		r	r ²
	Mean	S.D.	Mean	S.D.		
1006	16.1	3.4	18.7	3.4	.46	.21

TABLE 7
ANALYSIS OF VARIANCE OF HOW SUPERVISE? FORMS A AND B
COMPANY POLICIES

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio
Between Groups	18	2788.9	154.9	17.8*
Within Groups	987	8596.2	8.7	
Total	1005	11385.1	+	+

*Significant at the .05 and .01 level

Analysis of Hypothesis III

Hypothesis three pertained to the Supervisor Opinions area of the How Supervise? instrument, Forms A and B. The null hypothesis tested was as follows:

Hypothesis 03: There is no significant differences at the .05 level between the participants' pre-test and post-test scores relating to Supervisor Opinions as measured by the How Supervise? instrument.

Table 8 shows a 2.81 mean gain in the participants' pre-test to post-test scores with the standard deviation decrease of .20. The correlation was a substantial relationship ($r = .47$) with twenty-two percent proportion of variance (r^2). The scattergram showing the strength of association can be found in Appendix A.

Table 9 reveals that the group made significant increases ($F = 20.5$) from their pre-test, Form A, and post-test, Form B, scores involving the Supervisor Opinions area of the How Supervise? instrument.

The data were interpreted as showing a significant change in Supervisor Opinions area following participation in the supervisory/managerial training program. The null hypothesis was rejected based on the substantial relationship ($r = .47$), with the strength of association ($r^2 = .22$), the F ratio of 20.5 and a q value of 35, which was significant at the .05 and .01 level. The proportion of variance ($r^2 = .22$) indicated homogeneity of the group, however, strong inferences can not be made based on the low proportion of variance found.

Analyses of Hypothesis IV

Hypothesis four dealt with the relationship between the three areas, Supervisory Practices, Company Policies, and Supervisor Opinions, of the How Supervise? instrument. The null hypothesis tested was as follows:

Hypothesis 04: There is no significant relationship at the .05 level between Supervisory Practices, Company Policies, and Supervisor Opinions as measured by the participants' pre-test and post-test scores from the How Supervise? instrument.

TABLE 8
CORRELATION OF HOW SUPERVISE? FORMS A AND B
SUPERVISOR OPINIONS

Number	Form A		Form B		r	r ²
	Mean	S.D.	Mean	S.D.		
1006	22.9	3.1	25.7	2.9	.47	.22

TABLE 9
ANALYSIS OF VARIANCE OF HOW SUPERVISE? FORMS A AND B
SUPERVISOR OPINIONS

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Squares	F Ratio
Between Groups	18	2686.0	149.3	20.5*
Within Groups	987	7175.3	7.3	
Total	1005	9862.3	+	+

*Significant at the .05 and .01 level

In order to test hypothesis four, all scores pertaining to each of the areas plus the total scores of the instrument, Forms A and B were analyzed. The statistical computations were: Pearson's product-moment correlation, strength of association, (r^2 and scattergram), and analysis of variance (Anova) and Tukey's Multiple Comparison Test were used to determine the test of significance. Tables 10 through 13 presents the findings for all the statistical computations performed.

All areas except Supervisory Practices had mean gains. The areas that showed the most significant differences in the pre-test, Form A and post-test, Form B, were in Company Policies and Supervisor Opinions. The interpretation of the mean gains may be attributed to the supervisory training. The Total Scores area indicated a +5.3 mean gain, which implies overall positive changes in the participants' attitude upon completion of the training.

Table 10 shows the areas having the most changes are in the participants' attitudes pertaining to Company Policies and Supervisor Opinions. Supervisory Practices had a -.1 mean loss, which can be interpreted as no change occurring in the participants' attitudes upon completion of training.

TABLE 10
MEANS COMPARED FOR HOW SUPERVISE? FORMS A AND B
IN ALL AREAS

Area	Form A Pre-Training		Form B Post-Training		Mean Gain
	Mean	S.D.	Mean	S.D.	
Supervisory Practices	14.4	1.8	14.3	1.8	- .1
Company Policies	16.1	3.4	18.7	3.4	+2.6
Supervisor Opinions	22.9	3.1	25.7	2.9	+2.8
Total Scores	53.5	6.4	58.8	6.7	+5.3

Table 11 presents the correlations found in all the areas contained in the How Supervise? instrument. The correlation coefficients ranged from a low direct relationship ($r = .24$) to a substantial relationship ($r = .47$). Considering the Total Score, combination of all the areas, the relationship was a significant relationship with the proportion of variance being $.27 (r^2)$. The strength of association appears to be higher for the Company Policies and Supervisor Opinions areas.

Table 12 presents the test of significance (Anova) and Tukey's Multiple Comparison Test performed for hypothesis four. The test of significance (Anova) and Tukey's Multiple Comparison Test revealed all areas of the How Supervise? instrument were significant except Supervisory Practices. A significant relationship does exist between two of the areas, therefore, three of the four null hypothesis were rejected. Total scores reflected or statistical significance which confirms Smith's research findings of statistical significance in participants' attitudes, as measured by pre-test and post-test scores from the How Supervise? instrument, Forms A and B, upon completion of training.¹

Summary

Chapter IV has presented the results of the study, which was based on the data gathered involving one thousand six supervisors and managers employed at Tinker Air Force Base, who had completed the First-Level Supervisory Course at the Management Training Center located at Oscar Rose Junior College, Midwest City, Oklahoma.

¹Edward Smith, "The Effects of A Supervisory Training Program on the Attitudes, Knowledge and Behavior of Supervisors at an Air Force Logistics Center," (Ph.D. dissertation, University of Oklahoma, 1978), p. 57.

TABLE 11
CORRELATION OF HOW SUPERVISE? FORMS A AND B
IN ALL AREAS

Area	r	r ²
Supervisory Practices	.24	.05
Company Policies	.46	.21
Supervisor Opinions	.47	.22
Total Scores	.52	.27

TABLE 12
ANALYSIS OF VARIANCE AND MULTIPLE COMPARISON
OF HOW SUPERVISE? FORMS A AND B
IN ALL AREAS

Area	Source	df	MS	F	q
Supervisory Practices	Between Within	9 996	27.7 2.5	10.8*	2**
Company Policies	Between Within	18 987	154.9 8.7	17.8*	28.8*
Supervisor Opinions	Between Within	18 987	149.3 7.3	20.5*	35*
Total Scores	Between Within	36 969	389.6 28.1	13.8*	31.1*

*Significant at the .05 and .01 level

**Not significant at the .05 and .01 level

Statistical testing utilizing Pearson's product-moment correlation revealed significant relationships existed between Supervisory Practices, Company Policies, and Supervisor Opinions, of the How Supervise? instrument. Scattergrams performed on the data revealed the direct linear relationship that existed in each of the areas. The test of significance (Anova) did reveal significant F ratios in all areas plus Total Scores, however Tukey's Multiple Comparison Test revealed significant q values for all areas except Supervisory Practices. The F ratios indicated that participants' attitudes were changed in two areas upon completion of training. Table 13 presents the summary of results in testing the four null hypotheses this study investigated.

TABLE 13
SUMMARY OF THE RESULTS OF TESTING FOUR HYPOTHESES

Hypothesis	Area Tested	Results
1	Supervisory Practices	Not Significant
2	Company Policies	Significant*
3	Supervisor Opinions	Significant*
4	All Areas	Significant*

*Significant at the .05 and .01 level

Conclusions were drawn from the results of the statistical analyses. These conclusions and their implications are presented in the following chapter. Also included in Chapter V is a summary of the study and recommendations for further research regarding supervisory/management training.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This study was conducted to identify changes in supervisors' and managers' attitudes toward Supervisory Practices, Company Policies, and Supervisor Opinions while participating in a training program. This was accomplished by statistically analyzing the evaluation instrument, How Supervise?, Forms A & B, used in a specific training program. The training program investigated was the 12 day First-Level Supervisory Course conducted for all supervisors and managers employed at Tinker Air Force Base. The Management Training Center located at Oscar Rose Junior College, Midwest City, Oklahoma, conducted the 12-day First-Level Supervisory Course.

An analysis of information from a review of the literature produced data relating to supervisory/management training. This review was classified into three major categories: Theoretical Background, Related Studies and Dissertations, and Supervisory/Management Training Studies were identified that called for a more systematic approach to updating training and more emphasis on training evaluation.

The extensive search of available literature in supervisory/management training programs, using the How Supervise? instrument, revealed no research had been conducted to determine which areas measured by the instrument were significantly changed or unchanged due to training.

For the purpose of this study, the problem was stated as: "Are there any statistically significant changes in participants' attitudes concerning Supervisory Practices, Company Policies, and Supervisor Opinions while participating in a training program designed to bring about positive changes in these areas." The objectives of the study were: (1) to identify areas that are being significantly changed due to training, and (2) to determine the relationship between and within each of the areas: (A) Supervisory Practices, (B) Company Policies, and (C) Supervisor Opinions.

The population consisted of one-thousand six industrial supervisors/managers employed at Tinker Air Force Base, who had completed the First-Level Supervisors Course at the Management Training Center located at Oscar Rose Junior College in Midwest City, Oklahoma.

Procedures

Four hypotheses were formulated and tested in this study. Hypothesis one related to the Supervisory Practice area contained in the How Supervise? evaluation instrument. Hypothesis two related to the Company Policies area in the How Supervise? evaluation instrument. Hypothesis three related to the Supervisor Opinions area of the How Supervise? evaluation instrument. Hypothesis four related to all three areas: Supervisory Practices, Company Policies, and Supervisor Opinions; plus total scores of Form A and B of the How Supervise? instrument. Each hypothesis consisted of data related to the immediate evaluation objective of measuring attitudes of industrial supervisors/managers. Attitudes of each participant toward each of the areas contained in the How Supervise? instrument were identified before training. Form A, of the How Supervise? instrument provided the data needed to determine the participants'

pre-training attitudes. Form B, of the How Supervise? instrument provided the data needed to determine the participants' attitude changes. The hypotheses were tested by applying statistical analyses to the data. The statistical analysis performed on each of the hypotheses were: Pearson's product-moment correlation, scattergram, analysis of variance (Anova), and Tukey's Multiple Comparison Test. The Statistical Package for the Social Sciences (SPSS) was used to provide the programs needed for data analyses.¹ Pearson's product-moment correlation was performed to determine the degree of relationship that existed between pre and post test scores relating to Supervisory Practices, Company Policies, and Supervisor Opinions. To determine the proportion of common variance between the variables in each of the areas, the correlations were squared to yield the coefficient of determination. Scattergrams were necessary to assist the researcher in determining the direction and magnitude of the relationships. The analysis of variance (Anova) and Tukey's Multiple Comparison Test were used to test the significance of the data gathered for each of the hypothesis. The level of significance for each of the hypothesis was the .05 level. The data were analyzed for each hypothesis and conclusions drawn concerning the changes in participants' attitudes.

Findings

The results of testing the four null hypotheses of this study revealed the following findings.

There was not a significant difference at the .05 and .01 level in the change in participants' attitudes toward Supervisory Practices, as measured by the How Supervise? instrument. This area of the How Supervise? instrument was

¹Nie, Norman H., et. al. Statistical Package for the Social Sciences, (New York: McGraw-Hill Book Co., 1970), pp. 276-405.

not as reliable (.24) in measuring attitudes consistently on repeated measures. It is possible the training program did bring about positive changes in the participants' attitudes toward Supervisory Practices, however, this section of the instrument did not measure significant change at the .05 level.

2. There was a significant difference at the .05 and .01 level in the change in participants' attitudes toward Company Policies, as measured by the How Supervise? instrument. This area revealed a significant relationship with a higher proportion of variance than in the Supervisory Practices area. The training program may be bringing about a positive change in the participants' attitudes toward Company Policies.

3. There was a significant difference at the .05 and .01 level in the change in participants' attitudes toward Supervisor Opinions, as measured by the How Supervise? instrument. The data revealed a significant relationship. The researcher, based on the findings, concluded that the training program contributed to positive gains in the participants' attitudes.

4. There was a significant difference at the .05 and .01 level in the change in relationship between the three areas, Supervisory Practices, Company Policies, and Supervisor Opinions, as measured by the How Supervise? instrument. Overall positive changes in the participants' attitudes may be attributed to the training program.

Analysis of the data for Supervisory Practices, Company Policies, and Supervisor Opinions revealed positive significant changes in all areas except Supervisory Practices. The findings revealed the training program is having an impact involving the changing of participants' attitudes towards Company Policies and Supervisor Opinions.

Conclusions

Based on the findings of this study, the following conclusions were reached.

1. The How Supervise? Forms A and B have overall reliability and measures separate traits as designed.
2. The How Supervise? Forms A and B measure attitudes toward Company Policies and Supervisor Opinions consistently upon repeated measures.
3. The How Supervise? Forms A and B do measure attitudes toward Supervisory Practices; however, the consistency upon repeated measures was found to be not significant at the .05 level.
4. The First-Level Supervisory Course is having an appreciable affect on participants' attitudes in Company Policies and Supervisor Opinions upon completion of training.

Recommendations for Further Research

For this study the following recommendations for further research are:

1. A study be made of industrial supervisors and managers to determine if demographic factors (age, sex and education level) have an impact on attitudes.
2. A study be made of industrial supervisors and managers to determine if length of supervisory/managerial experience and the organizational climate has any impact on attitudes.
3. An indepth evaluation of different types of training to determine the impact for change in attitudes.
4. A study be made to identify the relationship of training course content to items contained in the How Supervise? evaluation instrument.
5. A study conducted to develop a modification of Form B of the How Supervise? instrument, to be administered at the mid-point of a training program.
6. Study involving the re-administration of Forms A & B of the How Supervise? instrument upon participants return to attend other courses at the Management Training Center.

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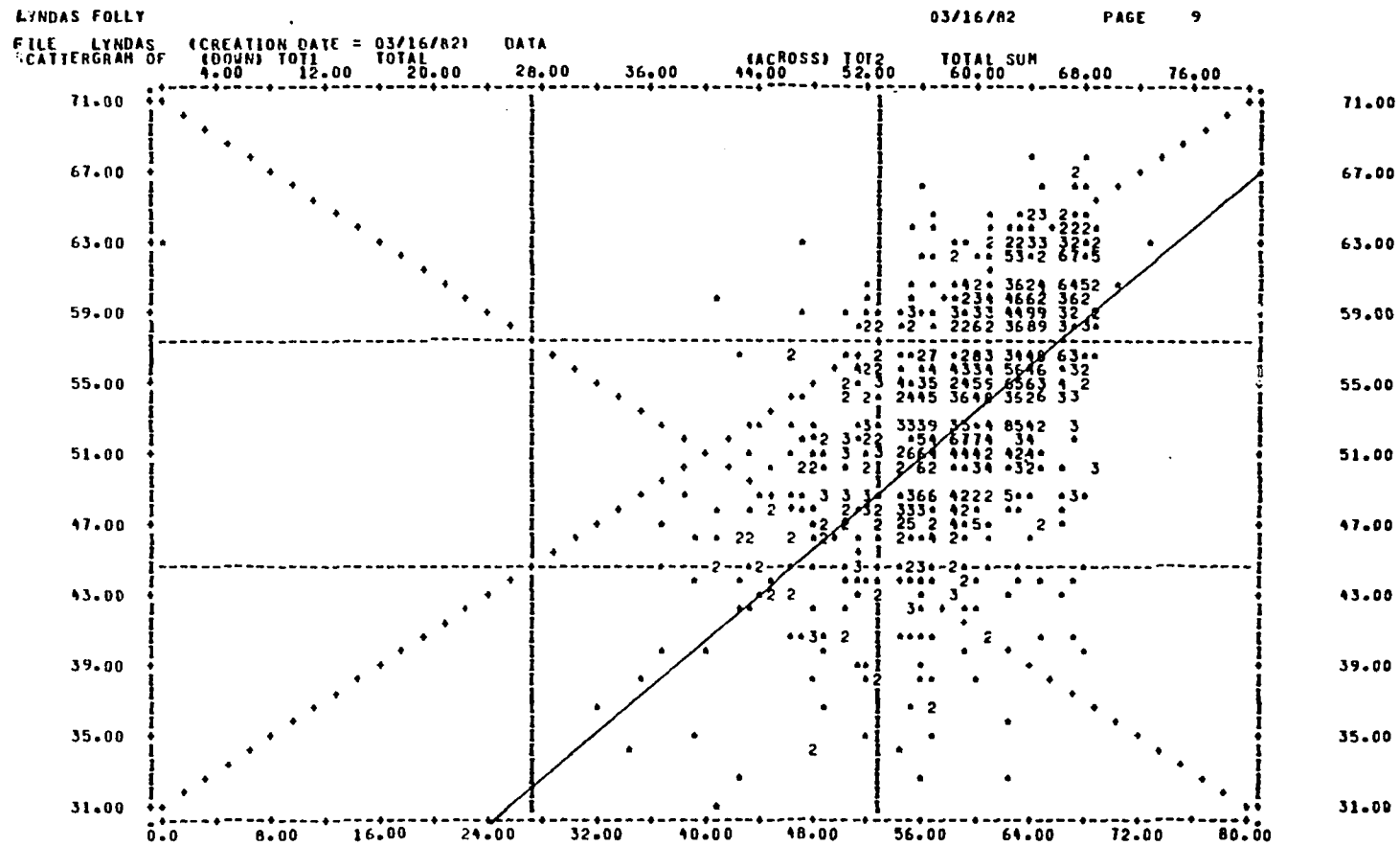
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APPENDICES

APPENDIX A
SCATTERGRAMS
(computer run)

Figure 1

Linear Relationship: How Supervise? Forms A and B



Linear Relationship of How Supervise? Forms A and B: Supervisor Practices

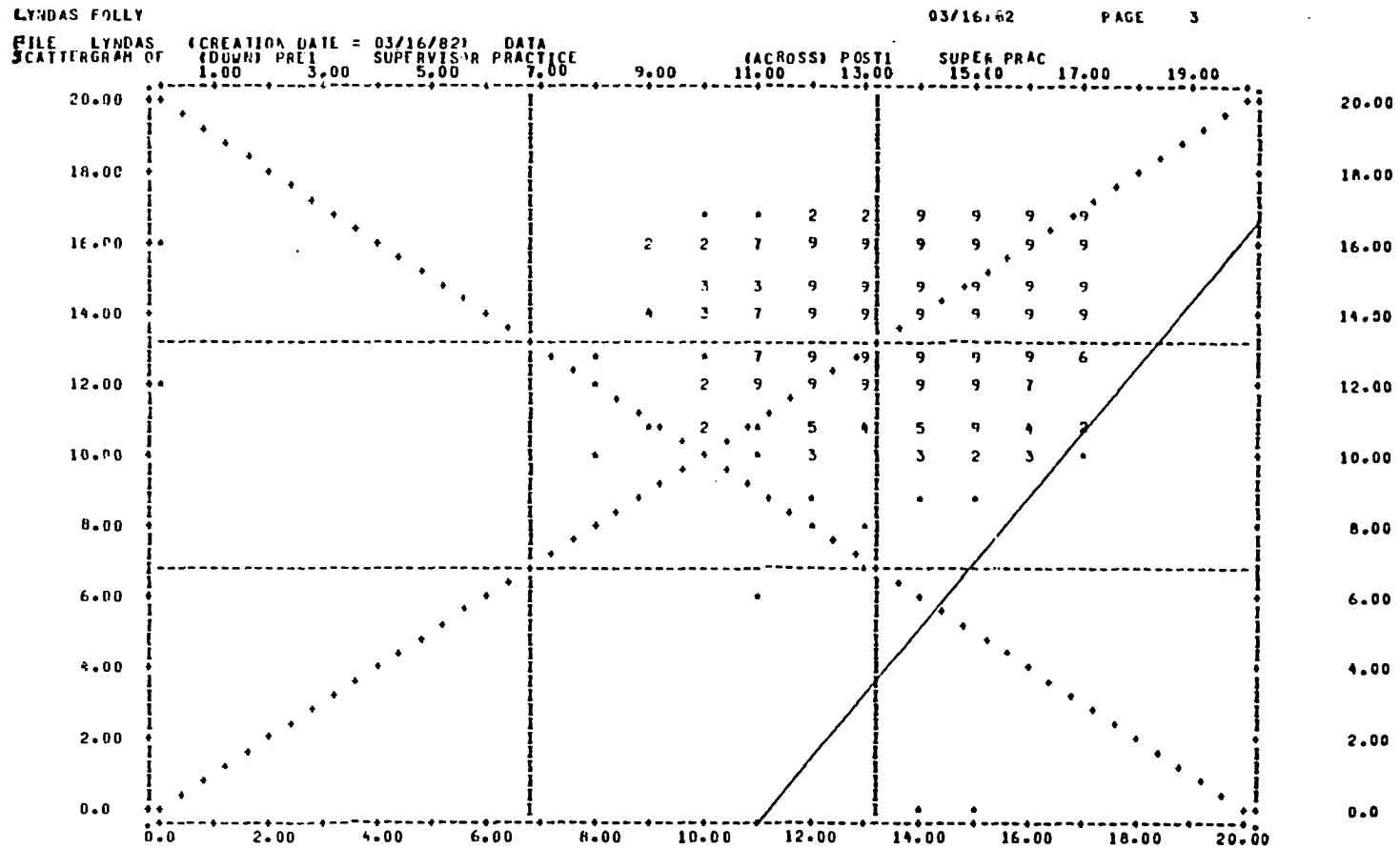


Figure 3

Linear Relationship of How Supervise? Company Policies

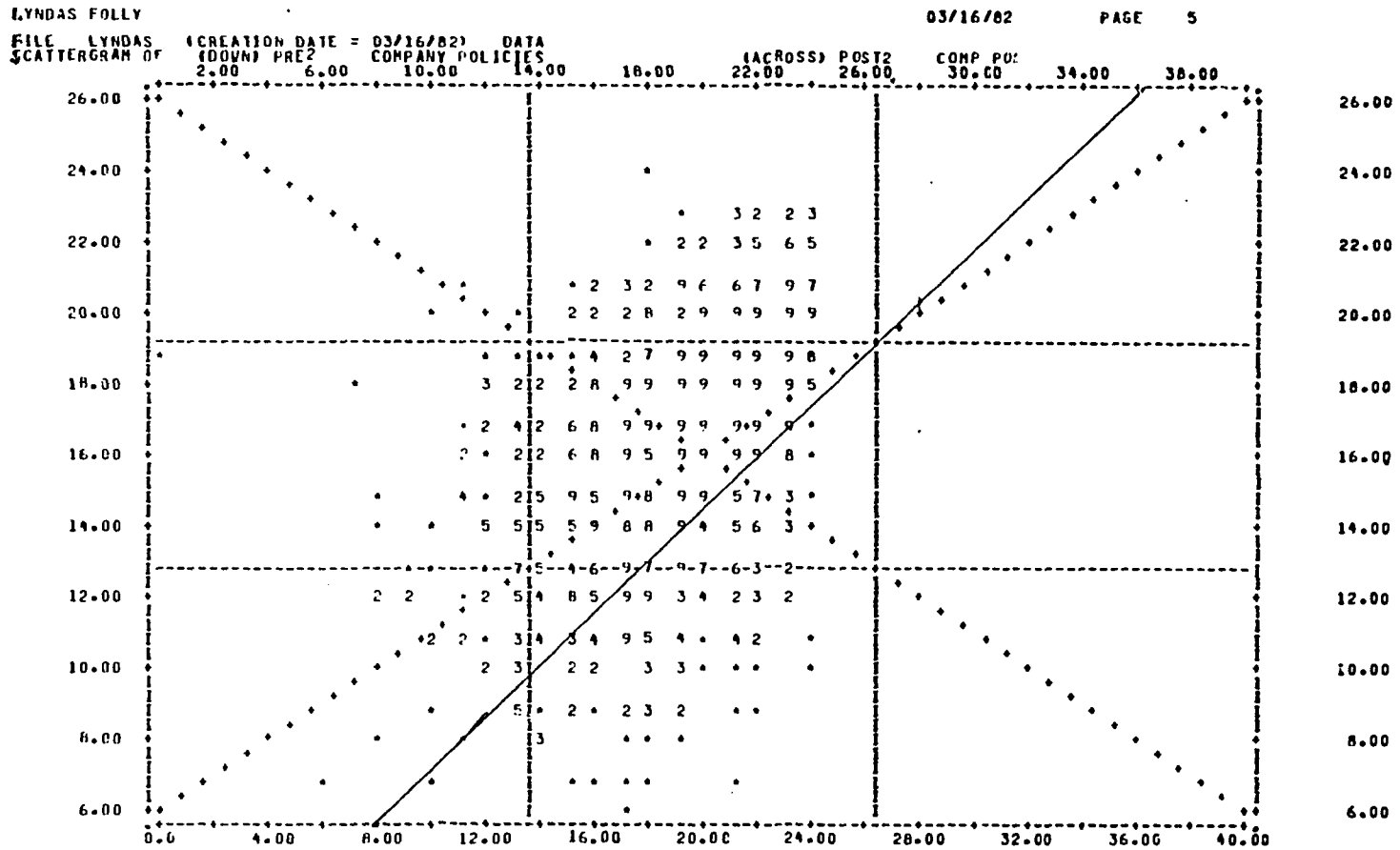


Figure 4

Linear Relationship of How Supervise? Forms A and B: Supervisor Opinions

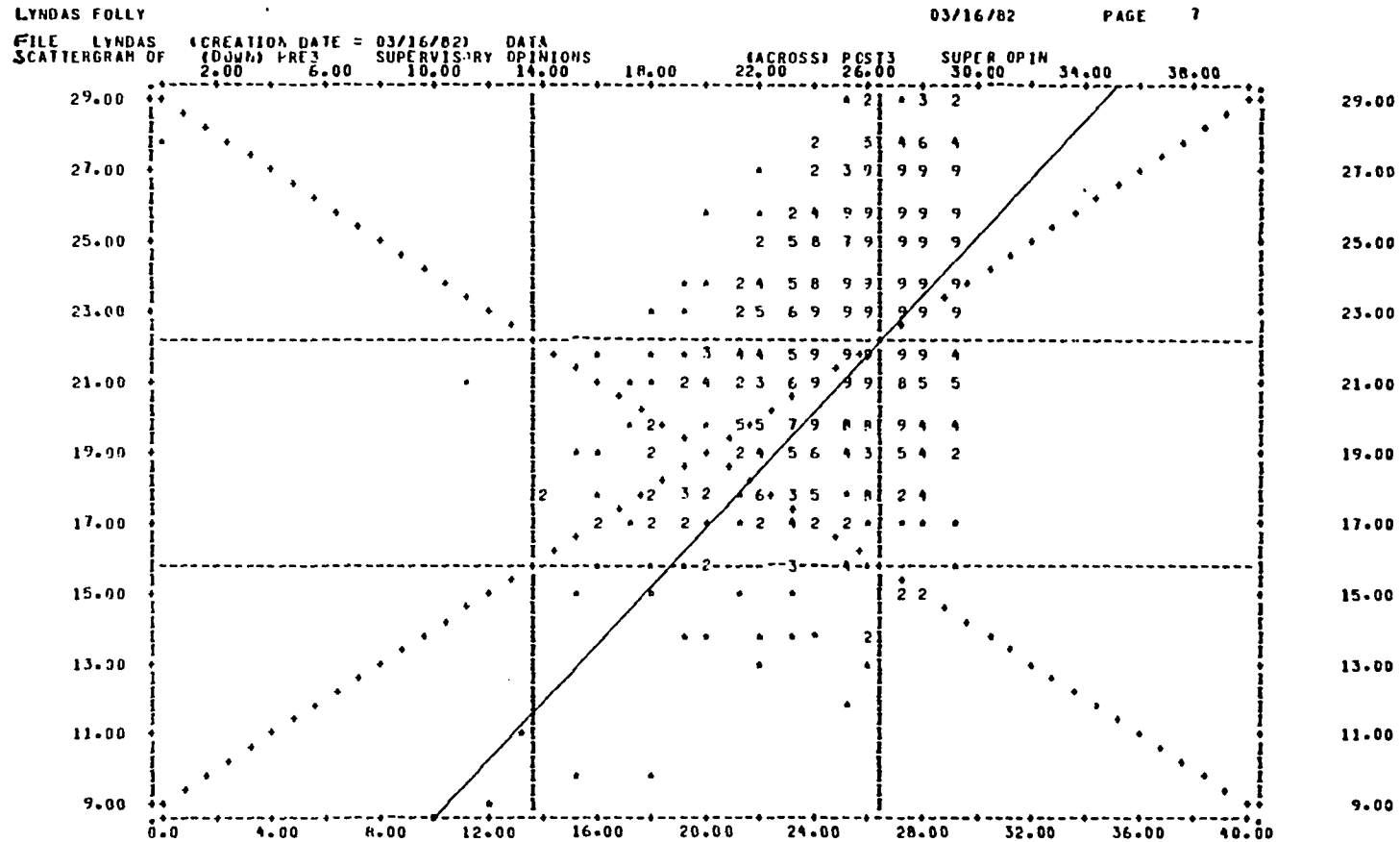


Figure 5

Linear Relationship of How Supervise? Forms A and B: Totals

