

1978

The Effects of Performance Feedback on Performance, Locus of Control, Role Conflict and Role Ambiguity: a Field Study.

Alev Mustafa Efendioglu
Louisiana State University and Agricultural & Mechanical College

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THE EFFECTS OF PERFORMANCE FEEDBACK ON
PERFORMANCE, LOCUS OF CONTROL, ROLE CONFLICT
AND ROLE AMBIGUITY: A FIELD STUDY.

THE LOUISIANA STATE UNIVERSITY AND
AGRICULTURAL AND MECHANICAL COL., PH.D., 1978

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THE EFFECTS OF PERFORMANCE FEEDBACK ON PERFORMANCE,
LOCUS OF CONTROL, ROLE CONFLICT
AND ROLE AMBIGUITY: A FIELD STUDY

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Management

by
Alev M. Efendioglu
B.S., Iktisadi Ticari Ilimler Akademisi, Istanbul, 1972
M.B.A., Louisiana State University, 1974
December, 1978

ACKNOWLEDGMENTS

There are many people I would like to thank who were instrumental in helping me formulate the ideas presented in this study and who, in many cases, were also instrumental in contributing to my personal growth. I am grateful to my dissertation committee--Dr. Jerry Wallin, Dr. Michael Peters, Dr. O. Jeff Harris, Dr. Herbert Hicks, and Dr. Loren Scott. Their continuous encouragement, constructive suggestions, patience, and supportive attitude have been extremely helpful to me in completing this work. I am especially indebted to my dissertation chairman, Dr. Wallin, and to Dr. Peters, who were always available when I needed their advice, despite their busy schedules. Also, special thanks are expressed to Dr. Dave Smith for extending his invaluable assistance in designing the experiment and analysis of the results.

Further, I would like to thank all the people and the organizations who participated in this field experiment. I am especially grateful to Mrs. Sally Lay of Fidelity Bank and to Mr. Dub Noel of American Bank for acting as coordinators for the organizations involved in the study.

Finally, I would like to extend my gratitude to Mary H. Alston for all the mechanical chores involved in putting the dissertation together. Without her diligent efforts and promptness, the deadlines would never have been met.

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ABSTRACT

The purpose of this study was to find out the relationship between performance feedback and four separate dependent variables in an organizational setting. It was an attempt to determine the effect of performance feedback upon the tellers' performance levels, degree of externality (locus of control), degree of perceived role conflict and role ambiguity in two banking institutions. These institutions are located in the capital city of a southern state in the United States. Fifty-four tellers working at these two banking institutions participated in the field experiment, which lasted 120 days.

In order to achieve the purpose of this study, the following hypotheses were analyzed:

Hypothesis 1. There is no significant difference in the performance levels of the experimental and control groups at pre-test (T_1) and post-test (T_2) time periods.

Hypothesis 2. There is no significant difference in the scores of externality of the individual members of the experimental and control groups at pre-test (T_1) and post-test (T_2) time periods.

Hypothesis 3. There is no significant difference in the degree of perceived role conflict of the experimental and control groups at pre-test (T_1) and post-test (T_2) time

periods.

Hypothesis 4. There is no significant difference in the degree of perceived role ambiguity of the experimental and control groups at pre-test (T_1) and post-test (T_2) time periods.

A pre-test/post-test, quasi-experimental design was used in the study and the data obtained were statistically analyzed using the analysis of variance.

Secondary literature was utilized in reviewing selected research related to the effect of performance feedback on performance, locus of control, role conflict, and role ambiguity. Two questionnaires served as the primary sources and were used to establish levels of locus of control, and the degree of perceived role conflict and role ambiguity at pre-test (T_1) and post-test (T_2) time periods. A performance evaluation form was developed by the researcher (in consultation with the representatives of the institutions) to gather data on the performance levels. This performance evaluation form was also used by the branch managers of the two institutions to provide performance feedback to the participants in the experimental groups.

Results from the test of the hypotheses provided the following conclusions:

1. The initial notion that performance feedback has a positive effect on the level of performance was not supported.

2. Changes in expectancies can be brought about by introducing new experiences and the external orientations of people may be altered.

3. The degree of perceived role conflict that results from conflicting expectations and organizational demands may be positively influenced by performance feedback.

4. Performance feedback may positively affect the degree of perceived role ambiguity as caused by the non-existence or non-clarity of behavioral requirements.

Two major implications derived from the results of this study were suggested. First, performance feedback can be a very effective change tool if used properly. Second, using performance feedback, coupled with a reinforcement program, to build self-correcting and adaptive human systems can result in substantial benefits for the organization.

Further research was recommended. Since no attempt has been made to study these same concepts in the context used in this study, the findings at best can be treated as tentative. Therefore similar research should be conducted in other organizations before any generalization of the causality can be made.

I. INTRODUCTION

The last decade has witnessed an exponential growth rate of research and writing on behavior in organizations. Students and researchers in the field of organizational behavior have attempted to understand what causes behavior, why these particular antecedents cause behavior, and most importantly which of these antecedents of behavior they control directly and which are beyond their control. As a result many inroads have been made in understanding the behavior of humans in organizational settings. Yet the complexity of the subject matter and the changing set of cultural and/or environmental factors at any given point of time demand continuous research.

The research conducted in real settings will not only enhance the body of knowledge but will also provide viable tools for present as well as future managers. This field study was conducted in pursuit of such an objective. The participants were tellers of two banks in a southern state.

The focus of the study was the level of performance of the participants, their generalized expectancies for internal versus external control of reinforcement (locus of control) and the degree of role conflict and role ambiguity they perceived in performing their jobs. The intention of the study was to find out if these four factors can be positively

affected by providing methodical, frequent feedback on performance so that their dysfunctional consequences are eliminated or minimized.

A. Purpose of the Study

This research was concerned with the following purposes:

To find out the relationships between 1) performance feedback (PF) and performance, 2) performance feedback (PF) and locus of control, 3) performance feedback (PF) and role conflict, and 4) performance feedback (PF) and role ambiguity.

More specifically, its purpose was to discover the effects of performance feedback on performance, locus of control, role conflict and role ambiguity and to find out if increased performance feedback would contribute positively to these four variables.

To accomplish this objective, four null hypotheses were developed to be tested.

B. Scope and Limitations of the Study

Factors affecting human behavior in work organizations are numerous. A comprehensive analysis of all factors influencing behavior of individuals in organizations was beyond the scope of this study.

The study employed five factors. These were performance feedback, level of performance, locus of control, role

conflict and role ambiguity. These factors in themselves are also influenced by numerous factors internal and/or external to the individual and the organization. Therefore, the primary emphasis of the study was the specific relationship between the independent and dependent variables. The attempt was made to discover whether there is a relationship between the independent variable (performance feedback) and each of the dependent variables (performance, locus of control, role conflict and role ambiguity). The initial levels of performance, internal/external orientations, the degree of role conflict and role ambiguity perceived by the participants did not have a bearing on the study. The changes in these factors was the focus of the project.

Any study using only a few variables limits itself in drawing any conclusions only to the above factors. Although this may seem unsatisfactory, any relationships that could be established between a limited number of variables can contribute to the overall understanding of the complex problem of work-related behavior.

Further limitations were imposed on this study due to the uniqueness of the industry selected. The banking industry is unique from the standpoint that it cannot be classified as completely product- or completely service-oriented. This is reflected in the type of performance evaluation form utilized in the study. The location (capital of a southern state) of the study and the type of employees participating in the study also limit the generalization of the conclusions.

Since the data for the study was collected only on the tellers, a true representation of the total organization could not be achieved through the sample. This is important because the above factors are known to have different effects on work-related behavior at different hierarchical levels within the organization. Valecha¹ and Pryer and Distefano² suggest that the higher the level of person in the organizational hierarchy, the greater the internal orientation. Schuler³ reports that at the higher level of the organization, role ambiguity and role conflict were unrelated to performance. Furthermore, for employees at the lower level, while both role ambiguity and role conflict were negatively related to performance, role ambiguity was more negatively related.

In spite of the limitations imposed, significant insights were gained into the factors employed in this study. This in itself is a justification but a more comprehensive justification for the study is discussed in the next section.

¹G. K. Valecha, "Construct Validation of Internal-External Locus of Reinforcement Related to Work-Related Variable," Proceedings 80th Annual Convention, American Psychological Association, 7 (1972), 455-456.

²M. W. Pryer and M. K. Distefano, Jr., "Perceptions of Leadership Behavior, Job Satisfaction, and Internal-External Control Across Three Nursing Levels," Nursing Research, 20 (1971), 534-537.

³Randall S. Schuler, "Role Perceptions, Satisfaction, and Performance: A Partial Reconciliation," Journal of Applied Psychology, 60 (1975), 683-687.

C. Justification for the Study

There is little doubt that work effectiveness is important from both an organizational and societal standpoint. While the old theories and techniques of human resource management are certainly not entirely wrong, there seems need to explore new alternatives and develop new techniques which can be used to cope with the human problems in organizations today. These new alternatives are an attempt to predict, explain and control human behavior in organizations, which is affected and complicated by many factors. Feedback, if properly used, is one of the most effective tools that influence individual and group behavior.

Feedback as a concept was developed in the 1940's and 1950's, when scientists began looking at the world in terms of systems models. They were interested in the nature of systems, the applicability of systems models to both the physical and social world, and the use of systems concepts for specific applications. The term "feedback" was introduced into general usage by Wiener⁴ in his formulations of an approach called cybernetic theory. He defines feedback as information regarding actual performance or the results of the activities of a system. Wiener calls feedback "the property of being able to adjust future conduct by past

⁴N. Wiener, Cybernetics: or Control and Communication in the Animal and the Machine (New York: Wiley, 1948); N. Wiener, The Human Use of Human Beings: Cybernetics and Society (Boston: Houghton Mifflin, 1950).

performance."

As the systems-model concept developed in the 1950's and 1960's, it became evident that the concept of systems (in general) and feedback (in particular) could be applied to social systems as well as to physical or mechanical systems. In the social system, however, the process of using system-output information to change system functioning is somewhat more complex than in mechanical models. Wiener suggests:

Feedback is a method of controlling a system by re-inserting into it the results of its past performance. If those results are merely used as numerical data for the criticism of the system and its regulation, we have the simple process of the control engineers. If, however, the information which proceeds backward from performance is able to change the general method and pattern of performance, we have a process which may well be called learning.⁵

Since the social science concept of feedback has become synonymous with the term "knowledge of results," this view of the learning function of feedback has a major implication. Potential feedback information may exist, but in many cases the system may not exercise the option of using the data. It is not necessarily an automatic process in a social system.

The systems theory concept became widespread in the 1960's and began to influence the thinking and writing concerning formal work organizations. Once again, the feedback

⁵David A. Nadler, Feedback and Organization Development: Using Data-Based Methods (Menlo Park, N.J.: Addison-Wesley, 1977), pp. 68-69.

concept went through a process of further definition. The important role played by feedback in helping organizations to continually correct errors and adapt to changing environment was recognized and discussed by many theorists.- Katz and Kahn wrote:

. . . The feedback principle has to do with information input which is a special kind of energetic importation, a kind of signal to the system about the functioning of the system in relation to its environment. The feedback of such information enables the system to correct for its own malfunctioning or for changes in the environment, and thus maintain a steady state. . . .⁶

It should be noted that feedback enables correction rather than automatically bringing it about. This is important because the potential benefits of feedback may be ignored. In the broad view, this inadequate use of feedback information is the underlying rationale for this study. Unfortunately organizations often ignore feedback or do not make an effort to use feedback effectively other than as a part of the control system. The findings of this study should serve an important function of directing attention to feedback processes, thus helping to minimize the dysfunctional work-related consequences of behavior of people in organizations.

The importance of feedback, especially performance feedback, has not gone completely unnoticed. In 1911, Taylor⁷ recognized the importance of tying positive outcomes

⁶D. Katz and R. L. Kahn, The Social Psychology of Organizations (New York: Wiley, 1966), p. 28.

⁷F. W. Taylor, Principles of Scientific Management (New York: Harper, 1911).

(namely, money) to goals accomplished. Providing employees with feedback on performance can, according to Payne and Hanty,⁸ serve the following two functions: a) it can act as a directive to keep goal-directed behavior on course and b) it can act as an incentive to stimulate greater effort among workers. In a natural work setting, the superior can look at indicators of performance and then praise the positive aspects of the employee's performance. According to Skinner,⁹ this extrinsic consequence should strengthen the desired behavior. Hundal's¹⁰ study showed significant improvement in performance of a repetitive industrial task between the pre- and post-experimental periods of feedback. Deci¹¹ found that praise from significant others enhanced effort. In 1968, Locke, Cartledge and Koeppel¹² published a complete review of the evidence bearing on the contention

⁸R. B. Payne and G. T. Hanty, "Effect of Psychological Feedback upon Work Decrement," Journal of Experimental Psychology, 50 (1955), 343-351.

⁹B. F. Skinner, Contingencies of Reinforcement, A Theoretical Analysis (New York: Appleton-Century-Crofts, 1969).

¹⁰P. S. Hundal, "Knowledge of Performance as an Incentive in Repetitive Industrial Work," Journal of Applied Psychology, 53 (1969), 224-226.

¹¹E. L. Deci, "The Effects of Externally Mediated Rewards on Intrinsic Motivation," Journal of Applied Personality and Social Psychology, 18 (1971), 105-116; E. L. Deci, "The Effects of Contingent and Noncontingent Rewards and Controls on Intrinsic Motivation."

¹²E. A. Locke, N. Cartledge, and J. Koeppel, "Motivational Effects of Knowledge of Results: A Goal-Setting Phenomenon," Psychological Bulletin, 70 (1968), 474-485.

that feedback serves as an incentive, or motivator, for future behavior.

The above discussion and brief review of literature clearly demonstrate the importance and usefulness of the performance feedback (PF) concept. Yet there is need for more analysis on the effects of this concept on some of the psychological factors that also affect work-related behavior. Unfortunately no attempt has been made to understand the effects of PF on psychological concepts of locus of control, and perceived role conflict and role ambiguity in organizational settings. To gain an insight into the complex topic of organizational behavior, all the concepts related to it should be examined. Establishing viable tools and understanding their relationships to the underlying factors that affect organizational behavior will not only enrich the body of knowledge but also will provide the most needed tools to understand and control the behavior of the individuals to benefit the organization and society as a whole.

One of the psychological concepts (locus of control) that affect work-related behavior is embodied in the social learning theory. According to Phares,¹³ social learning theory is one theory by which an attempt can be made to understand human social behavior and the sometimes bewildering array of conditions that affect it. The emphasis of the

¹³E. J. Phares, Locus of Control in Personality (Morristown, N.J.: General Learning Press, 1976).

theory is on learned social behavior. With this social focus, it is contended that unlearned, biological determinants are less important. In the realm of social behavior, learned attitudes, values, and expectations seem more useful than instincts, hormones, and blood pressure. Expectancies or a person's anticipation for the outcomes of behaviors are learned, and they depend upon the degree of success or failure one has enjoyed in the past. It has been hypothesized that internal versus external perception of control differentially influences shifts in expectancy, or subjective probability of attaining a goal. The most straightforward test of this hypothesis is reported by Phares.¹⁴ Phares instructed half of his subjects that performance at a task is only a matter of luck (external control), while subjects in a second experimental condition received instructions that performance is determined by skill (internal control). The data revealed that increments in the expectancy of future success offer a success experience, and increments in the expectancy of failure following a failure experience were more frequent and of greater magnitude in the skill than chance condition. That is, the preceding outcome was believed more likely to recur given internal rather than external perception of control. Changes in expectancies can be brought about by introducing new

¹⁴E. J. Phares, "Expectancy Changes in Skill and Chance Situations," Journal of Abnormal and Social Psychology, 54 (1957), 339-342.

experiences that alter previous patterns of success and failure. Increased use of performance feedback can be a very viable and effective organizational tool in accomplishing this objective.

Social learning theory has demonstrated the importance of locus of control (internal/external orientations of individuals) in influencing a wide variety of behaviors.¹⁵ The Internal-External Scale (I-E), developed by Rotter,¹⁶ measures a person's perception that events which happen to him are contingent upon his behavior. An internal person essentially feels in control of things which happen to him; an external person believes that the events in his life are for the most part beyond his influence. Commonly used terms for designating the two ends of this continuum are the belief in "skill" and the belief in "chance."

Among the new problems confronting workers and their employers are "the blue-collar blues," "the dehumanization of work," and "alienation." As can be seen from the literature review, there is enough evidence to suggest that individuals who are external in their orientation tend to be

¹⁵Phares, Locus of Control in Personality.

¹⁶Julian B. Rotter, "Generalized Expectancies for Internal versus External Control of Reinforcement," Psychological Monographs, 80 (1966), 1.

more alienated from the work setting.¹⁷ Some of the other adverse effects of the construct of externality in the areas of satisfaction and performance are also well documented.¹⁸ Valecha¹⁹ and Pryer and Distefano²⁰ suggest that the higher the level of a person in the organizational hierarchy, the greater the internal orientation. Mitchell, Smyser and Weed²¹ point out that if externals are more unhappy than internals, then externals would either leave the organizations more frequently or become more internal over time. Along the same lines, Deci²² indicates that a shift in locus of causality from internal to external will cause a decrease in intrinsic motivation. On the other hand, Arnold²³ has

¹⁷A. G. Neal and M. Seeman, "Organizations and Powerlessness: A Test of the Mediation Hypothesis," American Sociological Review, 28 (1964), 216-226; M. Seeman, "On the Personal Consequences of Alienation in Work," American Sociological Review, 32 (1967), 973-977; R. N. Wolfe, "Effects of economic Threat on Anomie and Perceived Locus of Control," Journal of Social Psychology, 86 (1972), 233-240.

¹⁸D. W. Organ and C. N. Greene, "Role Ambiguity, Locus of Control, and Work Satisfaction," Journal of Applied Psychology, 59 (1974), 101-102; Pryer and Distefano, op. cit.; M. G. Evans, "Extensions of the Path-Goal Theory of Motivation," Journal of Applied Psychology, 54 (1974), 172-178.

¹⁹Valecha, op. cit.

²⁰Pryer and Distefano, op. cit.

²¹Terence R. Mitchell, Charles M. Smyser, and Stan E. Weed, "Locus of Control: Supervision and Work Satisfaction," Academy of Management Journal, 18 (1975), 623-631.

²²E. L. Deci, Intrinsic Motivation (New York: Plenum Press, 1975).

²³H. J. Arnold, "Effects of Performance Feedback and Extrinsic Reward upon High Intrinsic Motivation," Organizational Behavior and Human Performance, 17 (1976), 275-288.

reached the conclusion that feedback from the task influences perceived feelings of competence on the task and that perceived feeling of competence on the task is an important component of intrinsic motivation to perform the task again in the future. If internal locus of control is the cause (rather than the effect) of these behaviors, and if the organization can learn how to influence people's locus of control beliefs (for example, by performance feedback or other components of the organizational climate), our understanding of organizational effectiveness could be enriched considerably.

The above discussion and related research point to a tentative effect of feedback on the concept of locus of control. This relationship between feedback and the locus of control has to be tested before more reliable conclusions can be drawn. If performance feedback can influence individuals to become more internally oriented, this will have far-reaching implications for future organizations in view of the trend toward more complex, changing, open, and participative atmosphere. This study has attempted to test the above relationship.

Recent empirical studies of relationships between role perceptions and personal outcomes have consistently reported that the experience of role conflict or role ambiguity, or both, is generally associated with adverse personal outcomes. Evidence has been reported of direct relationships between degree of role conflict and role ambiguity a focal person

experiences on the job and various work-related outcomes, including job-related tension and anxiety, job dissatisfaction, futility, propensity to leave, lack of confidence in the organization, inability to influence decision making, and unfavorable attitudes toward role senders.²⁴ Thus, role perceptions appear to be associated with a variety of undesirable individual outcomes which are generally regarded as dysfunctional for the organization. The previous research clearly suggests that role perceptions may be critical components of a model of organizational behavior and support a contingency approach to understanding their specific implications for the organizational member's effectiveness.

Rogers and Molnar²⁵ point out that their data showed greater interaction of administrators to be associated with lower levels of role conflict. They try to explain it in terms of the increased rewards associated with greater

²⁴Robert H. Miles, "A Comparison of the Relative Impacts of Role Perceptions of Ambiguity and Conflict by Role," Academy of Management Journal, 19 (1976), 25-25; idem, "An Empirical Test of Causal Inference between Role Perceptions of Conflict and Ambiguity and Various Personal Outcomes," Journal of Applied Psychology, 60 (1975), 334-339; Organ and Greene, op. cit., pp. 101-102; W. C. Hamner and H. L. Tosi, "Relationships Among Various Role Involvement Measures," in T. B. Green and D. F. Ray (eds.), Academy of Management Proceedings (Boston, 1973), 394-399; R. J. House and J. R. Rizzo, "Role Conflict and Ambiguity as Critical Variables in a Model of Organizational Behavior," Organizational Behavior and Human Performance, 7 (1972), 467-505.

²⁵D. L. Rogers and J. Molnar, "Organizational Antecedents of Role Conflict and Ambiguity in Top Level Administrators," Administrative Science Quarterly, 21 (1976), 598-610.

levels of contact. Beehr²⁶ indicates that there is suggestive evidence that people with supportive supervisors might not feel some role strains even if their roles are ambiguous. Essentially, both are conditions in which information is lacking or not communicated. This again suggests a tentative relationship between feedback and role perceptions. Before any definite conclusions can be drawn this relationship has to be investigated.

As stated earlier, no empirical attempt has been made to study and understand the effects of performance feedback on psychological concepts of locus of control, role conflict and role ambiguity. These concepts are parts of the behavior of individuals which have certain dysfunctional effects on organizations. Understanding the relationships between feedback on performance and these psychological factors will be a step for solving the organizational behavior puzzle. It will also give organizations a practical tool for more efficient and effective use of human resources.

D. Hypotheses

Based on the existing evidences in the literature, the respondents were classified as internal or external oriented individuals, and they were expected to perceive certain degrees of role conflict and role ambiguity. Since

²⁶T. A. Beehr, "Perceived Situational Moderators of the Relationship between Subjective Role Ambiguity and Role Strain," Journal of Applied Psychology, 61 (1976), 35-40.

tentative relationships have been observed between performance feedback (PF) and locus of control (I-E), PF and role conflict, and PF and role ambiguity, it was also expected that PF would decrease the degree of external orientation a person possesses as well as the degree of perceived role conflict and role ambiguity. Thus the following hypotheses were developed to be tested. The attempt was made to find out the possible existence of a relationship between PF and locus of control, and role conflict, and role ambiguity, as well as to retest the relationship between PF and level of performance.

1. There is no significant difference in the performance levels of the experimental and the control groups at pre-test (T_1) and post-test (T_2) time periods.

2. There is no significant difference in the scores of externality of the individual members of the experimental and the control groups at pre-test (T_1) and post-test (T_2) time periods.

3. There is no significant difference in the degree of perceived role conflict of the experimental and the control groups at pre-test (T_1) and post-test (T_2) time periods.

4. There is no significant difference in the degree of perceived role ambiguity of the experimental and the control groups at pre-test (T_1) and post-test (T_2) time periods.

II. REVIEW OF THE LITERATURE

The research on the independent and the dependent variables of this study was briefly discussed in the preceding sections. This section contains a more comprehensive review of these constructs. The review of the literature is conducted in three parts. The studies on performance feedback are reviewed in conjunction with performance. The studies on locus of control, role conflict and role ambiguity are reviewed in separate sections. This separation was necessary because of the lack of studies relating performance feedback to locus of control, role conflict, and role ambiguity.

A. Studies on Performance Feedback as Related to Performance

The use of specific, concrete feedback, if properly done, can be an effective tool for motivating and developing people. Each of us has a human need to learn, to grow, to develop our capabilities. This can only come about with appropriate feedback and a sense of accomplishment and progress. We also have an inherent need to "know where we stand" in terms of our competences and how our efforts are viewed by others. Providing an individual with feedback on performance serves two necessary functions: a) it controls

behavior by continually forcing attention on goal attainment and any deviations, and b) it can serve as a stimulus to motivation.¹ Latham and Yukl² point out that performance feedback or knowledge of results can lead to an increase in effort and performance for at least four different reasons: a) feedback may induce a person who previously did not have specific goals to set a goal to improve performance by a certain amount; b) feedback may induce a person to raise his goal level after attaining a previous goal; c) feedback that informs a person that his current level of effort is insufficient to attain his goal may result in greater effort; and d) feedback may inform a person of ways in which to improve his methods of performing the task.

The evidence is quite clear that feedback or knowledge of results can improve performance. Pryer and Bass³ gave feedback to thirteen of twenty-six groups. The groups receiving feedback solved their problems more accurately and became more highly motivated to solve future problems than the thirteen control groups. It is an indication that job

¹R. B. Payne and G. T. Hanty, "Effect of Psychological Feedback upon Work Decrement," Journal of Experimental Psychology, 50 (1955), 343-351.

²Gary P. Latham and Gary A. Yukl, "A Review of Research on the Application of Goal Setting in Organizations," Academy of Management Journal, 18 (1975), 835.

³M. W. Pryer and B. M. Bass, "Some Effects of Feedback on Behavior in Groups," Technical Report 13, Contract N70NR 35609 (Baton Rouge: Louisiana State University, 1957).

Table 2-1. How Feedback Affects Group and Individual Performance

	Feedback Function	How the Mechanism Works	Necessary Conditions
MOTIVATING FUNCTION	Disconfirmation	Feedback motivates behavior by providing information that presents inconsistent perceptions.	Data must be perceived as accurate. Conditions must be present to prevent defensive behavior.
	Internal-reward expectancies	Feedback motivates behavior by setting up expectations that behavior will lead to feedback, which in itself generates positive feelings in the individual or group. In addition, it provides a standard against which goals can be set.	Level of behavior to obtain favorable feedback must be attainable. Task must be challenging so that attainment is desirable. Feedback must include some comparison data as a standard. Conditions must be present to facilitate goal-setting.
	External-reward expectancies	Feedback motivates behavior by setting up expectations that behavior will lead to feedback which in turn will lead to the attainment of other valued rewards from the environment.	Level of behavior to obtain rewards must be attainable. Instrumentality of feedback for rewards must be high. Rewards must be valued ones.
DIRECTING FUNCTION	Cueing	Feedback calls attention to errors which can be corrected through known and established routines of behavior	Feedback must be specific. Correction routines must be clear and understood.
	Learning	Feedback calls attention to errors where correction behavior has not yet been identified and thus must be discovered.	Feedback should be on process as well as outcome variables. Feedback should include models of effective behavior. Group or individual must have effective search routines.

Source: David A. Nadler, Feedback and Organization Development: Using Data-Based Methods (Reading, Mass.: Addison-Wesley, 1977), pp. 72-73.

feedback incorporates a time dimension, having an immediate effect on performance and also an impact on performances in subsequent time periods. In another study by Zajonc,⁴ feedback about both individual performance and performance of the group as a whole increased the performance of individual members. In still another study by Smith and Knight,⁵ personal feedback of one member to another was shown to improve the efficiency of all. Hammer and Ringel⁶ found that there was a high correlation between the absolute amount of feedback and the quality of decisions in an experimental study. Training programs involving extensive use of feedback, such as programmed instruction, are generally more effective than conventionally taught training programs without feedback.⁷

The effect of performance feedback and its importance in the industrial setting is well documented. Purposes of performance appraisal programs, as reported by 200 firms employing appraisals in 1954, indicate that 53% of the 106

⁴R. B. Zajonc, "The Effects of Feedback and Group Task Difficulty on Individual and Group Performance," Technical Report 15, Contract NONR 1224 (Ann Arbor: University of Michigan, 1961).

⁵E. E. Smith and S. S. Knight, "Effects of Feedback on Insight and Problem Solving Efficiency in Training Groups," Journal of Applied Psychology, 43 (1959), 209-211.

⁶C. H. Hammer and S. Ringel, "The Effect of the Amount of Information Provided and Feedback of Results on Decision Making Efficiency," Human Factors, 7 (1965), 513-519.

⁷W. Schramm, The Research on Programmed Instruction: An Annotated Bibliography (Washington, D.C.: U.S. Dept. of Health, Education, and Welfare, 1964).

firms use the program to provide feedback to workers. It is the highest percentage after other uses as wage/salary decisions and promotions.⁸ Applications of performance appraisal, as reported by 166 firms using appraisals in 1964 show that 61.4% of the 102 firms use it to provide feedback to workers. It is again the third highest percentage after promotions (73.5%) and wage/salary decisions (68.7%).⁹ In a study conducted by Carroll and Tosi¹⁰ it was found that 50% of the 48 managers interviewed suggested ensurement of review and feedback in improving the MBO program. In a study of life insurance agents, Weitz, Antoinetti, and Wallace¹¹ found that those who received periodic production bulletins and personal letters commenting on their performance improved their performance, whereas the average performance of a group of agents receiving no feedback actually decreased as compared to a base period. Hundal¹² found

⁸National Industrial Conference Board, "Personnel Practices in Factory and Industry," NICB Studies in Personnel Policy, No. 145 (1954), 15.

⁹National Industrial Conference Board, "Personnel Practices in Factory and Industry," NICB Studies in Personnel Policy, No. 194 (1964), 12.

¹⁰Stephen J. Carroll, Jr., and Henry L. Tosi, Jr., Management by Objectives: Application and Research (New York: Macmillan, 1973), p. 24.

¹¹J. A. Weitz, J. Antoinetti, and S. R. Wallace, "The Effects of Home Office Contact on Sales Performance," Personnel Psychology, 7 (1954), 381-384.

¹²P. S. Hundal, "Knowledge of Performance as an Incentive in Repetitive Industrial Work," Journal of Applied Psychology, 53 (1969), 224-226.

that feedback resulted in increased productivity of industrial workers with a repetitive task; productivity also was higher than was that of a no-feedback control group.

In a study done by Aplin¹³ the importance of feedback was strongly reinforced. Responses showed that the feedback an individual received had a significant impact on his attitudes toward his immediate supervisor. In another study by Kim¹⁴ the effect of different modes of feedback, extrinsic feedback, intrinsic feedback, extrinsic and intrinsic feedback, no feedback, on task performance of work groups was investigated in a midwestern company. Results showed that there was statistically significant improvement on all three measures of task performance after feedback intervention.

Several studies indicate that the effects of feedback on performance are influenced by the quality of feedback. Feedback frequency and quality should not be confused with feedback quantity or amount. To be useful, information must be timely. To control variation from some standard of performance, feedback is most valuable if it immediately follows any deviation. A voluminous amount of feedback can be valueless if it is not received in a timely fashion or if

¹³J. Aplin, "The Impact of the Superior's Attitudes on the Management by Objectives Process" (unpublished Ph.D. dissertation, University of Iowa, 1975).

¹⁴Jay S. Kim, "Effect of Feedback on Task Performance in an Organizational Setting," Proceedings Thirty-Fifth Annual Meeting, Academy of Management, August 10-13, 1975, pp. 137-139.

it is not relevant. In Miller's¹⁵ General Electric study, the more specific, relevant, and timely the feedbacks, the greater the positive effects were on performance. French¹⁶ also found that feedback was most effective when it was directly relevant to the task. The results of a study conducted by Kolb, Winters, and Berlew¹⁷ supported the importance of feedback quality, e.g., timing, relevance, and manner of presentation, for goal attainment. Also in an earlier study, Trowbridge and Cason¹⁸ found that rapidity of learning was related to the preciseness of the feedback.

Some studies have tried to assess the effects of feedback in MBO programs. In a study of managers in a company with an MBO program, Carroll and Tosi¹⁹ found that the amount and frequency of perceived feedback were positively correlated with self-rated goal attainment, but not with an

¹⁵L. Miller, The Use of Knowledge of Results in Improving the Performance of Hourly Operators (n.p.: General Electric Company, Behavioral Research Service, 1965).

¹⁶E. G. French, "Effects of the Interaction of Feedback and Motivation on Task Performance," American Psychologist, 11 (1956), 395.

¹⁷D. A. Kolb, S. Winters, and D. Berlew, "Self-Directed Change: Two Studies," Journal of Applied Behavioral Science, 4 (1968), 453-473.

¹⁸M. H. Trowbridge and H. Cason, "An Experimental Study of Thorndike's Learning," Journal of Genetic Psychology, 7 (1932), 245-260.

¹⁹S. J. Carroll and H. L. Tosi, "Relationship of Characteristics of the Review Process of Success of the MBO Approach," Journal of Business, 44 (1971), 299-305.

increase in self-rated effort level. Dutttagupta²⁰ found that frequency and amount of feedback were associated with greater self-reported motivation and a better perceived understanding of job requirements by the research and development managers in a company with an MBO program. Steers²¹ found that the amount of perceived feedback in a company with an MBO program was positively correlated with goal effort and overall performance ratings for supervisors with high achievement motivation, but not for supervisors with low achievement motivation. The study done by Aplin²² has also reinforced the importance of feedback in an MBO program.

According to Ivancevich, Donnelly, and Lyon,²³ the important implication of their study is that frequency of feedback resulted in more need satisfaction improvement. They also go on to point out that the frequency of superior-subordinate goal-setting conferences had some impact on the consequences derived from MBO. Fay and Beach²⁴ also give

²⁰D. Dutttagupta, An Empirical Evaluation of Management by Objectives, reported in Latham and Tuckl, op. cit., p. 837.

²¹R. M. Steers, "Task-Goal Attributes, Achievement, and Supervisory Performance," Organizational Behavior and Human Performance, 13 (1975), 392-403.

²²Aplin, op. cit.

²³J. M. Ivancevich, J. H. Donnelly, and H. L. Lyon, "A Study of the Impact of Management by Objectives on Perceived Need Satisfaction," Personnel Psychology, 23 (1970), 139-151.

²⁴Peter P. Fay and David N. Beach, "Management by Objectives Evaluated," Personnel Journal, 53 (1974), 767-778.

evidence for the importance of feedback in MBO usage.

Finally, Dyer and Weyrauch,²⁵ in a recent study, found that the content of the feedback interview in an MBO program appears to be less important to motivation than making certain that the interview was conducted in a supportive manner rather than a critical manner. Although these results tend to support the conclusion that frequent, relevant feedback is needed for a successful MBO program, the evidence is limited.

The importance of feedback is also evident in studies in operant conditioning and organizational behavior modification. In a non-industry experiment, the researcher gave a group of 106 children a series of addition problems to perform each day for five days. Evidence provided shows a relationship between feedback and the productivity improvement.²⁶ Clarke²⁷ reported that feedback used as a form of reinforcement regarding performance led to longer persistence of desired performance. Other authors--Rundquist, Campbell, Odiorne, Lynton and Pareek, and Bass and Vaughan--have also stressed feedback regarding performance while utilizing a

²⁵Lee Dyer and Werner Weyrauch, "MBO and Motivation: An Empirical Study," Proceedings Thirty-Fifth Annual Meeting, Academy of Management, August 10-13, 1975, pp. 134-136.

²⁶B. F. Skinner, Contingencies of Reinforcement, A Theoretical Analysis (New York: Appleton-Century-Crofts, 1969).

²⁷D. E. Clarke, "The Effects of Simulated Feedback and Motivation on Persistence at a Task," Organizational Behavior and Human Performance, 8 (1972), 340-346.

model compatible with behavior modification techniques.²⁸

One of the best examples of the effects of feedback is demonstrated in the application of organizational behavior techniques at Emery Air Freight.²⁹ Edward Feeney, who was then vice president of the company, gave feedback to employees to show them how their actual performance differed from their own perceptions and from company standards. This emphasis placed on providing feedback to employees about their performance contributed more than any other single factor to the program's success. Luthans and Kreitner,³⁰ when reporting on a case of organization development program of a company, point out that the performance analysis uncovered a need for an improved performance feedforward/feedback system and a supportive environment (feedback) was designed for the critical package-machine operator's monitoring behavior. This feedforward of critical performance data and the feedback on performance in the form of contingent reinforcing consequences resulted in performance improvement. In a more

²⁸E. A. Rundquist, "Designing and Improving Job Training Courses," Personnel Psychology, 25 (1972), 41-52; J. P. Campbell, "Personnel Training and Development," Annual Review of Psychology (Palo Alto: Annual Reviews, 1971), pp. 565-602; G. S. Odiorne, Training by Objectives (New York: Macmillan, 1970); R. P. Lynton and V. Pareek, Training for Development (Homewood, Ill.: Richard D. Irwin, 1967); B. M. Bass and J. A. Vaughan, Training in Industry: The Management of Learning (Belmont, Calif.: Wadsworth, 1968).

²⁹"Performance Audit, Feedback and Positive Reinforcement," Training and Development Journal, 29 (1972), 8-13.

³⁰Fred Luthans and Robert Kreitner, Organizational Behavior Modification (Glenview, Ill.: Scott, Foresman and Company, 1975).

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Table 2-2. Results of Positive Reinforcement and Similar Behavior Modification Programs in Organizations in 1976

Organization and Person Surveyed	Length of Program	Number of Employees Covered/Total Employees	Type of Employees	Specific Goals	Frequency of Feedback	Reinforcers Used	Results
Emery Air Freight John C. Emery, Jr., President Paul F. Hammond, Manager--Systems Performance	1969-76	500/2,800	Entire work force	a) Increase productivity b) Improve quality of service	Immediate to monthly, depending on task	Previously only praise and recognition; others now being introduced	Cost savings can be directly attributed to program
Michigan Bell-- Operator Services E. D. Grady, General Mgr-- Operator Serv.	1972-76	2,000/5,500	Employees at all levels in operator services	a) Decrease turnover and absenteeism b) Increase productivity c) Improve union-management relations	a) Lower level, weekly and daily b) Higher level, monthly and quarterly	a) Praise and recognition b) Opportunity to see oneself become better	a) Attendance performance has improved by 50% b) Productivity and efficiency have continued to be above standard where positive reinforcement (PR) is used
Michigan Bell-- Maintenance Services Donald E. Burwell, Division Superintendent, Maintenance and Services Dr. W. Clay Hammer, Consultant	1974-76	220/5,500	Maintenance workers, mechanics, and first- and second-level supervisors	Improve: a) Productivity b) Quality c) Safety d) Customer-employee relations	Daily, weekly and quarterly	a) Self-feedback b) Supervisory feedback	a) Cost efficiency increase b) Safety improved c) Service improved d) No change in absenteeism e) Satisfaction with superior and co-workers improved f) Satisfaction with pay decreased
Connecticut General Life Insurance Co. Donald D. Illig, Director of Personnel Administration	1941-76	3,000/13,500	Clerical employees and first-line supervisors	a) Decrease absenteeism b) Decrease lateness	Immediate	a) Self-feedback b) System feedback c) Earned time off	a) Chronic absenteeism and lateness have been drastically reduced b) Some divisions refuse to use PR because it is "outdated"

Table 2-2 (continued)

Organization and Person Surveyed	Length of Program	Number of Employees Covered/Total Employees	Type of Employees	Specific Goals	Frequency of Feedback	Reinforcers Used	Results
General Electric* Melvin Sorcher, Ph.D., formerly director of Personnel Research, now Director of Man- agement Development, Richardson-Merrell, Inc.	1973-76	1,000	Employees at all levels	a) Meet EEO ob- jectives	Immediate-- uses modeling and role play- ing as train- ing tools to teach inter- personal ex- changes and behavior re- quirements	Social reinfor- cers (praise, re- wards, and con- structive feed- back)	a) Cost savings can be directly attributed to the program b) Productivity has increased c) Worked extremely well in training minority groups and raising their self-esteem d) Direct labor cost decreased
Standard Oil of Ohio T. E. Standing, Ph.D., Manager of Psycho- logical Services	1974	28	Supervisors	Increase super- visor competence	Weekly over five-week (25-hour) training period	Feedback	a) Improved supervi- sory ability to give feedback judiciously b) Discontinued be- cause of lack of overall success
ACDC Electronics Division of Emer- son Electronics Edward J. Feeney, Consultant	1974-76	350/350	All levels	a) 96% attendance b) 90% engineer- ing specifica- tions met	Daily and weekly feed- back from foreman to company president	Positive feed- back	a) Profit up 25% over forecast b) \$550,000 cost re- duction on \$10 mil- lion sales c) Return of 1,900% on investment, includ- ing consultant fees d) Turnaround time on repairs went from 30 to 10 days e) Attendance now 98.2% (from 93.5%)

Table 2-2 (continued)

Organization and Person Surveyed	Length of Program	Number of Employees Covered/Total Employees	Type of Employees	Specific Goals	Frequency of Feedback	Reinforcers Used	Results
Weyerhaeuser Company Gary P. Lathan, Ph.D., Manager of Human Resource Division	1974-76	500/40,000	Clerical, production (tree planters), and middle-level management and scientists	a) To teach managers to minimize criticism and to maximize praise b) To teach managers to make rewards contingent on specified performance c) To use optimal schedule to increase productivity	Immediate-- daily and quarterly	a) Pay b) Praise and recognition	a) Using money, obtained a 33% increase in productivity with one group of workers, an 18% increase with a second group and an 8% decrease with a third group b) Currently experimenting with goal setting and praise and/or money at various levels in organization c) With a lottery-type bonus, the cultural and religious values of workers must be taken into account
B. F. Goodrich Chemical Co. Donald J. Barnicki, Production Manager	1972-76	100/420	Manufacturing employees at all levels	a) Better meeting of schedules b) Increase productivity	Weekly	Praise and recognition; freedom to choose one's own activity	Production has increased over 300%

Table 2-2 (continued)

Organization and Person Surveyed	Length of Program	Number of Employees Covered/Total Employees	Type of Employees	Specific Goals	Frequency of Feedback	Reinforcers Used	Results
City of Detroit garbage collectors	1973-75	1,122/1,930	Garbage collectors	<ul style="list-style-type: none"> a) Reduction in paid man-hour per ton b) Reduction on overtime c) 90% of routes completed by standard d) Effectiveness (quality) 	Daily and quarterly, based on formula negotiated by city and sanitation union	Bonus (profit sharing) and praise	<ul style="list-style-type: none"> a) Citizen complaints declined significantly b) City saved \$1,654,000 first year after bonus paid c) Worker bonus = \$307,000 first year or \$350 annually per man d) Union somewhat dissatisfied with productivity measure and is pushing for more bonus to employee e) 1975 results not yet available

*Similar programs are now being implemented at Richardson-Merrell under the direction of Dr. Sorcher and at AT&T under the direction of Douglas W. Bray, Ph.D., director of management selection and development, along with several smaller organizations. See A. P. Goldstein and Melvin Sorcher, Changing Supervisor Behavior (Pergamon Press, 1974).

Source: W. Clay Hamner and Dennis W. Organ, Organizational Behavior: An Applied Psychological Approach (Texas: Business Publications, Inc., 1978), pp. 250-252.

recent study, Kim³¹ reports that the results of his study indicate that the feedback procedure influenced supervisors to rate workers in more realistic terms. Contrary to the prior practice, workers became aware of each behavioral category of service on which they were being rated. He goes on to point out that the results imply feedback impact on supervisor behavior as well as worker behavior. The feedback given to workers in this study had focused on the observable task performance, and not on worker job satisfaction.

Recently, feedback procedures have been used in conservation and other environmental protection concerns. Seligman and Darley³² found that frequent feedback to families regarding their electricity consumption reduced consumption 10.5% compared to a control group. Other studies have also demonstrated that feedback has yielded variable (10-15%) reductions of electricity use,³³ and written feedback on energy use, when coupled with social recognition strategies, has been found to reduce fuel-oil use.³⁴

³¹Kim, op. cit.

³²C. Seligman and J. M. Darley, "Feedback as a Means of Decreasing Residential Energy Consumption," Journal of Applied Psychology, 62 (1977), 363-368.

³³S. C. Hayes and J. D. Cone, "Reducing Residential Electric Use: Payments, Information, and Feedback," Journal of Applied Behavior Analysis, 10 (1977), 425-435; R. A. Winett, S. Kaiser, and G. Haberkorn, "The Effects of Monetary Rebates and Daily Feedback on Electricity Conservation," Journal of Environmental Systems, 5 (1977), 327-338.

³⁴W. B. Seaver and A. H. Patterson, "Decreasing Fuel Oil Consumption through Feedback and Social Communication," Journal of Applied Behavior Analysis, 9 (1976), 147-152.

There have been other studies on feedback in which the results obtained are contradictory to the studies cited above. In a series of studies at General Electric, Miller³⁵ found that increasing the amount of feedback from foremen to workers improved the latter's performance. However, he also found that feedback regarding errors resulted in only a temporary improvement in performance quality for manufacturing employees, unless used in conjunction with incentives or the threat of negative consequences for failure to improve. Chapanis³⁶ failed to find any effect of feedback on the performance of students hired to work an hour per day for 24 days on a repetitive job. Locke and Bryan³⁷ in two studies found that feedback did not improve performance and that goal setting itself contributed more to performance than did knowledge of results. In another study, they found that feedback did improve performance when the subjects used it to establish goals. Locke seems to feel that the feedback of results does not influence performance unless the feedback is used as a means of comparing performance with some previously established goal or standard. The study by Erez³⁸

³⁵Miller, op. cit.

³⁶A. Chapanis, "Knowledge of Performance as an Incentive in Repetitive, Monotonous Tasks," Journal of Applied Psychology, 48 (1964), 263-267.

³⁷E. A. Locke, "Toward a Theory of Task Motivation and Incentives," Organizational Behavior and Human Performance, 3 (1968), 157-189.

³⁸Miriam Erez, "Feedback: A Necessary Condition for the Goal Setting-Performance Relationship," Journal of Applied Psychology, 62 (1977), 624-627.

complements the findings of Locke, in that Erez argues for feedback as a necessary condition for the goal setting-performance relationship. Becker³⁹ also concludes that improved performance was a result of the joint effect of feedback and goal setting. More recently, a field experiment was conducted to compare the effectiveness of two approaches for improving the way managers handle performance appraisal interviews with their subordinates. The results showed that the feedback plus goal setting condition was superior to the feedback only condition and the control group on several interview effectiveness criteria.⁴⁰

B. Studies on Locus of Control

What happens when an individual develops a pervasive belief that no control can be exercised over the outcomes that follow behavior? Suppose that person feels that personal achievements, failures, victories, and shortcomings all stem from the capricious or unfathomable hand of fate or luck. Contrast this person with one who is convinced that such outcomes are a direct product of one's own efforts (or

³⁹ Lawrence J. Becker, "Joint Effect of Feedback and Goal Setting on Performance: A Field Study of Residential Energy Conservation," Journal of Applied Psychology, 63 (1978), 428-433.

⁴⁰ Wayne F. Nemeroff and Joseph Cosentino, "Utilizing Feedback and Goal Setting to Increase Performance Appraisal Interviewer Skills of Managers," Academy of Management Proceedings, 38 (1978), 394.

lack of them) or personal attributes. Will there be a difference in the behavior and overall life-styles of two such divergent individuals? Much evidence has been accumulating that suggests that when a person perceives rewards and punishments as being contingent upon personal actions, behavior is quite different than it is when such reinforcements seem to occur independently of efforts and characteristics.

The role of reinforcement, reward, or gratification is universally recognized by students of human nature as a crucial one in the acquisition and performance of skills and knowledge. However, an event regarded by some persons as a reward or reinforcement may be differently perceived and reacted to by others. One of the determinants of this reaction is the degree to which the individual perceives that the reward follows from, or is contingent upon, his own behavior or attributes versus the degree to which he feels the reward is controlled by forces outside of himself and may occur independently of his own actions. The effect of a reinforcement following some behavior on the part of a human subject, in other words, is not a simple stamping-in process but depends upon whether or not the person perceives a causal relationship between his own behavior and the reward.

The definition of locus of control that guided much of the early work on the development of an Internal-External (I-E) scale and the I-E variable is succinctly expressed by Rotter.

When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then in our culture, it is typically perceived as the result of luck, chance, fate, as under the powerful others, or as unpredictable because of the great complexity of the forces surrounding him. . . . We have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control.⁴¹

The significance of the belief in fate, chance, or luck has been discussed by various social scientists over a long period of time. Most of their concern, however, has been with differences among groups or societies rather than individuals. Typical of an early discussion of this kind is that of Veblen, who felt that a belief in luck or chance represented a barbarian approach to life and was generally characteristic of an inefficient society. Although Veblen was not concerned with individual differences, his discussion implied that a belief in chance or luck as a solution to one's problems was characterized by less productivity. He states that the belief in luck is related to or similar to a general belief in fate. More recently, Merton has discussed the belief in luck more or less as a defense behavior. He, too, suggests a relationship between passivity and the belief in chance or luck.⁴²

⁴¹Julian B. Rotter, "Generalized Expectancies for Internal versus External Control of Reinforcement," Psychological Monographs, 80 (1966), 1.

⁴²Ibid., p. 3.

The concept of alienation which has played an important role in sociological theory for many years does seem related at a group level to the variable of internal-external control. The alienated individual feels unable to control his own destiny. He is a small cog in a big machine and at the mercy of forces too strong or too vague to control. Marx, Weber, and Durkheim placed great importance on this concept⁴³ and more recently Merton⁴⁴ has stressed its importance in the study of social behavior. Seeman⁴⁵ has linked the concept of alienation as it refers to powerlessness, to internal-external control as a psychological variable.

The first investigations of individual differences in the I-E variable were made in connection with learning or performance tasks in which skill and chance instructions were given. The first of these studies was undertaken by Phares.⁴⁶ He found that increments and decrements following success and failure, respectively, were significantly greater under skill instructions than under chance instructions. James as a result of his research found that the behavior of

⁴³Rotter, op. cit., p. 3.

⁴⁴R. Merton, Social Theory and Social Structure (Glencoe, Ill.: Free Press, 1949), 125-149.

⁴⁵M. Seeman, "On the Meaning of Alienation," American Sociological Review, 24 (1959), 782-791.

⁴⁶E. J. Phares, "Expectancy Changes in Skill and Chance Situations," Journal of Abnormal and Social Psychology, 54 (1957), 339-342.

externals differed from that of internals in the same way that the overall population differed under chance instructions as compared with skill instructions.⁴⁷

In recent years there has been an increase in public concern about new problems confronting workers and their employers. Discussions have centered around terms such as "the blue-collar blues," "the dehumanization of work," and "alienation." One common element in these discussions has been that people feel unable to affect their lives, that they have little control over what happens to them in the job setting. This has prompted an increasing body of research that has tried to investigate the I-E variables and their effects on behavior. Rotter⁴⁸ in discussing the early research suggests that individuals may have a generalized expectancy about whether environmental outcomes are controlled internally and externally. The individual who is labeled internal believes he can control his own outcomes or fate; the external individual feels that much of what happens to him is controlled by external forces.

Recent investigations have attempted to relate this I-E characteristic to variables related to the work setting, especially to work alienation and job satisfaction.

⁴⁷Rotter, op. cit., p. 19.

⁴⁸Ibid.

Investigations of Neal and Seeman⁴⁹ and Seeman⁵⁰ suggest that individuals who are external in their orientation tend to be more alienated from the work setting. A more recent study by Wolfe⁵¹ reported significant correlations between a measure of anomie and the I-E scale for three separate samples, with externals indicating greater alienation and anomie than internals. Another study, by Pryer and Distefano,⁵² correlated the five scales of the Job Description Index⁵³ with the I-E scale for three samples of nurses, and these data also suggested that externals are less satisfied with their jobs. A study by Organ and Greene⁵⁴ reports a significant correlation between I-E and job satisfaction for a sample of scientists and engineers. The results of all five

⁴⁹A. G. Neal and M. Seeman, "Organizations and Powerlessness: A Test of the Mediation Hypothesis," American Sociological Review, 28 (1964), 216-226.

⁵⁰M. Seeman, "On the Personal Consequences of Alienation in Work," American Sociological Review, 32 (1967), 973-977.

⁵¹R. N. Wolfe, "Effects of Economic Threat on Anomie and Perceived Locus of Control," Journal of Social Psychology, 86 (1972), 233-240.

⁵²M. W. Pryer and M. K. Distefano, Jr., "Perceptions of Leadership Behavior, Job Satisfaction, and Internal-External Control across Three Nursing Levels," Nursing Research, 20 (1971), 534-537.

⁵³P. C. Smith, L. M. Kendall, and C. L. Hulin, The Measurement of Satisfaction in Work and Retirement (Chicago: Rand McNally, 1969).

⁵⁴D. W. Organ and C. N. Greene, "Role Ambiguity, Locus of Control, and Work Satisfaction," Journal of Applied Psychology, 59 (1974), 101-102.

studies suggest that internals are more satisfied with the work setting than are externals. Mitchell, Smyser, and Weed⁵⁵ also point out that the findings of their research appear to suggest that externals may be more dissatisfied with organizational life simply because they feel they have little control over those organizational outcomes that are important to them.

A second set of results has added some refinements to the above findings. Runyon⁵⁶ investigated the relationship between a subordinate's I-E score and his satisfaction with different types of supervision. Internals were significantly more satisfied with participative management style than were externals. On the other hand, externals were significantly more satisfied with directive supervision than were internals. Also related to managerial styles are the studies by Goodstadt and Hjelle⁵⁷ and Pryer and Distefano.⁵⁸ Goodstadt and Hjelle point out that during the course of the research externally controlled student subjects used more coercive power (e.g., threat of deduction of points, or dismissal)

⁵⁵Terence R. Mitchell, Charles M. Smyser, and Stan E. Weed, "Locus of Control: Supervision and Work Satisfaction," Academy of Management Journal, 18 (1975), 623-631.

⁵⁶K. E. Runyon, "Some Interactions between Personality Variables and Management Styles," Journal of Applied Psychology, 57 (1973), 288-294.

⁵⁷B. E. Goodstadt, and L. A. Hjelle, "Power to the Powerless: Locus of Control and the Use of Power," Journal of Personality and Social Psychology, 27 (1973), 190-196.

⁵⁸Pryer and Distefano, op. cit.

and internals were found to use more personally persuasive powers (e.g., giving encouragement). Pryer and Distefano found that for one level of nurses internals were significantly more considerate on their supervisory style than were externals.

In other research efforts involving work-related variables, Szilagyi and Sims⁵⁹ confirmed Lawler's⁶⁰ postulate that internals perceived higher performance-to-reward expectancies than externals. Evans,⁶¹ whose study involved managers enrolled in an M.B.A. program, found that not only did internals report higher motivation than externals, but that internals perceived and responded to environmental contingencies more consistently than externals.

The relationship between locus of control and the performance of managers has also been of interest to the researchers. Durand and Shea⁶² showed that activity scores of internal entrepreneurs were significantly higher than those of external entrepreneurs on the business activity index.

⁵⁹A. D. Szilagyi and H. P. Sims, "Locus of Control and Expectancies across Multiple Occupational Levels," Journal of Applied Psychology, 60 (1975), 638-640.

⁶⁰Lawler, op. cit.

⁶¹M. G. Evans, "Extensions of the Path-Goal Theory of Motivation," Journal of Applied Psychology, 54 (1974), 172-178.

⁶²D. E. Durand and D. Shea, "Entrepreneurial Activity as a Function of Achievement Motivation and Reinforcement Control," The Journal of Psychology, 88 (1974), 57-63.

Brockhaus⁶³ found that I-E score was the best predictor of entrepreneurial intentions. Further, Shapero⁶⁴ has reported that activity scores of future managers show a strong relationship to the locus of control dimension.

Additional research was conducted among entrepreneurs in stress settings. Anderson, Hellriegel and Slocum⁶⁵ demonstrated that the locus of control variable impacts on performance through its interaction with decision or activity patterns and found that externality is common to both high stress and defensive coping behavior. Anderson⁶⁶ confirmed the previous findings that externals perceive higher stress than internals in a particular situation and that externals respond with much more less task-oriented coping behavior than internals. He interpreted the results as showing a dynamic and reciprocal relationship such that locus of control orientation influences performance and that performance in turn operates as a feedback mechanism and influences future locus of control orientation.

⁶³R. H. Brockhaus, "I-E Locus of Control Scores as Predictors of Entrepreneurial Intentions," Proceedings of the Academy of Management, 35 (1975), 433-435.

⁶⁴A. Shapero, "The Displaced, Uncomfortable Entrepreneur," Psychology Today, November 1975, pp. 83-86.

⁶⁵Carl R. Anderson, Don Hellriegel and John W. Slocum, Jr., "Managerial Response to Environmentally Induced Stress," Academy of Management Journal, 20 (1977), 260-272.

⁶⁶Carl R. Anderson, "Locus of Control, Coping Behaviors, and Performance in a Stress Setting: A Longitudinal Study," Journal of Applied Psychology, 62 (1977), 446-451.

Taken together, the studies reviewed above support Rotter's⁶⁷ hypothesis that the individual who has a strong belief that he can control his destiny is likely to be more alert to and take advantage of those aspects of the work environment which provide useful information for his behavior. Further, Andrisani and Nestel⁶⁸ present evidence that success in a work environment is likely to enhance an internal orientation. This hypothesis suggests that the locus of control construct is likely to be altered depending on outcomes from one's decisions.

C. Studies on Role Conflict and Role Ambiguity

In classical organization theory the principle of chain of command and the principle of unity of command and direction have implications for role conflict in complex organizations. According to the chain of command principle, organizations set up on the basis of hierarchical relationships with a clear and single flow of authority from the top to the bottom should be more satisfying to members and should result in more effective economic performance and goal achievement. The essence of the principle of unity of command is that the structure of an organization should keep a

⁶⁷Rotter, op. cit.

⁶⁸P. J. Andrisani and G. Nestel, "Internal-External Control as a Contributor to and Outcome of Work Experience," Journal of Applied Psychology, 61 (1976), 156-165.

member from being caught in the crossfire of incompatible orders or incompatible expectations from more than one superior. Role theory states that when the behaviors expected of an individual are inconsistent--one kind of role conflict--he will experience stress, become dissatisfied, and perform less effectively than if the expectations imposed on him did not conflict. Role conflict can therefore be seen as resulting from violation of the two classical principles and causing decreased individual satisfaction and decreased organizational effectiveness.

Both classical organization theory and role theory also deal with role ambiguity. According to classical theory, every position in formal organizational structure should have a specified set of tasks or position responsibilities. If an employee does not know what he has the authority to decide, what he is expected to accomplish, and how he will be judged, he will hesitate to make decisions and will have to rely on a trial-and-error approach in meeting the expectations of his superior. According to role theory, role ambiguity--lack of necessary information available to a given organizational position--should increase the probability that a person will be dissatisfied with his role, will experience anxiety, will distort reality, and will thus perform less effectively.

Individuals in organizations are continually exposed to a variety of expectations from their work environment that may affect perceptions of their organizational roles.

Kahn et al.⁶⁹ developed a theory of role dynamics which focused on the existence of organizational stress resulting from conflicting, incompatible, or unclear expectations that are derived from the work environment. The literature on role theory suggests two constructs describing role perceptions: role conflict and role ambiguity. Role conflict is a simultaneous occurrence of two or more sets of pressures such that compliance with one would make compliance with the other more difficult. Role conflict occurs when a role incumbent feels that he or she is faced with incompatible expectations. Rizzo, House and Lirtzman⁷⁰ identified four basic interrelated types of role conflict, all based on perceptions of inconsistent demands: 1) inter-sender conflict when inconsistent demands are made on the role incumbent by one or more role senders; 2) interrole conflict when a person holds two or more positions simultaneously; 3) intrasender conflict when the availability of time, resources, and capabilities of the individual are in-

⁶⁹R. L. Kahn, D. M. Wolfe, R. P. Quinn, J. D. Snoek, and R. A. Rosenthal, Organizational Stress: Studies in Role Conflict and Ambiguity (New York: Wiley, 1964).

⁷⁰Ibid.; John R. Rizzo, R. J. House, and S. I. Lirtzman, "Role Conflict and Ambiguity in Complex Organizations," Administrative Science Quarterly, 15 (1970), 150-163; T. Lyons, "Role Clarity, Need for Clarity, Satisfaction, Tension, and Withdrawal," Organizational Behavior and Human Performance, 6 (1971), 99-110; C. Greene and D. Organ, "An Evaluation of Causal Models Linking the Received Role with Job Satisfaction," Administrative Science Quarterly, 18 (1973), 95-103.

congruent with the role behavior expected; and 4) person-role conflict when the role incumbent's internal standards or values and the defined role behavior are incompatible. Role ambiguity describes a situation in which there is inadequate role sending, that is, when lack of agreement among role senders produces sent expectations that contain logical incompatibilities or that take inadequate account of the needs and abilities of the focal person. Role ambiguity may result if position incumbents lack adequate role-relevant information, as when information is restricted or when role expectations are not clearly defined. Essentially, it is a condition in which information is lacking or not communicated. Rizzo, House and Lirtzman⁷¹ argued that role ambiguity was related to the predictability of responses to one's behavior and the clarity of behavioral requirements or expectations.

In recent years a number of studies have explored relationships between role conflict and role ambiguity and worker attitudes and behavior. Despite differences in terminology and measurement, most studies have obtained significant negative relationships between role conflict and/or role ambiguity and job satisfaction.⁷² Other research indicates, however, that role conflict and role ambiguity are not always negatively related to job satisfaction. Tosi

⁷¹Rizzo et al., op. cit.

⁷²Ibid.

and Tosi⁷³ and Tosi⁷⁴ found that role conflict and satisfaction were negatively related, but they found no relationship between role ambiguity and job satisfaction. Rizzo et al.,⁷⁵ House and Rizzo,⁷⁶ and Hamner and Tosi⁷⁷ found significant negative relationships between job satisfaction and role ambiguity but no relationships between job satisfaction and role conflict. In a recent research, Miles⁷⁸ found that both the degree of role ambiguity and role conflict was significantly related to job satisfaction.

The rationale suggested by Kahn et al.⁷⁹ and by Hamner and Tosi⁸⁰ to reconcile these inconsistent results between role ambiguity and job satisfaction and between role conflict

⁷³H. Tosi and D. Tosi, "Some Correlates of Role Conflict and Ambiguity among Public School Teachers," Journal of Human Relations, 18 (1970), 1068-1075.

⁷⁴H. Tosi, "Organizational Stress as a Moderator of the Relationship between Influence and Role Response," Academy of Management Journal, 14 (1971), 7-20.

⁷⁵Rizzo et al., op. cit.

⁷⁶R. J. House and J. R. Rizzo, "Role Conflict and Ambiguity as Critical Variables in a Model of Organizational Behavior," Organizational Behavior and Human Performance, 7 (1972), 467-505.

⁷⁷C. Hamner and H. Tosi, "Relationship of Role Conflict and Role Ambiguity to Job Involvement Measures," Journal of Applied Psychology, 58 (1974), 497-499.

⁷⁸Robert H. Miles, "A Comparison of the Relative Impacts of Role Perceptions of Ambiguity and Conflict by Role," Academy of Management Journal, 19 (1976), 25-35.

⁷⁹Kahn et al., op. cit.

⁸⁰Hamner and Tosi, op. cit.

and job satisfaction is based on the employee's level in the organization. This rationale suggests that role conflict is more stressful at lower levels of an organization, whereas role ambiguity is more stressful at higher levels. This rationale has been tested by Schuler.⁸¹ His findings indicate that role ambiguity and role conflict have negative relationships with job satisfaction at all three levels of the organization. Szilagyi, Sims and Keller⁸² conclude that role ambiguity had a stronger relationship with the satisfaction relationships at higher occupational levels, role conflict had stronger relationships with the satisfaction variables. Schuler⁸³ argues that the employees at the higher levels of the organization have the ability to cope with or adapt to role conflict and ambiguity although it is still dissatisfying. Another study by Miles and Petty⁸⁴ points out that job satisfaction and role clarity are highly correlated for persons in both supervisory and non-supervisory

⁸¹Randall S. Schuler, "Role Perceptions, Satisfaction, and Performance: A Partial Reconciliation," Journal of Applied Psychology, 60 (1975), 683-687.

⁸²Andrew D. Szilagyi, Jr., Henry P. Sims, Jr., and Robert T. Keller, "Role Dynamics, Locus of Control, and Employee Attitudes and Behavior," Academy of Management Journal, 19 (1976), 259-276.

⁸³Randall S. Schuler, "Role Perceptions, Satisfaction and Performance Moderated by Organization Level and Participation in Decision Making," Academy of Management Journal, 20 (1977), 159-165.

⁸⁴R. H. Miles and M. M. Petty, "Relationships between Role Clarity, Need for Clarity, and Job Tension and Satisfaction for Supervisory and Nonsupervisory Roles," Academy of Management Journal, 18 (1975), 877-883.

roles as well as for those individuals who have a high or a low need for clarity.

Significant relationships between role conflict and/or role ambiguity and propensity to leave, voluntary turnover, and job performance have also been reported. Rizzo et al.⁸⁵ and Lyons⁸⁶ both found a significant relationship between role ambiguity and expressions of the desirability and likelihood of leaving the job. Lyons⁸⁷ has obtained a significant relationship between role ambiguity and voluntary turnover, and Johnson and Graen⁸⁸ have obtained significant relationships between both role ambiguity and role conflict and voluntary turnover.

Less well documented is the relationship between employee perceptions and performance. The results of research indicate that the reported relationships between performance and role perceptions are also inconsistent. House and Rizzo⁸⁹ reported negative relationships between role conflict and role ambiguity and performance. Greene and Organ⁹⁰ have also reported significant negative relation-

⁸⁵Rizzo et al., op. cit. ⁸⁶Lyons, op. cit.

⁸⁷Ibid.

⁸⁸T. Johnson and G. Graen, "Organizational Assimilation and Role Rejection," Organizational Behavior and Human Performance, 10 (1973), 72-87.

⁸⁹House and Rizzo, op. cit.

⁹⁰Greene and Organ, op. cit.

ships between role ambiguity and role conflict and job performance ratings. Locke⁹¹ concluded that persons were more satisfied and effective under specific performance goal conditions than under more ambiguous task instructions to "do your best." Schuler⁹² found that both role ambiguity and role conflict were negatively related to performance at lower and middle levels of the organization, whereas at the higher level of the organization, role ambiguity and role conflict were unrelated to performance. However, Tosi⁹³ found no relationships between role conflict and role ambiguity and performance. Schuler⁹⁴ points out that the higher the employee ability, the lower the relationship between role perceptions and satisfaction and performance. According to Schuler,⁹⁵ the somewhat inconsistent relationships found in previous research may have been based upon different organizational levels and different levels of participation in decision making. The results of the study done by Ford and

⁹¹Locke, op. cit.

⁹²Schuler, "Role Perceptions, Satisfaction, and Performance: A Partial Reconciliation."

⁹³Tosi, op. cit.

⁹⁴R. S. Schuler, "The Effects of Role Perceptions on Employee Satisfaction and Performance Moderated by Employee Ability," Organizational Behavior and Human Performance, 18 (1977), 98-107.

⁹⁵Schuler, "Role Perceptions, Satisfaction and Performance Moderated by Organization Level and Participation in Decision Making."

Jackofsky⁹⁶ indicated that role ambiguity has a stronger relationship with organizational climate than does role conflict, except for the dimension of felt pressure. It was also found that there are no apparent climate effects in the ambiguity-satisfaction relationship but there do appear to be climate effects in the role conflict-satisfaction relationship. The climate dimensions used in the study were pay, friendly team spirit, pressure, rewards, and degree of organization.

Even though there is evidence that role ambiguity and role conflict tend to be associated with lower job satisfaction, a greater likelihood of voluntarily leaving the organization, and lower performance, there is also some indication that not all workers respond negatively to role ambiguity and role conflict.⁹⁷

Thus, to date, research investigating the relationships between role perceptions and employee behavior have revealed that: a) unclear and/or conflicting role expectations may be dysfunctional to employee behavior; and b) occupational level may be a principal moderating variable in determining which role variable has the major impact on employee behavior.

⁹⁶David L. Ford, Jr., and Ellen F. Jackofsky, "Role Perceptions, Organizational Climate, and Satisfaction in Newly Created Organizational Subunits," Academy of Management Proceedings, 38 (1978), 64-68.

⁹⁷Kahn et al., op. cit.; T. W. Johnson and J. E. Stinson, "Role Ambiguity, Role Conflict, and Satisfaction: Moderating Effects of Individual Differences," Journal of Applied Psychology, 60 (1975), 329-333.

The intent of this chapter was to acquaint the reader with the topics crucial to the purposes of this paper: performance feedback, locus of control, role conflict and role ambiguity. The research studies on these concepts were reviewed and their findings were shown to act as a basis for this research. The following chapters discuss the methodology, findings, and the implications of this research.

III. RESEARCH METHODOLOGY

This section contains four parts. The first part presents concepts and definitions used in this inquiry. The second part deals with the methods of data collection. The third part discusses the instruments and the fourth part the techniques of data analysis.

A. Definitions of Concepts Used

1. Performance Feedback

Any data-based method used to induce change includes three basic components: collection, analysis, and feedback. While the collection effects are significant because individuals and groups have expectations about the possible consequences of data collection, the most potent and direct use of data for change is to give the information back in some form to the organization's members. This process of giving data back for the purpose of bringing about change is called feedback.

If any changes are to be induced in the individual's behavioral patterns or level of activities, it is necessary that the information concerning the results of the individual's actions be furnished to him. This process of providing information to the individual, related to his organizational activity levels, is called performance feedback

(PF). Performance feedback is based on knowledge of results concerning the employee's present performance as it relates to the goal set or the employee's previous level of performance. Feedback can be extrinsic (supervisory) or intrinsic (self-generated).

Extrinsic feedback can be operationally defined as having work groups receive information from their supervisor on a given day as to how many workers in the work groups had met the organizational goals for the given period of time. It can also take the form wherein an employee is given the information on the levels of performance he has achieved on specific activities, for the given period of time. Intrinsic feedback can be operationally defined as having individuals in the work groups rate themselves on their own performance using the same form as the supervisors.

Several researchers¹ found that self-feedback parallels the effect of external feedback. Warm et al.² and Baron and Ganz³ found no difference in level of performance between

¹J. Aronfreed, Conduct and Conscience (New York: Academic Press, 1966); A. Bandura and B. Perloff, "Relative Efficiency of Self-Monitored and Externally Imposed Reinforcement System," Journal of Personality and Social Psychology, 7 (1967). 111-116.

²J. S. Warm, F. H. Kaufer, S. Kuwada, and J. L. Clark, "Motivation in Vigilance; Effects of Self-Evaluation and Experimenter-Controlled Feedback," Journal of Experimental Psychology, 92 (1972), 123-129.

³R. M. Baron and R. L. Ganz, "Effects of Locus of Control and Type of Feedback on the Task Performance of Lower-Class Black Children," Journal of Personality and Social Psychology, 21 (1972), 124-130.

intrinsic- and extrinsic-feedback groups.

This study utilizes extrinsic feedback with the use of teller performance form designed to highlight the factors considered important by the officials of the organizations, whose employees are involved in the study (see Appendix A).

2. Productivity (Performance Levels on Organizational Activities)

This variable is operationally defined as the employees meeting the objectives set forth by the company. It is the basis of their effectiveness in performing their jobs within the organization. Objective measures of performance were utilized as determined by the job criterion and goals set forth by the company. The form used to establish performance levels contains six objective measures and one subjective measure. The subjective measure was necessitated by the uniqueness of the industry involved, which could neither be completely classified as a product or service oriented (see Appendix A).

3. Locus of Control (Internal-External Control)

This is a measure of a person's perceptions of whether the surrounding events are a result of his own actions or as being independent of his actions. At the two ends of this continuum are the belief in skill and the belief in chance. If a person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, this belief is termed internal control.

Conversely, the individual who views events as being independent of his own actions but more dependent on fate, luck, chance, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him is labeled as believing in external control. This definition is consistent with previous research⁴ (see Appendix B).

4. Role Conflict

Role conflict is the dimensions of congruency-incongruency or compatibility in the requirements of the role, where congruency or compatibility is judged relative to a set of standards or conditions which impinge upon role performance. It is a situation in which an employee is confronted with a set of two or more demands such that compliance with one demand makes compliance with other demand(s) difficult or impossible. This definition is consistent with previous research⁵ (see Appendix C).

⁴Julian B. Rotter, "Generalized Expectancies for Internal versus External Control of Reinforcement," Psychological Monographs, 80 (1966), 1.

⁵R. L. Kahn, D. M. Wolfe, R. P. Quinn, J. D. Snoek, and R. A. Rosenthal, Organizational Stress: Studies in Role Conflict and Ambiguity (New York: Wiley, 1964); John R. Rizzo, R. J. House, and S. I. Lirtzman, "Role Conflict and Ambiguity in Complex Organizations," Administrative Science Quarterly, 15 (1970), 150-163.

5. Role Ambiguity

Role ambiguity is the individual's feelings of uncertainty about his organizational role obligations and/or the means to fulfill them, or simply unclear expectations that are derived from the work environment. It is the situation in which the desired roles sent to the employee are vague, thereby making it difficult for the employee to fulfill desired sent roles. It is the lack of clarity regarding role expectations and performance evaluations. This definition is consistent with previous research⁶ (see Appendix C).

B. Methods of Data Collection

This research study involves a causal analysis. The main concern in a causal analysis is with the study of how one variable affects, or is "responsible for," changes in another variable. The stricter interpretation of "causation," found in experimentation, is that some external factor "produces" a change in the dependent variable. In much business research, however, the researcher is interested in cases in which the cause-effect relationship is less explicit. This relationship can only be understood and defined by designing experiments within which the effects of an independent variable can be specifically measured. Such is the case in this study. It specifically deals with associations or relationships between performance feedback (independent variable)

⁶Kahn et al., op. cit.; Rizzo et al., op. cit.

and performance level, locus of control, role conflict and role ambiguity (dependent variables).

There are many so-called experimental designs that a researcher may use depending upon study conditions. They vary widely in terms of their power to control contamination of the relationship between the dependent and independent variables. The most widely accepted classification is based on this characteristic of control. In these terms there are three basic types: (1) pre-experiments, (2) true experiments, and (3) quasi-experiments.

The pre-experiments are carried out only as a last resort because they have virtually no control of the many sources of contamination. At the other extreme, the true experiments provide the most valid information available although even these are not perfect. Between these two extremes, however, there are a number of research designs that are called quasi-experiments. They are used when some of the variables can be controlled but not enough to use the true experiment. In the quasi-experiment, equivalent experimental and control groups usually cannot be established through random assignment. This design is especially useful when any type of individual selecting process would be reactive.⁷ This is especially true when a field experiment is conducted where specific work groups are already established by the

⁷D. T. Campbell and J. C. Stanley, Experimental and Quasi-Experimental Designs for Research (Chicago: Rand McNally, 1966); S. Isaac, Handbook in Research and Evaluation (San Diego, Calif.: Knapp, 1974).

organization and subjects are already assigned to specific work groups.

The intact equivalent design, a variety of the non-equivalent control group design, will be employed in this study. This quasi-experimental design is chosen because random assignment of subjects to the experimental group is not feasible at the research site. The subjects are tellers who work at eighteen branches of two banks. Even though equal numbers of branches from each bank are randomly assigned as experimental and control groups, the membership in the experimental and control groups is naturally assembled.

The design is diagrammed as follows:

O ₁	X	O ₂	(Experimental groups)
O ₃		O ₄	(Control groups)

The "X" (feedback on performance) represents the introduction of an experimental stimulus to a group. It is the stimulus whose effects are of major interest. "O" identifies the measurement of dependent variables (performance, locus of control, role conflict, and role ambiguity). The X and O's in the diagram are read time-wise from left to right. The time duration of this experiment is 120 days. O's which are vertical to each other indicate that the measurements take place simultaneously. Parallel rows indicate that comparison groups were chosen randomly among the branches of each of the two banks. There are four control and four experimental groups from Bank 1, and five control and five experimental groups from Bank 2 for a total of nine control and nine

experimental groups.

Four types of data, at two different time periods, are required to evaluate the hypotheses posed previously: (a) performance data, (b) level of externality, (c) degree of role conflict, and (d) degree of role ambiguity. The personnel departments of the two banks involved in the study cooperated in the design and collection of performance data for the experimental period (Appendix A). The performance data were secured from weekly computer printouts. Two separate questionnaires were used to secure data on level of externality, role conflict, and role ambiguity.

Prior to the implementation of the experimental treatment, performance data were collected between July 11 and July 22, 1977, to establish baseline performance levels (pretreatment measures). On July 26, 1977 (T_1), again prior to the experimental treatment, the Rotter Internal-External Control Scale⁸ (Appendix B), and the Rizzo, House and Lirtzman Questionnaire⁹ (Appendix C) were administered to the whole sample population, to establish baseline levels (pretreatment measures) for level of externality, degree of role conflict and role ambiguity.

Throughout the experimental period (120 days) the performance levels were measured and established on two-week intervals. The experimental groups were subjected to performance feedback on Tuesdays, following the two-week

⁸Rotter, op. cit.

⁹Rizzo et al., op. cit.

performance data collection period. The feedback was provided to the tellers, individually, by the branch managers and was based on the preceding period's performance data. There was a total of eight intervals for which performance feedback was provided. Continuous performance data on control groups were also collected, for the same time periods, but no feedback was provided. At the end of the experimental treatment period, post-treatment performance levels were measured and established. The performance data for the October 17-28, 1977, time period was measured and established as post-treatment performance levels. On November 3, 1977 (T_2), the Rotter Internal-External Control Scale and the Rizzo, House and Lirtzman Questionnaire were administered to the whole population to see if there are significant changes in the levels of the dependent variables as compared to pre-treatment measures. A total sample of over 90 employees working at branches of two banks was included in the study. A coding system, known only to the researcher, was used while administering the questionnaires. The object was to insure anonymity, confidentiality, and frank answers from the respondents.

C. Instruments Used

Three separate instruments were used to measure and establish the levels of the four dependent variables at pre-test and post-test time periods. The instrument used to establish performance levels is the Teller Performance

Evaluation Form (Appendix A). This form was designed to highlight the factors considered important by the management of the organizations involved in the study. It contains six objective items and one subjective item. The information for the first four (1-4) items was obtained from the computer printouts on activity levels supplied to the personnel departments of the organizations. The last three (5-7) items were filled in by the branch managers. Since the industry under study is unique, objective as well as subjective evaluation of performance was inescapable. Since the information on this form could be provided by the management, without the awareness of the subjects in the control groups, the researcher was able to minimize the contamination of these groups. The form was used throughout the experimental period for a total of eight times (once every two weeks). The levels established with the form not only enabled the researcher to continuously monitor the designated performance factors but also were used by the branch managers of the experimental groups to provide feedback on performance to the individual subjects. As indicated earlier, each branch as a whole was designated as an experimental or a control group. Since the branches were physically located at different locations in the city and transfer of personnel among branches was virtually nil, the contamination of control groups was under control to a great extent.

The instrument used to measure locus of control was

the Rotter Internal-External Control Scale (I-E)¹⁰ (Appendix B). The scale is a 29-item, forced-choice test including six filler items intended to make the purpose of the test somewhat more ambiguous. The score is the total number of external choices (the higher the score, the more external the belief).

A careful reading of the items will make it clear that the items deal exclusively with the subjects' belief about the nature of the world. That is, they are concerned with the subjects' expectations about how reinforcement is controlled. Consequently the test is considered to be a measure of a generalized expectancy. Such a generalized expectancy may correlate with the value the subject places on internal control but none of the items is directly addressed to the preference for internal or external control. It should be pointed out that the definition of the construct, as used in this study, deals only with a person's perception of contingency relationships between his own behavior and the events which follow that behavior.

Internal consistency, test-retest reliability, social desirability, multidimensionality, and all other characteristics of the test have been extensively discussed. Over fifty percent of the internal-external locus of control investigations have employed the Rotter Scale.¹¹ The literature does

¹⁰Rotter, op. cit., pp. 11-12.

¹¹Ibid.; E. J. Phares, Locus of Control in Personality (Morristown, N.J.: General Learning Press, 1976).

indicate that there are individual differences in perception about one's control over one's destiny and that the Rotter scale is sensitive to these differences.

The instrument used to measure the perceived level of role conflict and role ambiguity is the Rizzo, House and Lirtzman Questionnaire¹² (Appendix C). The questionnaire consists of 30 items, 15 of which deal with role ambiguity (even numbers) and 15 with role conflict (odd numbers). Four kinds of role conflict and two major underlying causes of role ambiguity are incorporated into the questionnaire. The subjects are requested to respond to each role item, indicating the degree to which the condition existed for him, on a seven-point scale ranging from very false to very true.

The four major kinds of conflict are:

1) Conflict between the focal person's internal standards or values and the defined role behavior (items 3, 5, 27, 29). This is a person-role conflict or intrarole conflict of the focal person as he fills a single position or role.

2) Conflict between the time, resources, or capabilities of the focal person and defined role behavior (items 1, 11, 15, 17, 25). From the point of view of the focal person, there is intrarole conflict or person-role conflict, e.g., insufficient capability.

3) Conflict between several roles for the same person

¹²Rizzo et al., op. cit.

which require different or incompatible behaviors, or changes in behavior as a function of the situation (items 7 and 19); i.e., role overload. The focal person fills more than one role.

4) Conflicting expectations and organizational demands in the form of incompatible policies (items 9 and 13), conflicting requests from others (item 21), and incompatible standards of evaluation (item 23).

The two major underlying causes of role ambiguity are:

1) The predictability of the outcome or responses to one's behavior (items 8, 16, 24, 30).

2) The existence or clarity of behavioral requirements, often in terms of inputs from the environment, which would serve to guide behavior and provide knowledge that the behavior is appropriate (the remaining even-numbered items).

The factorial independence of the scales of role conflict and role ambiguity has been demonstrated, and the instrument is consistent with the previous research in the area.¹³

¹³Robert H. Miles, "A Comparison of the Relative Impacts of Role Perceptions of Ambiguity and Conflict by Role," Academy of Management Journal, 19 (1976), 25-35.

D. Techniques of Data Analysis

In the behavioral sciences data are gathered to resolve questions regarding substantive issues. The experimenter who gathers such data must begin with a careful consideration of the types of statistical methods he is going to apply to the data in order that the measurements he makes are in the proper form to permit the intended analysis. Almost all conclusions concerning experimental data or survey results are based on statistical tests. If one is to understand how these conclusions are reached and is to be able to critically evaluate them, then it is essential that the logical steps involved in arriving at these conclusions be understood. On the basis of these statistical analyses the experimenter usually decides whether or not his observed outcomes could reasonably be expected on the basis of chance variability. If it is decided that the differences, or the relationships, could have been due to chance it is concluded, essentially, that the experimental manipulations did not result in an effect that could be detected with the procedures and measuring instruments.

In gathering the data to be analyzed, a total of 108 tellers from 18 branches of two banks were initially involved in the experiment. However, due to promotions, transfers and turnover, only 72 tellers were present for the full duration of the field study and were able to complete the experiment. In some branches only three tellers could be utilized for

the complete duration of the study. Those branches having more than three full-duration participants were randomly reduced to groups of three, at the completion of the study. This was necessary to utilize equal numbers of participants, from each branch, for the statistical analysis

Table 3-1. Control and Experimental Groups and Number of Participants

	Bank 1	Bank 2	Total	Number of Participants
Experimental	4 branches 3 tellers	5 branches 3 tellers	9 branches 3 tellers	27 tellers
Control	4 branches 3 tellers	5 branches 3 tellers	9 branches 3 tellers	27 tellers
Total	8 branches 3 tellers	10 branches 3 tellers	18 branches 3 tellers	
Number of Participants	24 tellers	30 tellers		54 tellers

Analysis of variance was utilized to analyze the data in this experiment. In this testing procedure total variance in a set of data is analyzed by breaking it down into its component sources which can be attributed to various factors in the research. The statistical significance of each of the factors is determined by expressing the variance attributed to it as a ratio to the estimated sampling variance of the data. This is done by means of the F test which can

be stated as:

$$F = \frac{\text{variance due to factor X} + \text{sampling variance}}{\text{sampling variance}}$$

If the variance due to factor X is small, then the F ratio will be small. On the other hand, if the F ratio is large, factor X accounts for a large part of the total variance in the data.

Table 3-2. ANOVA Table

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1		
Treatment	1		
Bank x Treatment	1		
Branch (Bank x Treatment)	14		
Error	36		
Total	53		

The .05 level of significance ($\alpha = .05$) was selected for this study. The most common level of significance, utilized in research studies, is .05, although .01 is also widely used.¹⁴

¹⁴C. William Emory, Business Research Methods (Homewood, Ill.: Richard D. Irwin, Inc., 1976).

IV. RESULTS OF THE STUDY

As discussed earlier, the research attempted by this dissertation deals with four dependent variables (performance, locus of control, role conflict and role ambiguity) and attempts to measure the effects of the independent variable (performance feedback) on each of these four dependent variables. Since raw data was collected with the use of separate instruments, the data analysis and interpretation will also be conducted separately for each of the dependent variables. In the preceding sections, four hypotheses were developed, each corresponding to one of the dependent variables. The data on each dependent variable and the results by hypotheses will be discussed in the following sections.

A. Effect of Performance Feedback on Performance

One of the dependent variables is the level of performance. Raw data on seven factors that measure performance were collected with the use of the Teller Performance Evaluation Form (Appendix A).

In analyzing the variables, the analysis of variance technique was utilized. In the following discussion, the analysis of variance tables are generated and F values for .05 level of significance are indicated. The .01 level of

significance is also shown where applicable.

Table 4-1. Symbols Used for Statistical Analysis of Performance Data

Symbol	Factor on Instrument
TR	Number of transactions
B	Number of times balanced
AO	Largest Amount out (\$)
NT	Net - Over/Short (\$)
CM	Number of customer complaints
AB	Absenteeism (number of hours)
EV	Overall supervisory evaluation

Since this study involves a causal analysis, the emphasis is on the measured change produced on the dependent variable by the independent variable. To measure this change and to test the hypotheses, a new set of data was constructed from the raw data. This set is designed to measure the change at the two time periods (T_1 and T_2) and includes post-test levels less pre-test levels of each of the seven factors that identify the performance.

Table 4-2. Variables that Measure Change

Variable	Data
TRD	= $TR_8 - TR_1$
BD	= $B_8 - B_1$
AOD	= $AO_8 - AO_1$
NTD	= $NT_8 - NT_1$
CMD	= $CM_8 - CM_1$
ABD	= $AB_8 - AB_1$
EVD	= $EV_8 - EV_1$

This set of generated data includes seven factors that measure change. The first factor was tested to determine the change in the number of transactions (TRD). The ANOVA results are shown in Table 4-3. For this only "Bank" was significant at the $\alpha = 0.05$ level with the F ratio of 5.22. Hence, the variability in TRD cannot be attributed to the treatment or other sources of variation. The means for TRD by Banks show us the direction as well as the magnitude of the change. Mean score for Bank 1 is 278.83 and the mean score of Bank 2 is -66.78. The comparison of these two means can be interpreted as Bank 1 having an average increase of 279 in the number of transactions while Bank 2 experienced a decrease of 67.

Table 4-3. ANOVA Results for Change in Number of Transactions (TRD)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	1460914.08	5.22*
Treatment	1	105358.87	.38
Bank x Treatment	1	768108.00	2.74
Branch (Bank x Treatment)	14	3921862.64	1.33
Error	33	6946203.17	
Total	50	12940146.04	

*Significant at the $\alpha = .05$ level.

The second factor was tested to determine the change in the number of times balanced (BD). As can be seen from

Table 4-4, none of the F ratios are significant for this factor. Therefore variability in BD cannot be attributed to the treatment or any other sources of variation.

Table 4-4. ANOVA Results for Change in Number of Times Balanced (BD)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	14.30	1.81
Treatment	1	0.91	0.12
Bank x Treatment	1	9.19	1.16
Branch (Bank x Treatment)	14	110.86	1.14
Error	33	229.17	
Total	50	336.16	

The next factor measures changes in largest dollar amount out (AOD). Again none of the F ratios are significant for this factor and variability in AOD cannot be attributed to any of the sources of variation.

Table 4-5. ANOVA Results for Change in Largest Amount Out (AOD)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	5289008.48	1.00
Treatment	1	6526412.66	1.24
Bank x Treatment	1	6288656.84	1.19
Branch (Bank x Treatment)	14	73850200.48	1.17
Error	33	211521565.97	
Total	50	309583956.30	

The fourth factor measured the change in the net - over/short dollar amount (NTD). None of the F ratios for this factor were significant and the variability in NTD cannot be attributed to any of the sources of variation.

Table 4-6. ANOVA Results for Change in Net - Over/Short Dollar Amount (NTD)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	68.54	0.01
Treatment	1	15470.16	1.31
Bank x Treatment	1	172.37	0.01
Branch (Bank x Treatment)	14	165704.11	0.98
Error	33	398179.94	
Total	50	575778.50	

The fifth factor was used to measure the change in the number of customer complaints (CMD). The F ratios for this factor were not significant.

Table 4-7. ANOVA Results for Change in Number of Customer Complaints (CMD)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	0.40	0.48
Treatment	1	1.47	1.75
Bank x Treatment	1	1.20	1.43
Branch (Bank x Treatment)	14	11.74	1.82
Error	33	15.17	
Total	50	28.82	

The sixth factor was for absenteeism (ABD). None of the F ratios were statistically significant.

Table 4-8. ANOVA Results for Change in Absenteeism (ABD)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	23.52	1.08
Treatment	1	6.50	0.30
Bank x Treatment	1	19.25	0.88
Branch (Bank x Treatment)	14	305.17	0.78
Error	33	922.67	
Total	50	1285.18	

The last of this set of factors was for measuring the change in the overall supervisory evaluation (EVD). This was the only other factor that had a significant F ratio. For this factor, only "Branch (Bank x Treatment)" was significant at the $\alpha = 0.01$ level with the F ratio of 3.47. Again the variability in the EVD cannot be attributed to the treatment (Table 4-9). A comparison of the means of EVD by "Branch (Bank x Treatment)" indicates that the only decreases in supervisory evaluations have taken place in the branches that are designated as control groups of each of the banks involved. The branches designated as experimental groups have consistently shown an increase in both banks.

Table 4-9. ANOVA Results for Change
in Overall Supervisory Evaluation (EVD)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	1.14	0.68
Treatment	1	0.00	0.00
Bank x Treatment	1	0.61	0.36
Branch (Bank x Treatment)	14	23.57	3.47**
Error	33	16.00	
Total	50		

**Significant at the $\alpha = .01$ level.

All the raw data and the generated data analyzed and interpreted above was to test Hypothesis 1.

Hypothesis 1: There is no significant difference in the performance levels of the experimental and the control groups at pre-test (T_1) and post-test (T_2) time levels.

The results pertaining to this hypothesis using the F test to evaluate if the experimental groups' performance levels are significantly higher and have significantly less variance than the control groups' performance levels, on each of the seven designated performance measures, indicate that Hypothesis 1 cannot be rejected. As can be seen from the preceding analysis, variability in any of the measures cannot be attributed to the treatment because none of the F ratios were significant.

Significant differences were found between the banks for the number of transactions (TRD) between the two time periods (T_1 , T_2). This could be a result of the banks'

marketing policies and could be completely out of the control of the tellers. In this effort to measure change in performance levels, significant differences among the branches in regard to supervisory evaluations (EVD) were also found. The only two decreases in supervisory evaluations were in the two control groups, one from each bank. This could be attributed to many different factors among which supervisory style differences, different value systems and expectations of individual supervisors, and increased awareness of the intangible value of the teller's performance by the supervisor can be cited. Since this was a subjective measure, complete validity of the results of this factor cannot be accepted as objectively valid.

B. Effect of Performance Feedback on Locus of Control

The second dependent variable is the locus of control. Again the experiment and the statistical analysis of the data were designed to measure the change in this dependent variable as produced by the independent variable (performance feedback). The level of externality is derived from the scores obtained as a result of administering the Rotter I-E Questionnaire (Appendix B).

To test the hypothesis set forth, new data, for each participant, was generated from raw data. The generated data is the post-test (PSEXT) score of externality less pre-test (PREXT) score:

$$\text{EXT} = \text{PSEXT} - \text{PREXT}$$

This data was generated to measure the magnitude and the direction of the change in the scores of externality and to establish the factor to which the variability can be attributed. The change that is of interest is the change between pre-test and post-test time periods (T_1 and T_2) for both the experimental and control groups. Next, the changes in the scores of externality (EXT) were statistically analyzed using ANOVA and the F test. As can be seen from Table 4-10, only "Treatment" was significant for this measure, at the $\alpha = .01$ level with the F ratio of 26.12. Hence the variability in EXT can be attributed to the treatment but not to other sources of variation. The means for EXT by treatment show the direction as well as the magnitude of the change. Mean score for control groups is 1.11 and for experimental groups is -2.41. The comparison of these two means can be interpreted as the control group showing an increase of 1.11 in the externality score while the experimental group showed a decrease of 2.41.

Table 4-10. ANOVA Results of the Change
in Levels of Externality (EXT)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	1.56	0.24
Treatment	1	167.13	26.12**
Bank x Treatment	1	0.05	0.01
Branch (Bank x Treatment)	14	89.58	1.16
Error	36	198.00	
Total	53	456.33	

**Significant at the $\alpha = .01$ level.

The raw data and the generated data analyzed and interpreted above was to test Hypothesis 2.

Hypothesis 2: There is no significant difference in the scores of externality of the individual members of the experimental and the control groups at pre-test (T_1) and post-test (T_2) time periods.

The results pertaining to this hypothesis using the F test to evaluate if there are differences between the control and the experimental group members' externality scores, at pre-test and post-test time periods, indicate that this hypothesis can be rejected. There is a difference in the scores of externality between the two time periods as well as between the experimental and control groups. This variability can be attributed to "Treatment" which is significant at the $\alpha = 0.0002$ level with the F ratio of 26.12. The externality score decreased for the experimental groups, whereas it increased for the control groups from pre-test

to post-test period. Since a high score shows a higher level of externality, it can be seen that experimental groups have become less external as a result of the experiment and the treatment. The experimental group scores show a decrease of 2.41 whereas the control groups have increased by 1.11. Table 4-10 shows that the only significant factor is the treatment, therefore the above difference between the experimental and the control groups is attributed solely to the treatment and not to the variability between the banks or among the branches.

C. Effect of Performance Feedback on Role Conflict

The raw data on role conflict were collected with the use of the Rizzo, House, and Lirtzman Questionnaire (Appendix C). The odd-numbered items of this questionnaire are designed to measure the degree of perceived role conflict. In administering the questionnaire a seven-item Likert scale was used, with 1 = very false to 7 = very true.

To determine if there were any differences, in the scores of the experimental and the control groups, between the two time periods (pre-test and post-test), and to identify the factor that explains the variations, a new set of data was generated (D_n):

$$D_n \text{ (change in score)} = S_n \text{ (post-test score)} - R_n \text{ (pre-test score)}$$

n = odd numbers of 1 through 30

When this new set was analyzed using ANOVA and the F test, some significant changes were noted. The items that showed a change and the significant sources of variation that the variability can be attributed to are shown in Table 4-11.

Table 4-11. Significant ANOVA Results of the Change (D_n) in the Items Measuring Role Conflict

Questionnaire Item Number	Source of Variation	Degrees of Freedom	Sum of Squares	F-value
1	Treatment	1	6.00	6.44*
7	Treatment	1	25.35	4.98*
9	Treatment	1	28.17	9.86**
17	Treatment	1	14.52	7.34*
21	Treatment	1	25.25	10.78**

**Significant at the $\alpha = .01$ level.

*Significant at the $\alpha = .05$ level.

After identifying the items that have experienced a change, a comparison of the means were made to find out the magnitude and the direction of the change. An increase in the scores of the statements numbered 1, 7, and 17 reflects a decrease, and an increase in the scores of 9 and 21 reflects an increase in the degree of perceived role conflict (Appendix C). As can be seen from Table 4-12, experimental groups' scores have changed in the direction to indicate a greater understanding of their work environments and a decrease in the degree of role conflict they experience in their jobs. The change in the control groups has been in the opposite direction to indicate an increase in the degree of role conflict experienced.

Table 4-12. Comparison of the Means of the Change (D_n) in the Items Measuring Role Conflict

Questionnaire Item Number	Treatment	Means
1	Control	-0.26
	Experimental	0.41
7	Control	-0.33
	Experimental	1.04
9	Control	0.96
	Experimental	-0.48
17	Control	-0.41
	Experimental	0.63
21	Control	0.11
	Experimental	-1.26

Even though item-by-item analysis above could be interpreted as the treatment having a positive influence on the role conflict (decrease in the degree of perceived role conflict), a more comprehensive analysis is needed to test the hypothesis stated. The reason is that there are four kinds of role conflict which are incorporated in the questionnaire, and certain items on the questionnaire can be grouped together to measure the variability in each type. To accomplish this, new data were generated from the raw data and statistically analyzed. These new data are generated by adding the scores of the questionnaire items that relate to a particular type of conflict, both at pre-test (R_n) and post-test (S_n) time periods. Two totals, one for each time period, are generated: pre-test (CR_i) and post-test (CS_i). A final set of data is generated from these two totals to measure the variability between the two time periods:

$$C_i \text{ (change in totals)} = CS_i \text{ (post-test total)} - CR_i \text{ (pre-test total)}$$

Since there are four types of conflict, i takes on values from 1-4 ($i = 1, 2, 3, 4$).¹

This new additional data (C_i) were generated to measure the change in each type of role conflict, between the pre-test and post-test time periods. The generated data were analyzed using ANOVA and the F test. The results of this analysis will be used as the basis for testing the hypothesis forth. This set of generated data (C_i , $i = 1, 2, 3, 4$) includes the following types of role conflict:

Type 1 (C_1) = person-role conflict or intrarole conflict (conflict between the focal person's internal standards or values and the defined role behavior)

Type 2 (C_2) = insufficient capability (conflict between the time, resources, or capabilities of the focal person and defined role behavior)

Type 3 (C_3) = role overload (conflict between several roles for the same person which require different or incompatible behaviors, or changes in behavior as a function of the situation)

Type 4 (C_4) = incompatible policies, conflicting requests, and incompatible standards of evaluation (conflicting expectations and organizational demands).

Of the four measures above, only two (C_3 and C_4) showed significant variations. There were no significant variations in the other two measures (C_1 and C_2).

As can be seen from Table 4-13, for the role overload

¹The four types of conflict are discussed on pages 63-64 of the dissertation.

(C_3), only "Bank" was significant at the $\alpha = .05$ level with the F ratio of 5.09. Hence, the variability in C_3 cannot be attributed to the treatment or other sources of variation. The performance feedback did not have any effect on this type of role conflict and there were no significant differences between the pre-test (CR_i) and post-test (CS_i) total scores of the experimental and the control groups. Whereas, significant variations were observed between the two banks utilized in the study. Since the study was a field experiment, this variability could have been caused by an uncontrolled factor (i.e., general changes in organizational climate).

Table 4-13. ANOVA Results for Change in Role Conflict Type 3 (C_3)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	42.40	5.09*
Treatment	1	6.69	0.80
Bank x Treatment	1	6.85	0.82
Branch (Bank x Treatment)	14	116.60	1.28
Error	36	234.00	
Total	53	406.54	

*Significant at the $\alpha = .05$ level.

The means for C_3 by Banks show us the direction and the magnitude of the change. Mean score for Bank 1 is -0.08 and for Bank 2 is 1.70. The comparison of these two means shows that there was a decrease of 0.08 in the total mean score of Bank 1 from pre-test to post-test time periods. An

increase of 1.70 is exhibited by Bank 2. The decrease in the mean score indicates a lessening and the increase in the mean score indicates an increase in the perceived degree of type 3 role conflict. Therefore, the degree of perceived role conflict due to role overload decreased in Bank 1 and increased in Bank 2 during the course of the study. The data collected with items numbered 7 and 19 in the questionnaire (Appendix C) are used to measure the change in role overload (C_3).

The other measure (C_4) that showed a significant difference from pre-test to post-test time periods is the type 4 role conflict that deals with incompatible policies (items 9 and 13), conflicting requests from others (item 21), and incompatible standards of evaluation (item 23). For this measure "Treatment" and "Branch (Bank x Treatment)" had significant F values.

Table 4-14. ANOVA Results for Change in Role Conflict Type 4 (C_4)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	46.46	1.50
Treatment	1	208.07	6.71*
Bank x Treatment	1	82.23	2.65
Branch (Bank x Treatment)	14	433.83	3.18**
Error	36	350.67	
Total	53	1121.26	

**Significant at the $\alpha = .01$ level.

*Significant at the $\alpha = .05$ level.

The "Treatment" was significant at the $\alpha = .05$ level with the F ratio of 6.71. The experimental group showed a decrease of -3.26 in the mean scores, whereas the control group showed an increase of 0.67. These are the means for C_4 by "Treatment." Therefore, the difference in the mean scores of the experimental and the control groups is attributed to the "Treatment." The decrease in the mean score indicates a decrease in the degree of perceived role conflict of this type, and we can state that the treatment was effective in a positive way.

The "Branch (Bank x Treatment)" was significant at the $\alpha = .01$ level with the F ratio of 3.18. This indicates that there were significant differences among the branches also.

Since focus of the study was to measure change between two time periods (pre-test and post-test), Hypothesis 3 will be tested based on the analysis of the data generated to measure change. These generated data are C_1 , C_2 , C_3 , and C_4 and they symbolize four different types of role conflict.²

Hypothesis 3: There is no significant difference in the degree of perceived role conflict of the experimental and the control groups at pre-test (T_1) and post-test (T_2) time periods.

The Type 1 role conflict deals with the conflict between the focal person's internal standards or values and the defined role behavior. The differences in the degree of the perceived role conflict of this type are not statistically

²See page 81 of the dissertation.

significant. None of the calculated F ratios are within the selected level of significance. Therefore Hypothesis 3 cannot be rejected for this type of role conflict.

The Type 2 role conflict deals with the conflict between the time, resources, or capabilities of the focal person and defined role behavior. The differences in the change (C_2) in this variable are not statistically significant and Hypothesis 3 cannot be rejected for this type of role conflict either.

The Type 3 role conflict deals with the conflict between several roles for the same person which requires different or incompatible behaviors, or changes in behavior as a function of the situation. For this variable (C_3), only "Bank" is significant at the $\alpha = .05$ level with the F ratio of 5.09. Therefore, the variability in the scores between the two time periods cannot be attributed to the Treatment. Hence, Hypothesis 3 for this type of conflict also cannot be rejected.

The Type 4 role conflict deals with the conflicting expectations and organizational demands in the form of incompatible policies, conflicting requests from others, and incompatible standards of evaluation. This variable (C_4) had significant variations between the pre-test and the post-test scores. One of the sources of variation that has a significant F ratio is the "Treatment." For this variable, "Treatment" is significant at the $\alpha = 0.0213$ level with the F ratio of 6.71. Hence, Hypothesis 3 for this type of role

conflict is rejected. A comparison of the means shows that experimental groups have experienced a decrease of -3.26 and control groups have experienced an increase of 0.67 in their mean scores. Since the decrease in the mean score indicates a decrease in the degree of perceived role conflict of this type, we can state that the performance feedback had a positive effect on this variable.

D. Effect of Performance Feedback on Role Ambiguity

The raw data on role ambiguity were also collected with the Rizzo, House, and Lirtzman Questionnaire (Appendix C). The even-numbered items of this questionnaire are designed to measure the degree of perceived role ambiguity. A seven-item Likert scale was used to record the responses, with 1 = very false to 7 = very true.

A new set of data was generated from the raw data to see if any differences (D_n) in the degree of perceived role ambiguity existed between the pre-test and post-test periods. This new set of data was analyzed to see if the variations were significant and to identify the factor that explains these variations.

$$D_n \text{ (change in score)} = S_n \text{ (post-test score)} - R_n \text{ (pre-test score)}$$

n = even values of 1 through 30.

The analysis of these data, using ANOVA and the F test, shows that there were significant variations in ten of the items on the questionnaire. The items that

experienced statistically significant variations and the levels of significance are shown in Table 4-15.

Table 4-15. Significant ANOVA Results of the Change (D_n) in the Role Ambiguity Scores

Questionnaire Item Number	Source of Variation	Degrees of Freedom	Sum of Squares	F-value
4	Treatment	1	37.50	13.51**
8	Treatment	1	12.52	5.18*
	Bank x Treatment	1	23.11	9.56**
12	Treatment	1	2.67	6.93*
14	Treatment	1	28.17	7.82*
16	Treatment	1	20.17	4.58*
18	Treatment	1	11.57	7.05*
20	Bank x Treatment	1	11.61	5.59*
24	Treatment	1	39.18	8.81**
26	Bank	1	9.26	7.42*
30	Treatment	1	54.00	29.11**

**Significant at the $\alpha = .01$ level.

*Significant at the $\alpha = .05$ level.

A comparison of the means has to be made to determine the magnitude and the degree of the change in each of the items that showed a significant change. An increase in the scores of the statements numbered 4, 12, 16, 18, 24, and 26 reflects a decrease, whereas an increase in the scores of 8, 14, and 30 reflect an increase in the degree of perceived role ambiguity (Appendix C). As can be seen in Table 4-16, the experimental groups' scores have changed in the direction which implies a decrease and the changes in the control groups are in the opposite direction implying an increase in the degree of perceived role ambiguity.

Table 4-16. Comparison of the Means of the Change (D_n) in the Degree of Perceived Role Ambiguity

Questionnaire Item Number	Treatment	Means
4	Control	-0.59
	Experimental	1.07
8	Control	0.07
	Experimental	-0.89
12	Control	-0.37
	Experimental	0.07
14	Control	0.22
	Experimental	-1.22
16	Control	-0.37
	Experimental	0.85
18	Control	-0.48
	Experimental	0.44
24	Control	-0.70
	Experimental	1.00
26	Control	0.00
	Experimental	0.41
30	Control	0.96
	Experimental	-1.04

The analysis showed that the variation in two of the items can be attributed to "Bank x Treatment" (Table 4-15). In other words, the banks have responded differently to the same treatment. These two items are numbers 8 and 20, and the figures are shown in Table 4-17.

Table 4-17. Comparison of the Means
by "Bank x Treatment" for Items 8 and 20

Treatment Bank	Questionnaire Item #8		Questionnaire Item #20	
	Control	Experimental	Control	Experimental
1	-3.67	-1.67	0.00	1.00
2	4.33	-6.33	-1.33	-0.33

The above analysis shows that the treatment had a positive effect on the degree of perceived role ambiguity. Since two major underlying causes of role ambiguity are imbedded in the questionnaire, a better understanding can be realized if the questionnaire items are grouped together to reflect these causes.³ New data were generated and statistically analyzed to measure variations in these two types of role ambiguity. The first set of data provides us with total scores for each type at the pre-test (AR_j) and post-test (AS_j) time periods. To measure change, a second set of data is generated from these totals by subtracting pre-test totals (AR_j) from post-test totals (AS_j).

A_j (change in totals) = AS_j (post-test totals) - AR_j (pre-test totals)
Since there are two types of role ambiguity, j takes on values 1 and 2 ($j = 1, 2$).⁴

The two final data (A_j) generated to measure change in the degree of perceived role ambiguity were analyzed

³See page 64.

⁴Ibid.

using ANOVA and the F test. Hypothesis 4 will be tested based on the analyses of these two data:

Type 1 (A_1) = The predictability of the outcome or responses to one's behavior.

Type 2 (A_2) = The existence or clarity of behavioral requirements.

Of the two generated data above, only one (A_2) showed significant variations. The other (A_1) did not have any significant F values.

For the existence or clarity of behavioral requirements (A_2) the only significant source of variation was "Treatment." Treatment was significant at the $\alpha = .05$ level with the F ratio of 8.23 (Table 4-18). Since there were no other significant F values, the variability in A_2 can only be attributed to the treatment. The means for A_2 by "Treatment" reveal the magnitude and the direction of the change. Mean score for the control group is -2.15 and for the experimental group is 0.89. The increase in the mean score shows a decrease in the degree of perceived role ambiguity of this type. The raw data for this variable is collected with the even-numbered items of the questionnaire, except items numbered 8, 16, 24, and 30 (Appendix C).

Table 4-18. ANOVA Results for Change
in Role Ambiguity Type 2 (A_2)

Source of Variation	Degrees of Freedom	Sums-of-Squares	F-value
Bank	1	0.09	0.01
Treatment	1	124.52	8.23*
Bank x Treatment	1	25.51	1.69
Branch (Bank x Treatment)	14	211.80	0.59
Error	36	922.67	
Total	53	1284.59	

*Significant at the $\alpha = .05$ level.

Hypothesis 4: There is no significant difference in the degree of perceived role ambiguity of the experimental and the control groups at pre-test (T_1) and post-test (T_2) time periods.

The Type 1 role ambiguity is caused by the predictability of the outcome or responses to one's behavior. In other words, it is the degree of role ambiguity perceived by the person when there is a lack of clearcut, understandable evaluation procedures. The analysis above shows that the change (A_1) in the degree of perceived role ambiguity of this kind was not statistically significant. There was neither an increase nor a decrease in the degree of perceived role ambiguity as a result of treatment, feedback on performance, or any other source of variation from pre-test to post-test time period. None of the calculated F ratios are within the selected level of significance and Hypothesis 4 cannot be rejected for this type of role ambiguity.

The Type 2 role ambiguity is a result of the non-existence or non-clarity of behavioral requirements, often in terms of inputs from the environment, which would serve to guide behavior and provide knowledge that the behavior is appropriate. The important organizational concepts involved are authority and responsibility relationships, goals and objectives, and policies and guidelines. The analysis of the change (A_2) in the degree of perceived role ambiguity of this kind showed significant variations between the pre-test and post-test time periods. This variability was attributed to the treatment which had the only significant F value at the selected level of significance. "Treatment" was significant at the $\alpha = 0.0124$ level with the F ratio of 8.23, whereas the F values of other sources of variation were not significant. Hence, Hypothesis 4 for this type of role ambiguity is rejected. A comparison of the means showed that the mean score of control groups decreased by -2.15 and experimental groups increased by 0.89. The changes in the mean scores are inversely related to the change in the degree of perceived role ambiguity of this type. In other words, the results indicate that the degree of perceived role ambiguity has increased in the control groups and decreased in the experimental groups from pre-test to post-test time period.

In the following section, the results of the study are summarized, the implications are discussed and recommendations for future research are made.

V. SUMMARY AND CONCLUSIONS

As indicated in Chapter I, the primary purpose of this study was to find out the relationship between performance feedback and four separate dependent variables. It was an attempt to determine the effect of performance feedback upon the tellers' performance levels, degree of externality (locus of control), degree of perceived role conflict and role ambiguity in two banking institutions. These institutions are located in the capital city of a southern state in the United States. Findings from the test of hypotheses included in this investigation were reported in Chapter IV.

In this chapter, a summary of the hypotheses and results found by the researcher is made, and conclusions are drawn. Implications of the findings of the study and recommendations for future research are also offered.

A. Summary of the Results from the Test of Hypotheses

On the basis of the data presented in Chapter IV, results may be summarized as follows:

1. Testing of Hypothesis 1 showed that the feedback on performance did not have any significant effect on the level of performance. However, differences between the banks, and among the branches, were observed in some of the

performance measures.

2. Testing of Hypothesis 2 showed that the feedback on performance did have a significant effect on the level of externality. The externality scores of the control group increased and those of the experimental group decreased (a decrease in external orientation) from pre-test to post-test time period.

3. Testing of Hypothesis 3 was done on four different types of role conflict. The results indicated that performance feedback had a significant effect on only one type of role conflict (C_4). It is the result of conflicting expectations and organizational demands in the form of incompatible policies, conflicting requests from others, and incompatible standards of evaluation. For this type of role conflict, the experimental groups experienced a decrease in the degree of perceived role conflict, whereas the control groups showed an increase. One other type of conflict (C_3), role overload, also showed some variations between the pre-test and post-test time periods. But this variability could be attributed to "Bank" rather than "Treatment."

4. Testing of Hypothesis 4 was conducted for two types of role ambiguity. The results indicated that only one type (A_2) was affected by the feedback on performance. The role ambiguity is caused by the non-existence or non-clarity of behavioral requirements, often in terms of inputs from the

environment, which would serve to guide behavior and provide knowledge that behavior is appropriate. The experimental group showed a significant decrease in the degree of perceived role ambiguity of this type, whereas the control group experienced an increase.

The results reported suggest some tentative conclusions and have implications. They are discussed in the next section.

B. Conclusions and Implications

Before attempting to present the conclusions and implications drawn from the findings of this research, it seems appropriate to mention some of the study's limiting factors. First, this study was a field experiment and therefore shares the disadvantages of other field experiments. Since complete control of the administration of the independent variable could not be attained, performance feedback was provided by the branch managers without the researcher's involvement, and unequivocal claims of causality cannot be made.

Second, the branches were randomly assigned to the experimental or the control groups. The inter-unit transfer of personnel to other positions, turnover, promotion, and absence due to annual leave have constrained the collection of data on all participants for the full duration of the experiment. Sample size had to be decreased from an initial 108 to 72 tellers at the completion of the study. Hence,

Table 5-1. Summary of the Results from the Test of Hypotheses

Dependent Variable	F ratio	Hypotheses Testing
I. Performance		
1. Number of transactions (TRD)	0.35, not significant	Hypothesis 1 cannot be rejected
2. Number of times balanced (BD)	0.12, not significant	Hypothesis 1 cannot be rejected
3. Largest dollar amount out (AOD)	1.24, not significant	Hypothesis 1 cannot be rejected
4. Net dollar - over/short (NTD)	1.31, not significant	Hypothesis 1 cannot be rejected
5. Number of customer complaints (CMD)	1.75, not significant	Hypothesis 1 cannot be rejected
6. Absenteeism (number of hours) (ABD)	0.30, not significant	Hypothesis 1 cannot be rejected
7. Overall supervisory evaluation (EVD)	0.00, not significant	Hypothesis 1 cannot be rejected.
II. Locus of Control (EXT)	26.12, significant at .02% level	Hypothesis 2 is rejected
III. Role Conflict		
Type 1 (C ₁)	0.08, not significant	Hypothesis 3 cannot be rejected
Type 2 (C ₂)	3.15, not significant	Hypothesis 3 cannot be rejected
Type 3 (C ₃)	0.80, not significant	Hypothesis 3 cannot be rejected
Type 4 (C ₄)	6.71, significant at 2.13% level	Hypothesis 3 is rejected
IV. Role Ambiguity		
1. Type 1 (A ₁)	0.00, not significant	Hypothesis 4 cannot be rejected
2. Type 2 (A ₂)	8.23, significant at 1.24% level	Hypothesis 4 is rejected

the sample size used in statistical analysis was considerably small.

Third, the study is conducted in a very unique industry where the quality of performance, attitudes dealing with the customers, has as much importance as the quantifiable performance data. The persons holding the teller positions are in constant contact with the customers and thus require certain pleasant personality characteristics which could not be objectively measured.

Finally, the subjects selected for this study did not include the supervisory level. Therefore, the effects of the independent variable at different levels of the organization could not be measured.

Within the parameters set by these limitations, the results presented in this study do make possible the following conclusions and their implications.

1. The initial notion that performance feedback has a positive effect on the level of performance was not supported by the results of this research. The findings support Locke and Bryan's¹ conclusions. In two studies, they found that feedback did not improve performance and that goal setting itself contributed more to performance than the knowledge of results.

Research indicates that the internal-motivation

¹E. A. Locke, "Toward a Theory of Task Motivation and Incentives," Organizational Behavior and Human Performance, 3 (1968), 157-189.

effects of feedback come about through goal setting. Feedback is an integral part of the process by which individuals choose the goals which they hope to achieve and for which they exert energy to attain. Much of the research on goal setting and motivation indicates that feedback is an inherent and thus necessary part of the goal-setting process.² Similarly, goal setting is necessary for obtaining the feedback to bring about changes in motivation (higher levels of performance). Therefore, feedback and goal setting can be considered integral parts of each other. It is difficult to set goals for the future in the absence of knowledge about performance in the past and how that performance compares with some standard.

For feedback to motivate through goal setting, the data must include some form of comparison data or standard so that a basis or benchmark for setting future goals can be obtained. More importantly, the feedback process must provide an opportunity to set attainable, challenging goals and must facilitate goal setting, since feedback without goal setting may not lead to higher performance levels. This point is clearly demonstrated and supported by this study. Since during the course of the experiment, neither were standards established and communicated to the participants,

²A. Zander, Motives and Goals in Groups (New York: Academic Press, 1971); E. A. Locke, N. Cartledge, and J. Koepfel, "Motivational Effects of Knowledge of Results: A Goal-Setting Phenomenon," Psychological Bulletin, 70 (1968), 474-485.

nor was any goal setting process utilized, the potential benefits of feedback, in the form of higher performance levels, were not realized.

Other studies, discussed in Chapter II, indicate a positive impact of performance feedback on performance, but they also have some form of positive reinforcement incorporated in the feedback process. The effectiveness of such an approach is clearly highlighted by Table 2-2.³ The same table also shows that the program using feedback alone (Standard Oil of Ohio, 1974) was not as successful as the ones that coupled feedback with some type of positive reinforcement.

One way in which information affects or changes behavior is that it alters the perceptions that certain activity will lead to desired outcomes.⁴ Feedback may motivate behavior changes, where the perception exists that changes in feedback data will lead to changes in the rewards or sanctions which will be received (from the organization, environment, co-workers, etc.). For feedback to work as an external motivator and change tool, a clear link must be established between receiving feedback and receiving rewards, and the outcome (reward or sanction) must have some value for the performer.

³See pages 27-30 of the dissertation.

⁴E. E. Lawler, Motivation in Work Organizations (Belmont, Calif.: Brooks/Cole, 1973).

If the desired increase in the levels of performance cannot be achieved, the linkage between the feedback process and the reward system should be examined. Also, consideration should be given to the possibility that the installed reward systems might be paying off for behaviors other than those that are being sought. To expect feedback alone to create the desired increase in the level of performance, without considering these two necessary conditions, might be a false expectancy. The results of this study clearly demonstrate the importance of these two conditions. The performance feedback utilized in this study was a pure one and no attempt was made to examine its linkage to the reward system or to the effectiveness of the reward system itself. Therefore, there were no significant increases in the levels of performance of the participants. The findings of the study are consistent with the results of the reviewed studies and programs, and establish the fact that the usefulness of performance feedback will be greatly diminished unless it is used in conjunction with an effective reward system.

2. The second conclusion derived from the data reported in Chapter IV deals with the locus of control. The emphasis of the theory is on learned social behavior. The results of the study indicate that changes in expectancies can be brought about by introducing new experiences. We can conclude that the external orientations of people may be altered. This conclusion is supported by the fact that the experimental group experienced a decrease in the degree of

externality as a result of the performance feedback.

In all probability, there are a variety of causal antecedents of locus of control. The simplest explanation would be to assume that internals and externals are rather accurate in their perceptions, that is, that internals are simply products of an environment in which their behavior has actually been the determinant of their outcomes and that externals have experienced futility in trying to determine their own lots. Combs and Snygg⁵ have developed a theory of behavior emphasizing the importance of success-failure experiences, which shape individual perception which in turn influences the individual's behavior pattern. Harris⁶ argues that if the individual is successful, he tends to have a positive perception of himself. This leads to feelings of dignity, integrity, belongingness, and that he can contribute to his environment. He sees himself as capable of meeting challenges. One could hypothesize from the findings of this study that organizations, with the use of performance feedback coupled and enhanced with positive reinforcement, could possibly contribute to the development of such feelings and awareness of the individual's own capabilities.

As can be seen from the review of literature in

⁵Arthur W. Combs and Donald Snygg, Individual Behavior: A Perceptual Approach to Behavior (Rev. ed.; New York: Harper and Brothers, 1959).

⁶O. Jeff Harris, Jr., Managing People at Work: Concepts and Cases in Interpersonal Behavior (New York: John Wiley and Sons, Inc., 1976).

Chapter II, researchers have identified a host of correlates of locus of control. Yet, little evidence has been found that addresses the more specific question of what precedes or causes the belief system covered by this construct. Argyris⁷ has indirectly addressed this question. His observations can be summed up by saying that healthy human development proceeds from an external locus of control orientation along a continuum toward increased internal locus of control. Wolk and DuCette⁸ have also presented evidence to explain the origins of locus of control. Their studies indicate that internals seem to be blessed with a cognitive style that organizes stimuli into structures or chunks preserving maximal amounts of the originally embedded information. Wolk and DuCette apparently regard this ability as a cause rather than an effect of locus of control, although their evidence is still of a correlational nature.

One can speculate by drawing tentative inferences from the correlational studies that have been conducted, but only longitudinal studies that trace the changes in subjects' belief systems over a period of time can shed light on the origins of internal and external locus of control. Such an understanding is worthy of attention because locus of control,

⁷C. Argyris, Personality and Organization (New York: Harper, 1957).

⁸S. Wolk and J. DuCette, "Intentional Performance and Incidental Learning as a Function of Personality and Task Dimensions," Journal of Personality and Social Psychology, 29 (1974), 90-101.

being a cognitive variable, is amenable to alteration and many of the behavior patterns that go along with internal locus of control appear to be positively related to the effectiveness of organizational functioning. A second implication of the findings of this study is that organizations can act as a very viable environment within which locus of control can be altered and that this process will take place with the effective use of performance feedback.

3. The third conclusion is the existence of a relationship between the performance feedback and a specific type of role conflict. This relationship is very much in line with what was expected since the underlying causes of this type of role conflict indicate a lack of and/or unclear communication between the organization and the individual employee. This type (C_4) of role conflict is the result of conflicting expectations and organizational demands in the form of incompatible policies, conflicting requests from others, and incompatible standards of evaluation. The results of the study indicate that performance feedback affects this kind of conflict positively (decrease in the degree of perceived role conflict). By providing performance feedback to the individual, the organization directly or indirectly focuses the individual's attention to the factors that the organization considers as important components of the job. Once these components are identified, the employee not only recognizes the priorities within the task but also

acknowledges the standards used in the evaluation process. The performance feedback defines the boundaries of the job and clarifies the policies of the organization. By designing a relevant performance feedback form and administering effective feedback, the organization can alter the degree of perceived role conflict.

The study results indicated that perceived role conflict as a result of other factors was not affected. This again could be hypothesized as an expected outcome in view of the type of employees, the type of work they do, and the industry utilized in the experiment. One source of conflict is the focal person's values and defined role behavior. Good selection and hiring procedures should eliminate this type of conflict. Since the industry and the task under study are service oriented, a high degree of conflict of this type (C_1) might not have existed and therefore no change.

Another type (C_2) of role conflict is a result of insufficient capability. The job permits adequate time (e.g., customer waits in line to be served and more than one teller at any given time), and adequate resources are provided by the organization. Also, since the educational requirements exist and are used in the hiring process, the job content or context is not taxing to the capabilities of the individual worker. Therefore, existence of a high degree of perceived role conflict of this type and change was not expected.

A final type (C_3) of role conflict is due to role overload. The individuals participating in the experiment

performed a job that was highly structured and occupied the lowest level in the organizational hierarchy. Since the industry is a service industry that requires continuous contact with the customers, the tellers are required to exhibit defined behaviors (i.e., courteous, considerate, etc.) and fill defined roles. Again, under such circumstances a high degree of perceived role conflict due to role overload might not have existed. A difference between the banks was observed. This could be a result of the degree to which the task is structured and could vary from one organization to another.

4. Finally, a relationship between the performance feedback and a specific type (A_2) of role ambiguity was also established. The results of the study enable us to conclude that performance feedback can be effectively used to decrease the degree of perceived role ambiguity as caused by the non-existence or non-clarity of behavioral requirements, often in terms of inputs from the environment, which would serve to guide behavior and provide knowledge that the behavior is appropriate. The experimental group showed a decrease in the degree of perceived role ambiguity of this type. Without structure and feedback, the environment is perceived as ambiguous and as a source of stress and internal tension. Performance feedback acts as an input and provides knowledge to the individual employee by emphasizing the important elements of the job. The employee is given the opportunity to evaluate this knowledge and draw inferences to the type of behavior deemed appropriate by the organization. Through performance

feedback, behavioral requirements of the task are indirectly communicated to the individual employee and the degree of perceived role ambiguity is decreased.

No changes were observed in the perceived degree of role ambiguity (A_1) caused by the unpredictability of the outcomes to one's behavior. As discussed previously, a pure, objective performance feedback was utilized throughout the experiment and it was not complemented with any positive reinforcers or sanctions. If the performance feedback can be linked to an effective positive reinforcement system, the degree of perceived role ambiguity of this type might be decreased considerably by reinforcing the desired behaviors. The employees will be able to predict the outcomes of their specific behaviors and will also be able to clearly identify the behaviors required for the successful completion of the task.

Although conclusions drawn from the results of this study are tentative, some possible implications for the management may be expected.

One implication of this study might be that management cannot expect improved performance levels with any type of performance feedback. The feedback should be relevant and timely. It should emphasize the points that are important in carrying out a specific task and more importantly it should contain items that are under complete control of the worker. Some of the factors utilized in this study (e.g., number of transactions) may not be controlled by the employee, and

other factors (e.g., overall supervisory evaluation) may be too subjective and might reflect personality conflicts between the supervisor and the employee. Another implication might be that one should not rely on the reinforcing effect of the objective performance feedback itself alone, but should also couple it with some form of positive reinforcement. The question of how to use feedback is an important one. The ultimate test of the usefulness of performance feedback methods, as with any change approach, is the extent to which an organization can learn to use the tools and information that are readily available as a result of its functioning. The skills that are critical to make feedback meetings effective should be identified and these skills should be developed in the organization if the potential benefits of performance feedback are to be attained.

Societal and environmental influences have forced organizations to take more and more complex forms. One major side effect of this complexity has been alienation of the employees. The individual worker feels lost in the complexity of the organization and develops a feeling of helplessness, and this results in more alienation and dissatisfaction with the work and the work place. One possible implication of this study in view of previous research findings is that organizations, by providing relevant, frequent performance feedback, could lessen this sense of alienation and help employees gain a sense of control over their work

environments. Performance feedback could instill in the employees a belief in their capabilities and help them recognize that they can affect the outcome of their activities. This is very important because the changes in the economic and social environments have made individuals more independent and more socially aware, and have increased the need for the organizations to satisfy the social needs as well as the economic ones. People spend a sizable proportion of their waking lives in the work environment. Few people actually have the choice of working or not working; and of those who have to work for economic reasons, most have only a limited number of options as to where to work. Given such constraints, satisfaction opportunities at the work place become vitally important. In addition, in the realm of the individual's subjective inner world, discontent about specific parts of one's life tends to have a "spillover" effect and to color one's outlook, even upon otherwise unrelated portions of one's life space. Dissatisfaction with one's job seems to have an especially volatile spillover effect. People who feel bad about their work are apt to feel bad about many other things, including family life, leisure activities, even life itself. Since the adverse effects of the construct of externality in the areas of satisfaction and performance are documented, by decreasing the external orientations of the employees, the organization can also minimize its adverse effects on these two important factors. This will not only benefit the organization but will also benefit the individual

employee.

The discussion in Chapter II indicates that the role perceptions appear to be associated with a variety of undesirable individual outcomes which are generally regarded as dysfunctional for the organization. This need not be the case. The results of this study suggest that the degree of perceived role conflict and role ambiguity can be positively affected with the use of performance feedback. The performance feedback clarifies the organizational expectations, standards of evaluation, and the behavioral requirements. Since performance feedback emphasizes the important factors in the task, it will enable the employees to be more efficient and minimize the stress experienced by the employees as a result of perceived role conflict and role ambiguity. This in turn will decrease dysfunctional individual behavior and increase the effectiveness and efficiency of the organization.

Perhaps the most important implication of this study is that the performance feedback can be a very effective tool if used properly. One ultimate goal is the creation of continuing feedback loops in organizations. Healthy and adaptive organizations should be continually collecting and using data to identify and solve problems. Through control systems and other similar mechanisms, many organizations attempt to do this with regard to the technical systems of the organization. Thinking of information in terms of organizational behavior and change offers the potential of extending the

scope and impact of these systems. One could envision an organization where the collection and feedback of data about the human processes and systems is as much a part of the central activity of the organization as the budgeting cycle or the maintenance of inventory levels. The image of using performance feedback to build self-correcting and adaptive human systems is an exciting one. It could not only help increase the effectiveness and efficiency of the organization but also improve the organizational climate and make it a better place in which to work.

C. Recommendations for Further Research

The intention of this research was to establish a causal relationship between the performance feedback and some of the psychological factors that affect work-related behavior. As was pointed out earlier, most of the studies dealing with locus of control, role conflict, and role ambiguity have tried to understand the effects of these factors on the work-related behavior, and no attempt has been made to study these same concepts in the context used in this study.

Even though the results of the study show positive relationships between the performance feedback and the above psychological concepts, the findings at best can be treated as tentative in view of the limitations of the study. Therefore, before any generalization of the causality can be made, similar research in different localities, different

industries and types of organizations, and at different hierarchical levels have to be conducted. The initial findings are very encouraging and need to be tested. This study opens the door to a neglected area of organizational behavior and further research is required to develop a theoretical construct as well as to generalize the practical applications in an organizational setting.

Previous research indicates that the effects of performance feedback on performance levels are mixed and inconsistent. In some cases other factors such as goal setting and positive reinforcement have been found to have a compounding effect on the results. To clearly establish the impact of performance feedback, additional field studies are needed. In the same organizational setting three experimental groups can be exposed to goal setting with performance feedback, performance feedback and positive reinforcement, and performance feedback alone and the result of each application can be measured to identify the best change strategy. Such field studies will be instrumental in the development of the much needed self-correcting and adaptive human systems.

Locus of control is a cognitive variable and therefore should be amenable to alteration. Yet much work remains to be done before the question of whether the organization can alter the locus of control of its participants can be answered. This question was somewhat answered by the results of this study and needs to be tested by other studies. Apparently only longitudinal studies that trace the changes in

subjects' belief systems over a considerable period of time will shed much light on the origins of internal and external locus of control. Since individuals stay as members of the organizations for long periods of time, if organizational ability to affect locus of control can be established, the theory can be developed and it will have far-reaching implications.

The theoretical background implies that the degree of perceived role conflict and role ambiguity are results of information deficiency and are very much related to the organizational structure. Therefore the organizational structure and other organizational climate factors (i.e., organizational norms and values, group norms, reward systems, etc.) might have moderating effects in addition to the performance feedback system. The effects of these additional factors have to be tested to see if they can be combined with performance feedback to decrease the perceived degree of role conflict and role ambiguity. This, again, has to be tested in future field experiments in organizations with different organizational structures.

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APPENDICES

APPENDIX A

Teller Performance Evaluation Form

Bank _____

Date: From _____ To _____

Name of Employee _____

Branch _____ Name of Supervisor _____

1. Number of transactions _____
2. Number of times balanced _____
3. Largest Amount out (\$) _____
4. Net - Over/Short (\$) _____
5. Number of customer complaints _____
6. Absenteeism (number of hours) _____
7. Overall Supervisory Evaluation _____

(On a scale of 1-7, global subjective evaluation, 1 lowest to 7 highest. This will be based upon overall attitude, attentiveness, quality of performance, and other subjective measures seen necessary by the supervisor.)

APPENDIX B

THE ROTTER INTERNAL-EXTERNAL CONTROL SCALE

Instructions for the I-E Scale

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

Your answers to the items on this inventory are to be recorded on a separate answer sheet which is loosely inserted in the booklet. REMOVE THIS ANSWER SHEET NOW. Print your code number and any other information requested by the examiner on the answer sheet, then finish reading these directions. Do not open the booklet until you are told to do so.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. Find the number of the item on the answer sheet and black-in the space under the number 1 or which you choose as the statement more true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

1.
 - a. Children get into trouble because their parents punish them too much.
 - b. The trouble with most children nowadays is that their parents are too easy with them.
2.
 - a. Many of the unhappy things in people's lives are partly due to bad luck.
 - b. People's misfortunes result from the mistakes they make.
3.
 - a. One of the major reasons why we have wars is because people don't take enough interest in politics.
 - b. There will always be wars, no matter how hard people try to prevent them.
4.
 - a. In the long run people get the respect they deserve in this world.
 - b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5.
 - a. The idea that teachers are unfair to students is nonsense.
 - b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6.
 - a. Without the right breaks one cannot be an effective leader.
 - b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7.
 - a. No matter how hard you try some people just don't like you.
 - b. People who can't get others to like them don't understand how to get along with others.
8.
 - a. Heredity plays the major role in determining one's personality.
 - b. It is one's experiences in life which determine what they're like.
9.
 - a. I have often found that what is going to happen will happen.
 - b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10.
 - a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
 - b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11.
 - a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
 - b. Getting a good job depends mainly on being in the right place at the right time.
12.
 - a. The average citizen can have an influence in government decisions.
 - b. This world is run by the few people in power, and there is not much the little guy can do about it.
13.
 - a. When I make plans, I am almost certain that I can make them work.
 - b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyway.
14.
 - a. There are certain people who are just no good.
 - b. There is some good in everybody.
15.
 - a. In my case getting what I want has little or nothing to do with luck.
 - b. Many times we might just as well decide what to do by flipping a coin.
16.
 - a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
 - b. Getting people to do the right thing depends upon ability; luck has little to do with it.
17.
 - a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
 - b. By taking an active part in political and social affairs the people can control world events.
18.
 - a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
 - b. There really is no such thing as "luck."
19.
 - a. One should always be willing to admit mistakes.
 - b. It is usually best to cover up one's mistakes.

20.
 - a. It is hard to know whether or not a person really likes you.
 - b. How many friends you have depends upon how nice a person you are.
21.
 - a. In the long run the bad things that happen to us are balanced by the good ones.
 - b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22.
 - a. With enough effort we can wipe out political corruption.
 - b. It is difficult for people to have much control over the things politicians do in office.
23.
 - a. Sometimes I can't understand how teachers arrive at the grades they give.
 - b. There is a direct connection between how hard I study and the grades I get.
24.
 - a. A good leader expects people to decide for themselves what they should do.
 - b. A good leader makes it clear to everybody what their jobs are.
25.
 - a. Many times I feel that I have little influence over the things that happen to me.
 - b. It is impossible for me to believe that chance or luck plays an important role in my life.
26.
 - a. People are lonely because they don't try to be friendly.
 - b. There's not much use in trying too hard to please people, if they like you, they like you.
27.
 - a. There is too much emphasis on athletics in high school.
 - b. Team sports are an excellent way to build character.
28.
 - a. What happens to me is my own doing.
 - b. Sometimes I feel that I don't have enough control over the direction my life is taking.
29.
 - a. Most of the time I can't understand why politicians behave the way they do.
 - b. In the long run the people are responsible for bad government on a national as well as on a local level.

Examiner's Key to the I-E Scale

Items with an asterisk preceding them are filler items. Score is the number of underlined alternatives chosen, i.e., the total number of external choices (the higher the score, the more external the belief).

- | | |
|--------------|--------------|
| *1. | 16. <u>a</u> |
| 2. <u>a</u> | 17. <u>a</u> |
| 3. <u>b</u> | 18. <u>a</u> |
| 4. <u>b</u> | *19. |
| 5. <u>b</u> | 20. <u>a</u> |
| 6. <u>a</u> | 21. <u>a</u> |
| 7. <u>a</u> | 22. <u>b</u> |
| *8. | 23. <u>a</u> |
| 9. <u>a</u> | *24. |
| 10. <u>b</u> | 25. <u>a</u> |
| 11. <u>b</u> | 26. <u>b</u> |
| 12. <u>b</u> | *27. |
| 13. <u>b</u> | 28. <u>b</u> |
| *14. | 29. <u>a</u> |
| 15. <u>b</u> | |

APPENDIX C

THE RIZZO, HOUSE, AND LIRTZMAN QUESTIONNAIRE

Instructions

This is a questionnaire to find out how you see your job in regard to duties, authority, allocation of time, and relationships with others; the clarity of existence of guides, directives, policies. This is a measure of personal feelings, so there are no right or wrong answers.

There are seven choices for each item. Make a choice for every item, being sure to select the one choice that most closely matches your feelings about the item. Try to respond to each item independently when marking your answer; do not be influenced by your previous choices.

Mark your selection by putting an "X" in the box that most closely matches your feelings. Mark only one "X" for each statement.

Item No.	Statement	1 VERY FALSE	2 FALSE	3 SLIGHTLY FALSE	4 UNCERTAIN	5 SLIGHTLY TRUE	6 TRUE	7 VERY TRUE
1.	I have enough time to complete my work.							
2.	I feel certain about how much authority I have.							
3.	I perform tasks that are too easy or boring.							
4.	Clear, planned goals and objectives for my job.							
5.	I have to do things that should be done differently.							
6.	Lack of policies and guidelines to help me.							
7.	I am able to act the same regardless of the group I am with.							
8.	I am corrected or rewarded when I really don't expect it.							
9.	I work under incompatible policies and guidelines.							
10.	I know that I have divided my time properly.							
11.	I receive an assignment without the manpower to complete it.							
12.	I know what my responsibilities are.							
13.	I have to buck a rule or policy in order to carry out an assignment.							
14.	I have to "feel my way" in performing my duties.							
15.	I receive assignments that are within my training and capability.							
16.	I feel certain how I will be evaluated for a raise or promotion.							
17.	I have just the right amount of work to do.							
18.	I know that I have divided my time properly.							
19.	I work with two or more groups who operate quite differently.							
20.	I know exactly what is expected of me.							
21.	I receive incompatible requests from two or more people.							
22.	I am uncertain as to how my job is linked.							
23.	I do things that are apt to be accepted by one person and not accepted by others.							
24.	I am told how well I am doing my job.							
25.	I receive an assignment without adequate resources and materials to execute it.							
26.	Explanation is clear of what has to be done.							
27.	I work on unnecessary things.							
28.	I have to work under vague directives or orders.							
29.	I perform work that suits my values.							
30.	I do not know if my work will be acceptable to others.							

VITA

Alev Mustafa Efendioglu was born in Ankara, Turkey, on August 30, 1942, the son of Mehmet Zihni and Fatma Munevver.

He started working as a telephone operator at TUSLOG DET 85 (USAF), Istanbul, Turkey, in May 1964 and was promoted to Accounting Technician in June 1966. He worked full time at that capacity until resignation in January 1973 to pursue graduate studies. He was a union shop steward from 1970 to 1973.

In the fall semester of 1968 he enrolled at Istanbul Iktisadi Ticari Ilimler Akademisi in Istanbul. He was awarded a scholarship during his senior year and graduated with the third highest grades in his graduating in class in June 1972, receiving the degree of Bachelor of Science in Business Administration. After receiving his undergraduate degree, he was awarded a scholarship from the Turkish Ministry of Education for graduate studies leading to the Ph.D. in Management.

In January 1973 he enrolled in the Graduate School of Louisiana State University where he served as a graduate research assistant, and in August 1974 he received the Master of Business Administration degree. From September 1974.

until December 1978 he enrolled as a doctoral student in the Graduate School of the Louisiana State University. He served as a graduate teaching assistant from September 1974 to May 1977, and as an instructor during the summer semester of 1977 in the Department of Management at Louisiana State University. He has been teaching as an Assistant Professor of Management in the College of Business Administration at the University of San Francisco since September 1977.

He is a member of Beta Gamma Sigma, Academy of Management, American Institute for Decision Sciences, and American MBA Executives Association. Also, he is the coordinator of the Small Business Institute (SBI) at the University of San Francisco.

EXAMINATION AND THESIS REPORT

Candidate: Alev M. Efendioglu

Major Field: Management

Title of Thesis: The Effects of Performance Feedback on Performance, Locus of Control, Role Conflict and Role Ambiguity: A Field Study

Approved:

Jerry A. Wallis
Major Professor and Chairman

Carolyn H. Hargrave
Dean of the Graduate School

Carolyn H. Hargrave
Dean of the Graduate School

EXAMINING COMMITTEE:

Michael D. Gales
Lorene. Scott

O. Jeff Harris

Robert Nichols

Date of Examination:

November 29, 1978