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The Application of Porter and Lawler's Attitude-Performance Model to a Population of Disadvantaged Trainees

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To the Graduate Council:

I am submitting herewith a dissertation written by Richard Dorr Scott entitled "The Application of Porter and Lawler's Attitude-Performance Model to a Population of Disadvantaged Trainees." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Michael E. Gordon, Major Professor

We have read this dissertation and recommend its acceptance:

John Larsen, Gerald Whitlock, John Allen

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

Vice Chancellor for
Graduate Studies and Research

THE APPLICATION OF PORTER AND LAWLER'S ATTITUDE-PERFORMANCE MODEL TO A POPULATION OF DISADVANTAGED TRAINEES

A Dissertation

Presented to

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

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by

Richard Dorr Scott

June 1971

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ABSTRACT

The purpose of this study was to test a modified version of Porter and Lawler's attitude-performance model with a population of disadvantaged trainees. Seven hypotheses were derived from the following formulation: If a trainee sees high performance as leading to the attainment of one or more personal rewards in the training situation, he will tend to exert high effort in the program. The trainee will have correspondingly high performance in this situation providing he has the relevant ability and appropriate role perceptions.

To test these hypotheses data were obtained from 97 disadvantaged trainees and their eight supervisors at a manpower development project in Oak Ridge, Tennessee. Each trainee was given three questionnaires designed to measure the value of four rewards resulting from training, the perceived probability that high performance will lead to these rewards, and the importance of certain role perceptions. Ability scores were based upon scores on three aptitude tests obtained from the test files of the program. Each of the eight supervisors was asked to rank his trainees on degree of effort exerted and overall performance. The supervisors were also administered the role perception questionnaire.

The results of the study offer only limited support to the model, as only two of the seven hypotheses were confirmed. It was found that trainees who saw high performance as leading to the attainment of desired rewards did exert more effort in training, and also had higher ratings of overall performance. However, the predicted increases in the

relationship between effort and overall performance for trainees with high ability and appropriate role perceptions were not found. A number of possible explanations for these findings are discussed.

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CHAPTER I

INTRODUCTION

I. FOCUS OF THE STUDY

The factors which motivate an employee to effective job performance have long been a question of great concern to members of the business community, particularly managers dealing with human resources. Originally, it was believed that financial compensation was the only incentive for superior performance on the job. Later, with the publication of the classic Hawthorne studies, job attitudes of the employee were also found to be important. Thus, in the years which followed a great deal of research was designed and conducted to determine whether a relationship existed between job satisfaction and performance. However, as pointed out in the comprehensive reviews by Brayfield and Crockett (1955) and Vroom (1964), this research has been rather disappointing and inconclusive.

One problem with most of this research on the relationship between job attitudes and performance was that it was not based on any theory of behavior. Consequently, the previous work is comprised of isolated studies not fitting together in any meaningful pattern. Furthermore, the findings of this research provide only a tenuous basis from which to generalize.

Porter and Lawler (1968) reviewed this earlier work and concluded that only with a testable theory available could any substantial progress

be made in understanding the relationship between attitudes and performance. With few exceptions, however (Brayfield and Crockett, 1955; Georgopoulas et al., 1957; Herzberg et al., 1958; and Vroom, 1964), the amount of such theorizing has been small in proportion to the importance and scope of the issue.

A second problem inhibiting the study of the association between attitudes and performance was the slow realization of the importance of moderator variables. Only recently studies have been attempted which utilize the moderator variables to clarify this relationship (e.g., Georgopoulas et al., 1957; Katzell, Barrett, and Parker, 1961; Lawler, 1966; and Carlson, 1969).

One promising new approach appears to mitigate these problems associated with research on the relationship between attitudes and performance. In 1968, Porter and Lawler proposed a theoretical model, designed basically for managers, which encompassed both the variables of attitudes and performance. Not only did their model provide a source of testable hypotheses, but it also recognized the importance of a number of moderating variables between the employee's job attitudes and his performance. This model seemed important because it provided a way of thinking about the relationship among a large number of variables that have not been combined previously in a meaningful manner, and because it appeared to be adaptable to other populations which were non-managerial.

The particular type of employee to be examined in the present study is the industrial trainee. His role in the working force is important for at least two reasons, the first of which is a very practical

one. Most training programs of any value are time consuming and expensive undertakings. Since the trainee's attitude is frequently mentioned as a crucial variable in the success of training, it would seem highly desirable that more information be gathered on the relationship between his attitudes and performance. Secondly, most of the research dealing with the relationship between job attitudes and performance has dealt with the employed worker (primarily managers), while little or no study of these variables has been carried out in the training situation. Thus, this study will constitute a test of the generality of the Porter-Lawler model with a non-managerial, unemployed sample.

II. PREVIOUS RESEARCH

Job attitude research in industry typically has studied only one kind of attitude--the employee's satisfaction with his job. Such an emphasis follows what English and English (1958) describe as a narrowly limited definition of the term "attitude" that includes only approval and disapproval views. The typical experimental design for a study relating attitudes to performance usually consists of obtaining some measure of the employee's satisfaction-dissatisfaction with various aspects of the job (i.e., working conditions, supervisor, pay, etc.) and relating this to a measure of job performance. Examples of such studies are numerous (e.g., Kornhauser and Sharp, 1932; Habbe, 1947; Baxter et al., 1953; Mossin, 1949; Kerr, 1952; Sirots, 1958). As was pointed out earlier, extensive reviews of these studies have generally found a negligible or insignificant, positive relationship between the

two variables (Brayfield and Crockett, 1955; Vroom, 1964). The problem seemed to be that these studies were in the unfortunate position of not measuring any attitudes that appeared to be direct determinants of performance effectiveness. The question which immediately became relevant was how may these attitude surveys be made more effective. The answer, according to several authors (Brayfield and Crockett, 1955; Geogopoulas et al., 1957; Vroom, 1964; Lawler, 1967; and Porter and Lawler, 1968), could be found in motivation theory. Here it was suggested that what was needed were data on how employees feel important rewards could be obtained in their organization. In the language of motivation theory, what was needed were data on employees' path-goal or reward-expectancy attitudes--on the employees' attitudes toward what factors influence the rewards they receive. To quote from the article by Lawler (1967), "it is these attitudes that provide the link between attitudes toward the importance of job factors and job performance, the link that is typically missing in attitude studies."

The psychological literature on motivation theory provides the basis for the statement that reward-expectancy (path-goal) attitudes are the key to understanding the employee's motivation to perform effectively. Particularly important is the traditional expectancy theory of motivation as described in the writings of two of its early proponents, E. C. Tolman (1932) and Kurt Lewin (1938). Basic to both these theories is the notion that individuals have behavior response expectations which take the form of beliefs concerning the likelihood that a particular act will be followed by a particular outcome. Thus, a person is seen as motivated to perform certain behavioral responses if he expects that

such acts will lead to desired outcomes or goals. As is evident from these ideas, expectancy theory is strongly influenced by the principles of hedonism (Bowring, 1962). Both Tolman and Lewin view this goal directed behavior of the organism as a striving to attain positively valent objects or events and avoiding negatively valent objects or events.

Several current advocates of expectancy theory basically reconfirm the earlier writings of Tolman and Lewin, and further theorize how expectancy theory is related to attitude formation. For example, Woodruff and Divesta (1948) found that a person's attitude toward an object depends on his values and how instrumental he believes the object is for the attainment or blocking of these values. Similarly, Rosenberg (1953) found that the best predictor of attitude was a combined measure of value and instrumentality. Peak (1955) distinguishes two types of determinants of attitudes: (1) the cognized instrumentality of the object of the attitude for the attainment of various consequences; and (2) the intensity and the nature of the affect expected from these consequences. Atkinson (1964), in simpler language, says basically the same thing. He postulates that the amount of effort an individual will put into performing effectively is a function of two factors--the perceptions the individual holds about what rewards are associated with performing effectively and the importance or attractiveness of the rewards to the individual. And Vroom (1964), in his theory of worker motivation, conceptualizes the problem as the individual faced with a set of alternative voluntary behaviors and a set of associated outcomes. The role occupant chooses one of these alternatives depending both on

the outcome he desires and his perception of what behavior has the highest probability of leading to this outcome.

Brayfield and Crockett (1955) seem to be among the first to translate expectancy theory into terms which are useful for describing the relationship between attitudes and performance in the industrial situation. After they had reported their review of the various studies relating attitudes to performance they went on to make a perceptive theoretical analysis. From this analysis one of their conclusions was as follows: "Satisfaction with one's position in a network of relationships need not imply strong motivation to outstanding performance within that system, and . . . productivity may be only peripherally related to many of the goals toward which the industrial worker is striving."

It seems clear from this quotation that Brayfield and Crockett are essentially postulating an expectancy-reward (path-goal) approach to the analysis of the relationship between attitudes and performance. If, in a given situation the employee perceives productivity as leading to the attainment of desired goals, a positive relationship should exist between his attitudes and performance. If, however, he does not perceive production as leading to these goals, then there is no reason to expect such a high relation between these two variables.

Empirical tests of this theory in the industrial situation have been rare. Georgopoulas et al. (1957) asked their subjects to rate the instrumentality of high production for the attainment of several goals; i.e., making more money in the long run, promotion to a higher base rate, and getting along with their workers. They found that those workers who perceived high productivity to be directly related to the

attainment of these desired goals were the ones who were the high producers on the job.

Lawler (1964, 1966) asked managers to rate several job factors in terms of their relative importance in determining their pay. Three of the factors were job performance factors; i.e., quality of job performance, productivity on the job, and amount of effort expended. In the 1964 study, Lawler found that the contingency perceptions between the job performance factors and high pay were related to both effort ($r = .34$) and quality of job performance ($r = .15$). The 1966 study was somewhat more complicated as it included ability as a moderator variable. Results still confirmed that it was those managers perceiving a high relation between job performance factors and amount of pay who were rated highest on performance, but the relation was moderated by ability level.

Other recent writers have also shown the utility of the expectancy-reward approach to motivation. Cummings and Galbraith (1967), in a study somewhat similar to Lawler's (1966) study, showed that differences in production could be accounted for by using a measure of the instrumentality of production for various outcomes, and a measure of ability. Graen Gaena (1969) attempted to extend some of the concepts in the Vroom model, using the instrumentality of various behaviors as one of his measures.

One proposition in nearly all of these studies was that if a reward (e.g., pay or promotion) is desired by a individual, and he perceives that high production will lead to this reward, then the result is a highly motivated individual. That this finding has validity seems to be evident from the results of the studies. A second theme underlying

most of these studies is that there is not a direct relation between the individual who is highly motivated to produce and the actual quality of his job performance. As was pointed out in the 1966 Lawler study the instrumentality of job performance factors (i.e., high production, high effort) to high pay correlated .34 to ratings on effort but only .15 to actual quality of job performance. Thus, most authors have postulated some type of moderating effect between the individual's motivation or effort to produce and actual quality of production. For example, Georgopoulas et al. (1957) proposed that the worker's level of experience and the condition of machinery worked on affected the quality of job performance. Also, Lawler (1966) and Cummings and Galbraith (1967) showed that ability level was a moderator of job performance.

In 1968, Porter and Lawler proposed their model relating attitudes to performance. In it they incorporated the two propositions discussed above. First, they stated that motivation resulted from the interaction of the value of a reward to the individual and his perception of the probability that effort will lead to this reward. In the model this motivation was expressed in the form of effort. Secondly, they postulated that effort was not directly related to job performance but was moderated by two variables--the ability of the individual and his role perceptions (see Figure 1). As in other studies using ability as a moderator, the authors feel that if the employee does not have the abilities required for his position, then he is likely to perform his job ineffectively regardless of the effort he exerts. Similarly, if the role perceptions of what the employee thinks he should be doing do not

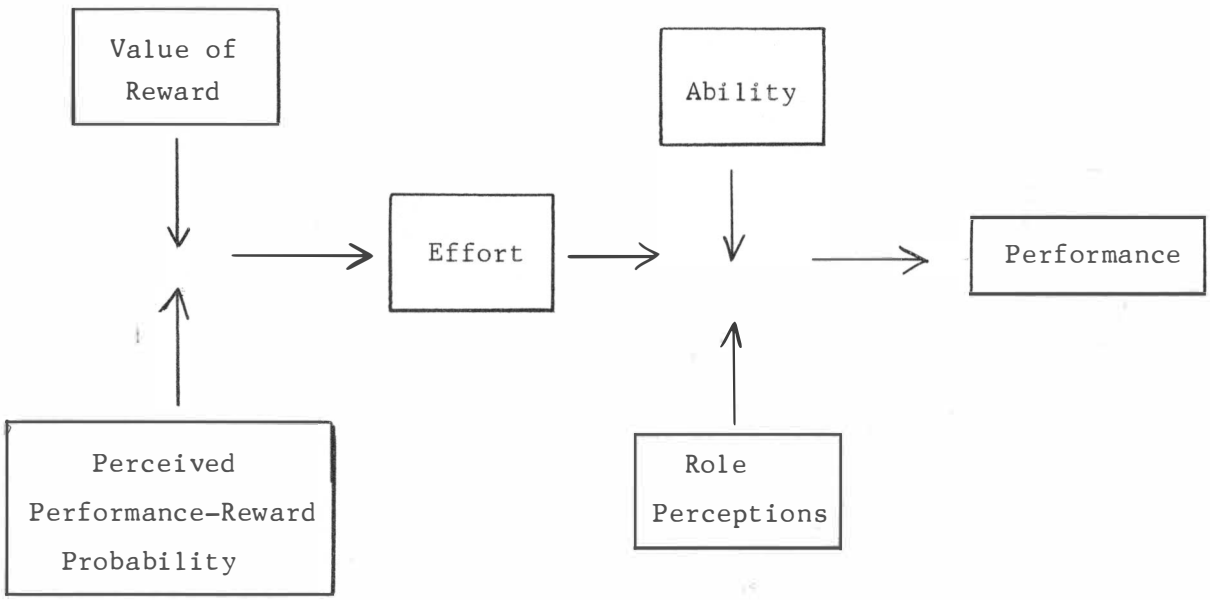

FIGURE 1

THE MODIFIED PORTER-LAWLER MODEL

correspond to his superior's perception, effort will probably be misdirected and performance would again be adversely affected. Thus, according to the model, actual job performance depends on the amount of effort exerted, the employee's ability to perform his task, and his role perceptions of requirements demanded by the task. Porter and Lawler concede that there are many environmental factors that also intervene to influence the relationship of effort to performance (e.g., condition of the equipment, working conditions, locale of the factory, etc.). However, they do not take these factors into account because they represent "spurious" factors in understanding the psychological and human determinants of performance.

To test this theory relating attitudes and performance, Porter and Lawler used a variety of managers representing both government and industry. The reward used in the study was pay. Questionnaire information was obtained for each of the variables proposed in the model with the exception of abilities, which was omitted from the study. To obtain data on the value of the reward, questions concerning the importance of pay to the manager were asked. To collect data related to the perceived effort-reward probability, questionnaire information was obtained on how closely the manager felt his pay was based on job performance factors; i.e., productivity on the job. To collect data on effort, and also on performance, self ratings and ratings by superiors were obtained.

The role-perception variable investigated was the inner-other directed dimension (i.e., independence vs. conformity) described by Riesman (1950). Data on this dimension were collected by means of questionnaire items dealing with inner and other directed behavior requirements.

Results generally supported the predictions which flow from the portions of the model described. Managers who saw pay closely related to performance factors received higher effort and performance ratings than managers who did not see such a close relationship. Also, this relation between value of reward and expectancy that performance factors will lead to reward is more closely related to effort ratings than to performance ratings. Furthermore, the strongest relationship between perception of pay being based on performance factors and the measures of effort existed for those managers who attached the greatest value to pay as a reward.

In the presentation of this theoretical model Porter and Lawler also suggest several lines of further research. One aspect which was almost completely lacking in their study was any measure of ability of the role occupants. Also, the measures of role perceptions were limited solely to the role occupants with no measure of their superiors' perception of correct role behavior. Thirdly, the study was concerned with the investigation of only one reward, i.e., pay. And finally, the authors suggest that such a model should be applied to other populations to determine its generalizability.

III. STATEMENT OF THE PROBLEM

The purpose of this study is to apply a modified version of the Porter-Lawler model relating attitudes and performance to the trainees at a manpower development project. The study was designed to answer several of the research questions raised by the Porter-Lawler study as well as providing useful information for the training program.

IV. HYPOTHESES

Rewards and Perceived Performance-Reward Probability

Due to the differences in the nature of the population to be studied in this project from that in the Porter-Lawler study, it was felt that different rewards or outcomes would be important as incentives to the trainees. In other words, such traditional rewards as pay, promotion, etc., would not be viewed as important outcomes in the training situation. Furthermore, because previous evidence identified a number of salient rewards as having motivating value in the training project, it was decided to test the model using several different rewards. Thus, instead of testing the predictions of the model for one reward (e.g., Porter and Lawler used only pay), this study tested the predictions of the model for four different rewards. These included graduation from the program, grades, getting a better job, and making more money in the long run. Since all these rewards appeared to be positive incentives, it was believed that the best predictions of trainee behavior could be made by combining multiplicatively all the rewards along with their respective performance-reward probabilities. While being congruent with the Porter-Lawler model, this approach also allows taking into account more than one reward at a time (i.e., Porter and Lawler investigated only pay). This would seem a more realistic approach as certainly the trainees are striving for more than one reward with varying degrees of intensity and with differing perceptions of how training performance will lead to the various rewards.

It should also be noted that in the present study there has been a change in terminology from the 1968 Porter and Lawler study. In the

1968 study Porter and Lawler hypothesized an interaction between the value of rewards and the perceived effort-reward probability, while in the present study this latter variable is referred to as the perceived performance-reward probability. This change in terminology was thought necessary to reflect the fact that the trainee was asked more than his perception of the relationship between effort and obtaining a desired reward, he was asked the same question about other training factors (e.g., shop and classroom performance) as well.

To specify how the rewards and the performance-reward probabilities combine to determine behavior, Vroom's (1964) concept of force was introduced. According to Vroom's proposition the force on a person to engage in specific behavior is a monotonically increasing function of the sum of the products of the value of all rewards and the strength of his expectancies that the behavior will be followed by the attainment of these rewards. In terms of the present study this was expressed as follows:

> Force to perform effectively in the training program =
>
> f [rewards Σ (value of reward X perceived performance-reward probability)]

The force on the trainee is thus determined by his attitudes towards the various possible rewards of the training program and his perception of the probability that these rewards are determined by training performance factors. The predictions made for these variables were similar to those in the Porter-Lawler study with the exceptions just discussed.

Predictions. I-a--The stronger the force on the trainee (the sum of the products of performance-reward probability and reward value) to perform effectively in the training program, the higher his score on ratings of effort and overall training performance.

I-b--The force on the trainee to perform effectively in the training program will be more closely related to the supervisory rating of his effort than to the rating of his overall training performance.

Abilities

In the theoretical model presented by Porter and Lawler, an important moderating influence between the amount of effort exerted and the actual performance was ability of the role occupant. However, in testing the model with managers no measures of ability were obtained.

That this moderating influence should be of importance is indicated in several earlier studies (French, 1957; Fleishman, 1958; Vroom, 1960; Lawler, 1966; Cummings and Galbraith, 1967; and Carlson, 1969). For example, Lawler (1966) used self-ratings to measure the extent to which an individual perceives his pay as contingent on his job performance, and superior's rank orderings of ability and job performance. He found higher correlations between pay contingency attitudes and job performance for individuals evaluated as being higher qualified than for individuals ranked as less qualified. In a similar study, Carlson (1969) postulated that the degree of job fit, or the extent to which an individual's pattern of abilities is consistent with abilities required for the job, will moderate the relationship between job satisfaction attitudes and job performance. Using the General Aptitude Test Battery (GATB) to measure individual ability level and the Worker Trait

Requirement (ratings of job requirements in terms of GATB ability dimensions for 4,000 different jobs) to establish estimates of abilities required by the job tasks, measures of the correspondence between these two indexes were obtained for both blue and white collar workers. Carlson's results showed significant positive correlations between job satisfaction and job performance for individuals with high ability correspondence, and nonsignificant correlations for individuals with low levels of ability correspondence.

Since these studies indicate that abilities are of importance in the relationship between attitudes and performance, and because Porter and Lawler include it in their theoretical model, it seemed desirable that an ability measure be included as a moderator in this study.

Predictions. II--The relationship between effort and performance will be greater for those trainees high in ability than for those trainees low in ability.

Role Perceptions

According to the Porter-Lawler model, the appropriateness of an incumbent's role perceptions has an important influence on the quality of his job performance. They point out that regardless of an individual's level of effort, if his role perceptions are inaccurate, then his performance is likely to be misdirected.

The role perception dimension most frequently studied has been the inner-other-directed dimension first mentioned by Riesman (1950), in his book, The Lonely Crowd. The successful employee was seen as being other-directed; in other words, he was an individual who was

supersensitive to the thinking and desires of other individuals. Despite the popularity of these ideas, the little empiric research which has been performed has produced results contrary to Reisman's contention about the success of the other-directed individual. For example, in studies by Fleishman and Peters (1962), Roadman (1964), Porter (1964), Barrett (1966), and Porter and Lawler (1968), the most highly rated individuals were those characterized as being high on originality, independent of thought, aggressive, and self expressive.

One similarity of all these studies is that they deal with managerial populations. It would be of interest to know if identical role perceptions lead to success in other populations. For example, in the training situation the trainee is being taught the fundamental skills in a particular industrial occupation. It would seem that his perceptions of appropriate behavior for successful performance would be quite different than a working manager. Perceiving his role as being relatively more dependent upon the supervisor, he probably would not express a manager's originality and independence, but rather would try to imitate and model his behavior after others. It seems logical, therefore, that the trainee would have a much less inner-directed attitude.

Similarly, the immediate supervisor of the trainee would probably have a different image of the role behavior of the trainee than that of the immediate supervisor of a manager. It is likely that the training supervisor would deemphasize independent action by the trainee and put more stress on cooperative and submissive responses to the instructions given.

Although correspondence between the performance styles (role perceptions) of the supervisor and his subordinate were not analyzed in the 1968 Porter and Lawler study, Barrett (1966) has shown a relation between these variables and supervisory rating. Thus, a measure of the correspondence between the trainee's role perception of successful behavior in the training program and that of his superior was incorporated into the study.

Predictions. III-a--The higher the correspondence between the role perceptions of the trainee and those of his immediate supervisor regarding appropriate trainee behavior, the higher will be the supervisory rating for the trainee.

COROLLARY: The more trainees see their role as demanding inner-directed behavior, the lower they will be rated on quality of performance.

III-b--The relationship between effort and performance will be greater for those trainees with high agreement with their supervisors on role perceptions than for those trainees with low agreement.

Ability and Role Perceptions

Although Porter and Lawler (1968) did not make any specific hypotheses concerning the combined effects of moderating on ability and role perceptions, to do so would seem to be a logical extension of their model. It would be expected that if a trainee was expending a high amount of effort on a certain task, was high on the ability required for that task, and was directing his effort in appropriate behavior, then the interaction of these three variables should be reflected in high performance.

Prediction. IV--The relationship between effort and performance will be greatest for those trainees who have the highest ability and the most appropriate role perceptions.

CHAPTER II

METHOD

I. RESEARCH SITE

The trainees studied in the present investigation attended a manpower development project located in Oak Ridge, Tennessee. The main objective of the project is the training of unemployed or underemployed individuals for job entry level work in six vocational fields (machining, welding, mechanics, physical testing, electronics, and drafting). Admission to the program is based primarily on financial history, but other factors such as education, ethnic group, age and physical condition are considered also. Instruction is carried on in both the classroom and the shop, with the average length of time to complete the training being approximately six months.

II. SUBJECTS

The subjects studied were 97 industrial trainees who were attending the above program during January of 1970. The 97 subjects represented approximately 93 percent of the total population in training at that time. Of this group, over 90 percent were male, approximately 45 percent were non-white, and 75 percent were classified as disadvantaged.[1]

[1] To be classified as disadvantaged a trainee had to meet one or more of the following criteria: (1) family income below certain minimum; (2) member of minority ethnic group; (3) physically handicapped; and (4) non-high school graduate.

The average age for the sample was 21.15 years and the average educational level was just under the twelfth grade (11.83).

III. MEASUREMENTS

The variables which required measurement were value of reward, performance-reward probability, role perceptions, ability, effort, and performance. The first four of these measures were obtained by the author from the trainees during their classroom sessions. The measures of effort and overall performance were obtained from the supervisors whenever their schedules allowed, but in the same general time period as the gathering of the trainee data.

Value of Reward

Six possible rewards appeared to be related to performance in the training course. These included graduation from the program, getting good grades, getting a good job, making more money in the long run, pay during training, and getting along with friends and instructors. In order to determine the importance of these rewards the trainees were asked to rank them in order of preference (see Appendix A). The re-test reliability of this ranking after two weeks was .74 (N = 40). Two of these rewards--pay during training and getting along with friends and instructors--were not used further in the analysis as they served as illustrations during the administration of the performance-reward questionnaire.

Performance-Reward Probability

Three items were designed to measure the amount of importance the trainee felt was attached to training performance factors in determining

each of the remaining four rewards. The three items were quality of classroom performance, quality of shop performance, and amount of effort expended in training. Each item was followed by a seven point scale with the adjective "important" corresponding to the number seven on the scale and "unimportant" corresponding to the number one (see Appendix B). All trainees were asked to rate how important they felt the three items were in determining each of the four rewards. For example, each trainee was asked to rate his perception of the importance of classroom performance to graduation from the training program, then to rate his perception of the importance of shop performance to graduation, and finally, his perception of the importance of expending effort to graduation from the program. The degree of relationship among the three items for the four rewards investigated are listed in Table 1. It can be seen that with the exception of two intercorrelations the degree of homogeneity among the three items is quite high for all rewards, indicating there is a considerable amount of common variance. Thus, it was decided to combine the three items in order to create a composite index of the perceived probability that performance would lead to a certain reward. This index was created by summing each trainee's responses to the three performance items for each reward. The higher a trainee scored on this index, the higher the perceived probability that for him the reward (e.g., getting a good job) depended on performance factors. The re-test reliability of the performance-reward probability ratings after two weeks was .70 (N = 40).

TABLE 1

CORRELATIONS AMONG ITEMS DESIGNED TO MEASURE THE TRAINEE'S PERCEPTION OF THE IMPORTANCE OF PERFORMANCE FACTORS IN DETERMINING VARIOUS TRAINING REWARDS

		Grad. from training		Good grades		Getting a good job		Making more money	
		Q.2	Q.3	Q.2	Q.3	Q.2	Q.3	Q.2	Q.3
Quest. 1	Quality of Class Perf.	.62*	.59*	.58*	.67*	.48*	.33*	.48*	.24*
Quest. 2	Quality of Shop Perf.		.64*		.67*		.69*		.49*
Quest. 3	Amount of Effort Expended								

*Significant at .01 level.

NOTE: N = 97.

Role Perceptions

Twelve performance items were constructed to measure the role perceptions of the trainees and their immediate supervisors. These items were designed to parallel the personality-type traits used in the Porter and Lawler study (1968), but with the items in simpler language and in more concrete form. The twelve items are listed below in the two theoretical clusters used in the analysis of the results:

Inner-directed performance items.

Works independently, without asking for help of other trainees.

Develops novel solutions to problems.

Risks displeasure of other trainees if necessary to get his work done.

Suggests new methods for doing his work.

Attempts to influence supervisor's thinking when he thinks he is in the right.

Takes on added responsibility with increasing length of time in training.

Other-directed performance items.

Uses caution in experimenting with new techniques and procedures.

Follows his supervisor's instruction closely.

Goes along with the majority of other trainees in the solution of new problems.

Frequently discusses progress of his work with supervisor.

Willingly and quickly asks for advice when he needs it.

Works cooperatively with other trainees and supervisors.

These items were presented in a questionnaire in a random order (see Appendix C). Each trainee was asked to rank these traits from 1 to 12 in order of their importance for his achieving success in the training program. Each supervisor was also asked to rank these items from 1 to 12 according to his perception of their importance for trainee success in the program. From these two rankings a Spearman rho correlation was computed. This score (agreement score) served as an index of the similarity in perception between trainee and supervisor of correct role behavior in the training program. The re-test reliability of the ranking of the trainees after two weeks was .73 (N = 40), and of the supervisors .76 (N = 8).

Ability

From the personnel records of the training program scores from three paper and pencil tests were collected for each trainee. These three tests were the Otis Intelligence test, the College Qualification test (numerical), and the Bennett Mechanical Comprehension test. The selection of these three tests was based on the fact that they were general aptitude tests and that they examined relatively different areas of the trainees' competence. The intercorrelations among these three tests are shown in Table 2.

To simplify computational procedures in constructing the measure of ability, each of the three sets of scores was converted into standard scores. Then the three standard scores representing each trainee's test performance were added together giving one composite ability score.

TABLE 2

CORRELATIONS AMONG THE APTITUDE TESTS USED AS ABILITY MEASURES OF THE TRAINEES

	T. 2	T. 3
1. Otis Intelligence Test	.45	.44
2. The College Qualification Test--Numerical		.44
3. The Bennett Mechanical Comprehension Test		

NOTE: N = 97.

Effort

The amount of effort expended by each trainee was measured by supervisory ratings. Each supervisor was asked to rate on a seven point scale the amount of effort exerted by each of the trainees under him. The supervisors were qualified to do this as each organized his trainees' shop or lab work, and in most cases taught these trainees one or more courses. On the rating scale a score of one indicated very low effort, while a score of seven corresponded to superior effort (see Appendix D). The supervisory ratings were then converted into standard scores. This procedure was used to control for differences in the frames of reference among the eight supervisors. The test-retest reliability of effort ratings after two weeks was .86 (N = 40).

Training Performance

Trainee performance was also measured by supervisory ratings. Each supervisor was asked to rate on a seven point scale the quality of the overall training performance of each of his trainees. On the rating scale a score of one indicated very poor performance while a score of seven corresponded to superior performance (see Appendix D). The ratings were converted into standard scores to correct for any differences in the supervisors' frames of reference. The test-retest reliability of the performance ratings after two weeks was .83 (N = 40).

The means and standard deviations of the five variables used in the study are presented in Table 3. It will be noted that force scores are included in this table. As was described in the introductory section the force on the individual to engage in specific behavior is a

TABLE 3

MEANS AND STANDARD DEVIATIONS OF THE VARIABLES USED IN THE STUDY

Variable	Mean	S.D.
1. Force	144.1	58.07
2. Ability		
Otis	95.4	10.72
College Qualification-- Numerical (Max. Score-50)	15.1	6.54
Bennett (Max. Score-60)	31.9	12.02
Combined Ability Index	150.5	24.02
3. Role Perceptions		
Agreement Scores	r = .03	14.50
Inner-Directed Scores	28.9	5.76
4. Effort	51.1	9.46
5. Overall Performance	50.8	9.88

NOTE: N = 97; r = rho.

monotonically increasing function of the sum of the products of the value of all rewards and the strength of his expectancies that the behavior will be followed by the attainment of these rewards. Thus, the force score for each trainee was computed by use of the following formula:

$$\sum_{\text{rewards}} (\text{value of reward} \times \text{performance-reward probability}).$$

CHAPTER III

RESULTS

I. REWARDS AND PERCEIVED PERFORMANCE-REWARD PROBABILITY

The first hypothesis (I-a) stated that the stronger the force on the trainee to perform effectively in the training program, the higher his rating on effort and quality of overall training performance. To test this hypothesis the sum of the product scores [Σ^{rewards} (value of reward X performance-reward probability)] was computed for each trainee on the four rewards used in the study. The median of this distribution was then used to divide the trainees into two groups. The group above the median was the high force group while those trainees below the median were considered low in force.

The effort ratings and ratings of overall performance were recorded for each group and the mean scores are presented in Table 4. It can be seen that the first hypothesis was supported. Those trainees with the highest force scores are clearly superior to the low group in both amount of effort expended in the training and the quality of their overall performance. The differences between the two groups for both effort ($t = 4.21$; d.f. = 95) and overall performance ($t = 2.68$; d.f. = 95) were significant at the .005 level.

The second hypothesis (I-b) stated that the force on the trainee to perform effectively would be more closely related to the ratings of effort than to the rating of overall performance. To test this hypothesis Pearson product moment correlations were computed between the

TABLE 4

MEAN SUPERVISORY RATINGS OF EFFORT AND OVERALL PERFORMANCE FOR TRAINEES HIGH AND LOW IN FORCE

Force Group		Ratings of Effort	Ratings of Performance
High	$\bar{X}$	54.91	53.47
	σ	8.23	8.93
	N	48	48
Low	$\bar{X}$	47.44	48.26
	σ	9.20	10.16
	N	49	49

force scores and supervisory ratings of trainee effort and overall performance. The correlation between force scores and effort was .45 ($p > .001$), and the correlation between force scores and overall performance was .24. Although the difference between the correlations did not reach statistical significance, the relative size of the correlations indicate a stronger relationship between the trainees' force scores and effort than between their force scores and overall performance.

II. ABILITY

The model used in this study predicted that the ability level of the trainee would influence the relationship between effort and performance. That is, if the trainee was expending a high amount of effort on a certain task and was also high in the ability required of that task, the interaction of these two variables should be reflected in high overall performance. On the other hand, if the trainee was low in the ability required of a certain task, the relationship between effort exerted and resulting performance would be expected to be lower. Thus hypothesis II predicted that a greater relationship would exist between effort and performance for those trainees high in ability than for those low in ability.

To test this hypothesis the correlations between effort and performance were computed for those trainees high in ability and for those trainees low in ability, using the median of the distribution of ability scores to divide the sample of 97 subjects into two groups. These two correlations were 0.58 and 0.52, respectively. To determine what the effect, if any, this subgrouping had on the relationship

between effort and performance, these two correlations were compared to the original overall correlation between effort and performance which was .53. Obviously, there is little improvement in the relationship between effort and performance when the data for the high ability trainees are analyzed separately. Since it would have been predicted that this group of trainees shows the highest correlation between effort and performance, the lack of a significant increase in the correlation does not support this part of the model.

III. ROLE PERCEPTIONS

Hypothesis III-a stated that the higher the agreement between the role perceptions of the trainee and his immediate supervisor, the higher the supervisory rating for the trainee. To test this hypothesis the trainees were divided into high and low agreement groups. The high group consisted of those trainees with agreement scores (correlation between trainee and supervisor rankings) above the median (i.e., $r = .03$). Table 5 presents these two groups and the mean supervisory ratings for each. Examination of Table 5 reveals that hypothesis III-a is not supported. The supervisory ratings for the high agreement group are somewhat lower than those in the low agreement group, although this difference is not significant. Therefore, agreement in role perceptions is not itself a predictor of performance.

The corollary to hypothesis III-a stated that the more the trainees saw their role as demanding inner-directed behavior, the lower they would be rated on quality of performance. To test this corollary cluster scores were computed for each trainee by summing his ranks for the six

TABLE 5

PERFORMANCE RATINGS OF HIGH AND
LOW AGREEMENT GROUPS

Agreement Group	Mean	Standard Deviation
High (N = 48)	49.81	9.59
Low (N = 49)	51.86	10.15

relevant performance items. Thus, a high score on the inner-directed dimension meant that the six traits comprising that dimension were all rated as relatively important.

The data from the supervisor's ratings of overall performance are presented in Table 6. From this information it can be seen that the corollary is not supported. There is a trend for those trainees who have high inner-directed scores to be rated as better performers than those trainees who have low inner-directed scores. This difference between the ratings for the high and low inner-directed trainees is significant at the .10 level. Although this finding does not support the prediction of the study, the trend of the data does agree with the results found in the Porter and Lawler study (1968) where it was reported that the highest rated managers were also inner-directed.

It is interesting to note that in the Porter and Lawler study (1968), the authors assumed (without empirical evidence) that the inner-directed managers had the more "correct" role perceptions (i.e., the highest correspondence with the role perceptions of their supervisors). In the present study, where the inner-directed trainees were also rated highest, it was possible to test the "correctness" of their role perceptions.

Since the supervisors had previously been asked to rank the importance of the twelve items on the role perception questionnaire, it was only necessary to average the supervisors' rankings for each item to indicate their importance. These average rankings have been tabulated in Table 7 along with the designation of the item as either inner or other-directed. It will be noted that with one exception, the supervisors

TABLE 6

PERFORMANCE RATINGS OF HIGH AND LOW
INNER-DIRECTED TRAINEES

Inner-Directed Behavior Group	Mean	Standard Deviation
High (N = 49)	52.33	9.83
Low (N = 48)	49.55	9.65

TABLE 7

SUPERVISOR RANKINGS OF ROLE PERCEPTION ITEMS

Rank	Item	Average	I or O*
1 (most imp.)	Follows his supervisor's instructions closely.	2.25	O
2	Willingly and quickly asks for advice when he needs it.	2.62	O
3	Works cooperatively with other trainees and supervisors.	3.12	O
4	Takes on added responsibility with increasing length of time in training.	3.87	I
5	Uses caution in experimenting with new techniques and procedures.	6.50	O
6	Frequently discusses progress of his work with supervisor.	6.62	O
7	Suggests new methods for doing his work.	8.12	I
8	Works independently, without asking for help of other trainees.	8.25	I
9	Develops novel solutions to problems.	8.62	I
10	Risks displeasure of other trainees if necessary to get his work done.	8.62	I
11	Attempts to influence supervisor's thinking when thinks he is in the right.	9.12	I
12	Goes along with the majority of other trainees in the solution of new problems.	10.25	O

*Inner or Other-Directed behavior item.

NOTE: Reliability of the mean of 8 judges = .32; Reliability of a single judge = .05.

rank the other-directed behavior items as being most important. However, as previously indicated, it is the trainees who rank inner-directed behavior items as the most important who receive the highest performance ratings. This discrepancy would seem to indicate that in this study "correct" role perceptions (i.e., agreement with supervisor) are of little importance in predicting trainee performance.

The next hypothesis (III-b) predicted that there would be a greater relationship between effort and performance for those trainees with high agreement scores than for those trainees with low agreement scores. According to the model if a trainee was expending a high amount of effort on a certain task, and this effort was directed in appropriate behavior (i.e., as defined by the trainee's perception of what is correct role behavior on the job), then the interaction of these two variables should be reflected in high performance. If, however, the trainee does not channel his effort into appropriate activities for job success, then the relationship between effort and performance would be expected to be lower.

To test hypothesis III-b the correlations between effort and performance were computed for those trainees with agreement scores above the median, and for those trainees with agreement scores below the median. These two correlations were 0.52 and 0.54, respectively. Since it was expected that the correlation between effort and performance would be significantly larger for the high agreement group than for the low agreement group, there is no support for the hypothesis.

IV. ABILITY AND ROLE PERCEPTIONS

The final hypothesis originating from the model predicted that the relationship between effort and performance would be greatest for those trainees high in ability who also had appropriate role perceptions. That is, if the trainee was expending a high amount of effort on a certain task, was high on the ability required of that task, and was directing his effort in appropriate behavior, then the interaction of these three variables should be reflected in high performance. For this reason it was predicted that a group of trainees high in both ability and appropriate role behavior would show the highest correlation between effort and performance. It was further proposed that a group of trainees low in both ability and appropriate role behavior would show the lowest correlation between effort and performance. The rationale for this proposal was that if a trainee was low in required ability and was misdirecting his efforts into unrewarded activities, he could be exerting very high effort and still have low performance. Finally, it was predicted that a third group, consisting of all the remaining trainees, would show a correlation between effort and performance smaller than the subgroup high on ability and appropriate role perceptions, but larger than the group low on these two variables.

To test these hypotheses the three subgroups were established, using the previously defined procedures for separating high and low ability groups and high and low agreement groups. The correlation between effort and performance for the group high in ability and appropriate perceptions was .57, for the group low in the two variables, .45, and finally for the remaining group, .53. As was predicted the correlation

between effort and performance for the group high in ability and role perceptions was larger than the correlation for the group low on these two variables. The difference between these two correlations, however, was not significant. What is of more importance is the comparison of the correlations between effort and performance for the group of trainees high in both variables, with the previously described groups who were high in ability or inner-directed behavior only. These correlations are 0.57, 0.58, and 0.57, respectively. Thus, it is obvious that the model is again not supported. It would have been predicted that the combined effect of subgrouping trainees high in ability and appropriate behavior would account for more of the variance in the performance ratings than grouping on high ability or appropriate role behavior separately.

V. A COMPARISON OF THE PORTER-LAWLER MODEL WITH A LINEAR MODEL

Since the section of the Porter-Lawler model using moderators did not significantly increase the relationship between effort and performance it was of interest to know if a more traditional linear model using the same variables could predict performance more accurately. Thus a stepwise multiple regression coefficient was computed, using the variables of effort, ability and agreement scores. Table 8 shows the three variables used and the regression coefficients for each. The computer program was set up so that the variable accounting for the most variance in performance was entered first, followed by the second most important variable and then the third.

TABLE 8

STEPWISE REGRESSION EQUATION COMBINING EFFORT, ABILITY AND AGREEMENT SCORES TO PREDICT TRAINING PERFORMANCE

Step	Variable (s)	Multiple R
1	Effort	.53
2	Effort + Ability	.69
3	Effort + Ability + Agreement Scores	.69

NOTE: N = 97.

It can be seen that by combining these three variables the regression coefficient is .69. It is obvious, however, that only two of these variables (i.e., effort and ability) account for any of the variance in the ratings, as the effect of role perceptions is negligible. When this regression coefficient is compared to the correlation between effort and performance, moderating on both ability and performance (.57), it is apparent that the linear model is the more accurate.

CHAPTER IV

DISCUSSION

The results of the present study offer only limited support for the model used in this investigation. Of the seven predictions made in the study, only two were found to have clear support.

I. REWARDS AND PERCEIVED PERFORMANCE-REWARD PROBABILITY

The present study offers strong support for the first hypothesis of the model that the stronger the force on the trainee to perform effectively, the higher his rating on effort and quality of performance. The results clearly show that those trainees who felt that achieving their important training goals depended upon their training performance were the most effective and highly motivated. This result was also of note because the four rewards investigated were combined to establish a single index of the force on the trainee. In previous studies of such nature (Lawler, 1964; Porter and Lawler, 1968) only one reward was looked at (e.g., pay), or several rewards were looked at, but separately (e.g., Georgopoulas et al., 1957). The advantage, of course, of combining the various rewards and their performance probabilities is that more variance in the ratings should be accounted for. This approach is also more realistic in the sense that it takes into account the possibility that the trainees are striving for more than one reward at a time in the program, and that they have different perceptions of how performance will lead to these rewards.

The second hypothesis of the study was also supported. The results clearly showed that the force on the trainee to perform effectively was more closely related to the ratings of effort than to the ratings of overall performance. This finding implies that even though the trainee is highly motivated to perform, it does not necessarily mean that the quality of his performance will be superior. As Porter and Lawler (1968) suggest there are obviously intervening factors (i.e., the ability of the trainee; his role perceptions) influencing the relation between how hard the individual works and the quality of the product of his work.

Taken together these two hypotheses add to the support for that part of the model which predicts that if the individual sees significant rewards as tied to good performance it will lead him to make a strong attempt to perform effectively. Using a population of trainees also lends to the generality of the finding, since it had previously been demonstrated for managers (Porter and Lawler, 1968) and for workers (Georgopoulas et al., 1957).

It should be pointed out that the evidence from the present study does not establish that the force on the trainee caused his job performance. What the data do show is that there is a relationship between the force scores and performance. The model predicts that the reason for this relationship is that the force on the individual affects his performance, but the data cannot directly test this aspect of the model. Only some type of factorial study is capable of showing a causal basis from one variable to another, and this study is not of this nature.

II. ABILITY

The hypothesis regarding the use of an ability measure as a variable in the model drew little support. The predicted increase in the correlation between effort and performance for the group of trainees high in ability was only minimal over the overall correlation between effort and performance. This result is surprising since it would seem logical that if the trainee was high in effort and also relevant ability, then his performance should be high.

One possible explanation for this poor finding is that the ability index used in this study may not have been the most appropriate. In other words, the combining of the three tests with equal weight assigned to each may not be as accurate a measure of predicting performance as some alternative combination of the three tests. For example, the tests could be weighted according to their degree of importance in predicting performance ratings. To determine the feasibility of this explanation a multiple regression correlation was computed between the three tests and overall performance. This multiple regression correlation was then compared to the correlation obtained between the original ability index and overall performance. These correlations were respectively 0.40 and 0.42. It can be seen that the ability index assigning equal weight to all tests shows a very similar relation to overall performance as the index assigning differential weights to the three tests.

Restriction in the range of ability scores is also eliminated as a possible explanation for the small increase in the correlation between effort and performance for the high ability group. The standard

deviation of scores for the high ability group is 53.76, indicating a considerable amount of variability in the composite ability scores. Also the standard deviation of the high ability group is considerably larger than the standard deviation of ability scores for the entire group of trainees (i.e., 53.76 to 24.02).

A highly probable explanation for the lack of support for the prediction is that there are other more important intervening variables between effort and performance than ability. Porter and Lawler (1968) acknowledge that there are, obviously, many environmental factors that intervene to influence the relation between effort and performance, and that their model does not take into account such external factors. Thus, it would seem that such other variables as the trainee's previous work experiences and his interpersonal relations with his supervisor could affect the relationship between effort and performance as much as the ability level of the trainee.

Finally, it should be pointed out that the original correlation between effort and performance is quite high to begin with (i.e., $r = .53$). This high relationship between the variables of effort and overall performance is probably due, in part, to the fact that the same supervisor rated both of these variables, and also to the fact that these ratings were obtained at approximately the same time. Regardless of the reasons for the high correlation, however, it would seem plausible that a moderator variable would be much less effective in such a situation than where the original independent variable accounted for a smaller amount of variance in the dependent measure.

In summary, it is apparent that there is little support for the use of ability as a moderator in the relationship between effort and performance. This conclusion, of course, is limited to a population of disadvantaged trainees and must be generalized with caution to other populations.

III. ROLE PERCEPTIONS

The agreement scores between the trainee's perception of appropriate role behavior for success in training and his supervisor's perception of the same behavior showed little relation to supervisory ratings on overall performance. This finding may not be too surprising when it is taken into account that there were only twelve performance items on the scale and the selection of these items was dictated by theoretical concerns rather than inclusiveness of all possible role performance items. In an earlier study by Barrett (1966), a relationship was found between agreement scores and performance ratings, but he used 50 items on his scale and they were of a much more specific nature than those used here.

When the data in the present study were reanalyzed comparing the rankings of the trainees and their supervisory performance ratings, a more meaningful result was found. The findings suggest that it was the inner-directed trainee, or the trainee who was more independent and willing to show initiative, that received the highest supervisory ratings. This result was again contradictory to the original hypothesis as it was assumed that those trainees who were more dependent and willing to seek the advice of their supervisors would receive the highest

ratings. Interestingly enough, it was the trainees having these other-directed attitudes who received the lowest supervisory ratings, but who had the most "correct" role perceptions (i.e., the closest agreement with their supervisor's ranking of the role perception items).

The most plausible explanation for this result is the fact that the supervisors themselves could not agree consistently on which performance items were of the most importance. Evidence for this point comes from a review of the intra-class reliability coefficients computed on the supervisory rankings of the role perception items. These reliability coefficients are presented in Table 3, page 27, and indicate that the intra-item agreement between the eight supervisors was extremely low.

A second possible explanation for this result is that the supervisors didn't put as much weight on other-directed behavior as would be implied by their rankings. It might be suggested, for example, that in actual practice the trainee who was continually seeking advice from his supervisor, and was very dependent upon him, was not only bothersome but outwardly showed that he did not understand his work. As to why the supervisors ranked the other-directed performance items as important in the first place, one might speculate that it was a matter of social desirability. In other words, the supervisors responded to the items in a manner felt to be socially acceptable by other supervisors.

Finally, a third explanation for the fact that the other-directed trainees had more "correct" role perceptions but lower supervisory ratings might be that the highly inner-directed trainees had more ability than the more other-directed trainees. To determine the validity of

this explanation an intercorrelation was computed between the inner-directed behavior scores and the ability scores of each trainee. This correlation turned out to be .27 which, although significant, is relatively low.

Returning to the predictions of the model the hypothesis (III-b) which stated that the relationship between effort and performance would be greater for those trainees with high agreement scores than for those with low agreement scores also received little support. The correlation between effort and performance for the high agreement group was neither significantly different from the correlation in the low agreement group, nor from the overall correlation between effort and performance.

The most obvious explanation for this negative finding is that the role perception variable is not that important a moderating influence between effort and performance. Some evidence for this explanation is found in the results section where it was noted that the trainees with the highest agreement scores received lower ratings on overall performance than trainees with low agreement scores. The correlation between agreement scores and overall performance is -.02. It must be pointed out that for a variable to be a successful moderator it does not necessarily have to be related to the dependent variable, but it would seem that in the use of this model it would be a distinct advantage. According to Porter and Lawler (1968), for effort to be converted into successful performance it must be applied in appropriate behavior, which is dictated by the individual's role perceptions. To the author, this would imply that for any role perception variable to influence the correlation between effort and performance it would have to show some relation to successful performance.

Although this explanation seems the most plausible, there are other alternative explanations. For example, it could be argued that the instrument used to measure role perceptions was not complete enough. Since there were only 12 items on the questionnaire it is feasible that a true picture of the individual's role perceptions was not obtained. Also there is the population used in this study. The model was designed to be used with a managerial population. What effect, if any, the use of a population of disadvantaged trainees has on the variables in the model is very difficult to determine. However, it would seem that the variable of appropriate role perceptions is much less important for trainees than for managers. The rationale for this argument is that the training program is so structured (e.g., rules of conduct and behavior are explicitly stated along with specific directions for all training procedures) that most trainees are aware of appropriate training behavior, and therefore would be expected to show only little variation in their role perceptions. In the case of managers, on the other hand, there are usually no specified procedures for carrying out their job and, thus, more variance exists in their role perception of appropriate behavior.

In summary, it appears to the author that there is little justification for the use of the role perception variable in the model when applied to a population of trainees. This conclusion follows mainly from the plausibility of the argument that the training program is so structured that the error due to inappropriate role perceptions is minimal and not a major factor in the relationship between effort and performance.

IV. ABILITY AND ROLE PERCEPTIONS

The final hypothesis which predicted that the relationship between effort and performance would be greatest for those trainees high in ability and with the most appropriate role perceptions also was not supported. If the model were predictive it would have been expected that the largest correlation would have been found in this relationship. Instead, the correlation between effort and performance was very similar to what was found when investigating ability or role perceptions separately.

The result is certainly not surprising since subgrouping on high ability did not improve the relationship between effort and performance significantly, nor did the subgrouping on high agreement scores. In fact, it was demonstrated in the results section that a linear model does a better job of predicting training performance than the part of the model under investigation.

Thus it must be concluded that for the population studied in this project (i.e., disadvantaged trainees) the feasibility of using measures of ability and role perceptions as moderating influences is seriously questioned. It must be pointed out again, however, that no finding is conclusive from the results of one study. In each of the sections where negative results were reported (i.e., ability; role perceptions), there were alternative explanations which could conceivably account for the discrepancies.

V. IMPLICATIONS OF THE RESULTS

1. Determining Reward Values and Performance-Reward Probabilities.

Since the data from the study were generally consistent with this part of the model, it seems justifiable to emphasize to the officials of the training program the importance of these two sets of variables and the desirability of obtaining data relevant to them. Perhaps the primary advantage of collecting the reward values and the performance-reward probabilities is that the information thus obtained would aid the program in assessing the motivation of its trainees to perform effectively in the future, since the model stresses that these types of variables are crucial in determining the effort that individuals expend in performing their job activities.

At the very least, obtaining systematic information of the trainees' reward desires, and their perceptions about rewards being based on effort, would constitute a first step in gaining the maximum motivational effects from the incentives the training program has at its disposal. If, after such data are collected, there are found low performance-reward expectations for certain trainees, then discussion of these findings could be extremely worthwhile for both the trainee and the program.

2. Role Perceptions.

Since the data from the study revealed a discrepancy between what the supervisors said were important performance traits and what traits they actually rewarded, it seems a necessity that these differences be called to the attention of the supervisors. For it is possible that they may be conveying to their trainees a false image of what behavior

is important to success in training. Therefore, it would seem that the more information the trainee and supervisor have about which behavior is rewarded, the more successful should be the trainee's adjustment to the program.

3. Attaching Rewards to Performance.

The third, and perhaps most important, area of practical implication coming from the model and the related findings concerns the question of how closely the training program attaches rewards to job performance. In terms of the rewards used in the study only grades can be immediately reinforced by the supervisors in the training program. The other three rewards--graduation from training; making more money; and getting a good job--are all long term, making it more difficult for any type of reinforcement. The implications are still the same, however, for all four rewards. The more relation the trainee actually sees or is led to believe will exist between his performance and various rewards the harder he will work. Consequently, the supervisors of the trainees should make sure that all grades are given strictly on "merit" and that they discriminate as much as possible between the various performances of the trainees. Secondly, in regards to the long term rewards, the supervisors should make every attempt to relate how performance in training will be connected to the attainment of long term rewards.

CHAPTER V

SUMMARY

This study was an attempt to test a modified version of Porter and Lawler's attitude-performance model with a population of disadvantaged trainees. Seven hypotheses were derived from the following formulation: If a trainee sees high performance as leading to the attainment of one or more personal rewards in the training situation, he will tend to exert high effort in the program. The trainee will have correspondingly high performance in this situation providing he has the relevant ability and appropriate role perceptions.

To test these hypotheses data were obtained from 97 disadvantaged trainees and their eight supervisors at a manpower development project in Oak Ridge, Tennessee. Each trainee was given three questionnaires designed to measure the value of four rewards resulting from training, the perceived probability that high performance will lead to these rewards, and the importance of certain role perceptions. Ability scores were based upon scores on three aptitude tests obtained from the test files of the program. Each of the eight supervisors was asked to rank his trainees on degree of effort exerted and overall performance. The supervisors were also administered the role perception questionnaire.

The results of the study offer only limited support to the model, as only two of the seven hypotheses were confirmed.

I. REWARDS AND PERCEIVED PERFORMANCE-REWARD PROBABILITY

The first part of the model was strongly supported. The results showed that:

1. The stronger the force on the trainee (the sum of the products of performance-reward probability and reward value) to perform effectively in the training program, the higher his score on ratings of effort and overall performance.
2. The force on the trainee to perform effectively in the training program was more closely related to the supervisory ratings on his effort than to the rating on his overall performance.

II. ABILITY

This part of the model was not supported as it was predicted that the relationship between effort and performance would be greater for those trainees high in ability, than for those trainees low in ability. It was found that:

3. The increase in the relationship between effort and performance for trainees high in ability was not significantly different from the subgroup low in ability.

III. ROLE PERCEPTIONS

This part of the model also did not receive support. Neither the two hypotheses nor the corollary were confirmed. It was found that:

4. The higher the correspondence between the role perceptions of the trainee and those of his immediate supervisor regarding appropriate trainee behavior, the lower was the supervisory rating for the trainee.
5. The more the trainees saw their role as demanding inner-directed behavior, the higher they were rated on quality of performance.
6. The relationship between effort and performance for those trainees high on the agreement scores was only slightly greater than for those trainees low on the same dimension.

IV. ABILITY AND ROLE PERCEPTIONS

The final hypothesis of the model also was not supported. It was found that:

7. The relationship between effort and performance for those trainees having both high ability and appropriate role perceptions was not significantly greater than the relation between effort and performance for those trainees low in both variables. Further, the comparison of the correlations between effort and performance for the group of trainees high in both variables with the groups who were high in either ability or appropriate role behavior, only showed very little difference.

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APPENDIXES

APPENDIX A

VALUE OF REWARDS

_____ graduation from TAT

_____ grades

_____ getting a good job

_____ making more money in the long run

_____ pay during training

_____ getting along with friends and instructors

APPENDIX B

PERFORMANCE-REWARD PROBABILITY

PAY DURING TRAINING

High Classroom Output

1 2 3 4 5 6 7
weak relationship strong relationship

High Shop Output

1 2 3 4 5 6 7

Effort

1 2 3 4 5 6 7

GETTING ALONG WITH FRIENDS AND INSTRUCTORS

High Classroom Output

1 2 3 4 5 6 7
weak relationship strong relationship

High Shop Output

1 2 3 4 5 6 7

Effort

1 2 3 4 5 6 7

GRADUATION FROM TAT

High Classroom Output

1 2 3 4 5 6 7
weak relationship strong relationship

High Shop Output

1 2 3 4 5 6 7

Effort

1 2 3 4 5 6 7

GETTING GOOD GRADES

High Classroom Output

1 2 3 4 5 6 7
weak relationship strong relationship

High Shop Output

1 2 3 4 5 6 7

Effort

1 2 3 4 5 6 7

GETTING A BETTER JOB

High Classroom Output

1 2 3 4 5 6 7
weak relationship strong relationship

High Shop Output

1 2 3 4 5 6 7

Effort

1 2 3 4 5 6 7

MAKING MORE MONEY IN THE LONG RUN

High Classroom Output

1 2 3 4 5 6 7
weak relationship strong relationship

High Shop Output

Effort

1 2 3 4 5 6 7

APPENDIX C

ROLE PERCEPTION ITEMS

1. Works independently, without asking for help of other trainees.
2. Uses caution in experimenting with new techniques and procedures.
3. Follows his supervisor's instruction closely.
4. Goes along with the majority of other trainees in the solution of new problems.
5. Develops novel solutions to problems.
6. Risks displeasure of other trainees if necessary to get his work done.
7. Frequently discusses progress of his work with supervisor.
8. Attempts to influence supervisor's thinking when thinks he is in the right.
9. Willingly and quickly asks for advice when he needs it.
10. Suggests new methods for doing his work.
11. Works cooperatively with other trainees and supervisors.
12. Takes on added responsibility with increasing length of time in training.

RANKING OF PERFORMANCE ITEMS

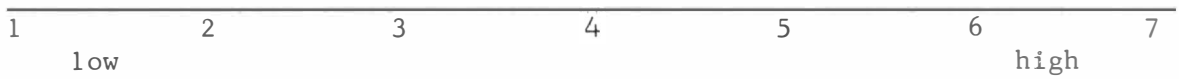
Place number of statement in appropriate column.

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Most important	Average Importance	Least importance

Degree to which Performance Items describe qualities important to success in training program.

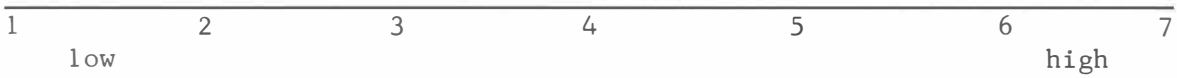
APPENDIX D

AMOUNT OF EFFORT EXERTED IN TRAINING



APPENDIX E

OVERALL TRAINEE PERFORMANCE



VITA

Richard Dorr Scott was born in Hornell, New York, on March 6, 1943. He attended elementary schools in that city and was graduated from Hornell High School in 1961. The following September he entered Pennsylvania State University, and in June, 1965, he received a Bachelor of Arts degree in Psychology. In the fall of 1966, he accepted a research assistantship at The University of Massachusetts and began study toward a Master's degree. He received this degree in June, 1967.

He entered the Graduate School at The University of Tennessee in September, 1967, and received the Doctor of Philosophy degree with a major in Organizational Psychology in June, 1971.