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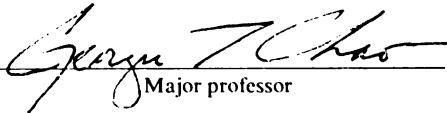
EFFECTS OF VIDEOTAPED MODELING AND
VIDEOTAPED FEEDBACK ON PERFORMANCE IN
TRAINING: AN EXAMINATION OF PERSONALITY
BY TREATMENT INTERACTIONS

presented by

Katherine Ann Karl

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Management


Major professor

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ON PERFORMANCE IN TRAINING: AN EXAMINATION
OF PERSONALITY BY TREATMENT INTERACTIONS

By

Katherine Ann Karl

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ABSTRACT

EFFECTS OF VIDEOTAPED MODELING AND VIDEOTAPED FEEDBACK ON PERFORMANCE IN TRAINING: AN EXAMINATION OF PERSONALITY BY TREATMENT INTERACTIONS

By

Katherine Ann Karl

One area of research that has shown promise in improving the effectiveness of training is research on the use of videotape. Two types of videotaped information have received special attention in the literature, presentation of a videotaped model, and videotaped feedback in which the trainee observes himself or herself. Numerous studies have clearly demonstrated that presenting videotaped models fosters the learning of new behaviors. Similarly, research on the impact of videotaped feedback indicates that this technique has tremendous potential to affect human behavior. One limitation of this research, however, is that it has utilized a fixed treatment approach. That is, it was assumed that all individuals regardless of their knowledge, skills, abilities or other attributes (e.g., personality characteristics) would benefit from the same treatment. To that end, the purpose of the present research was to examine the separate and combined effects of videotaped modeling and videotaped feedback on performance in training and to examine possible individual difference variables that may influence the effectiveness of these two techniques. In addition,

this research presented and tested a theoretical model of the processes underlying the effects of videotaped modeling and videotaped feedback. Overall the results of this research supported the effectiveness of videotaped modeling and the combination of videotaped modeling and videotaped feedback. The effectiveness of videotaped feedback was not supported nor were the proposed underlying relationships. In addition, none of the proposed personality by treatment interactions were supported. One significant personality by treatment interaction was found, however, it was opposite to that which was predicted. Videotaped modeling had a greater impact on the performance of people with external rather than internal locus of control. Implications of these results for practitioners, recommendations for future research, and the limitations of this research are discussed.

To Lenny

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TABLE OF CONTENTS

LIST OF TABLES	x
LIST OF FIGURES	xii
INTRODUCTION	1
 CHAPTER 1: LITERATURE REVIEW	
Theoretical Overview	3
Videotaped Modeling: A Social Learning Theory Perspective	3
Videotaped Modeling: A Review of the Literature	4
Videotaped Feedback: An Informational Perspective	8
Videotaped Feedback: A Self-efficacy Perspective	8
Videotaped Feedback: A Review of the Literature	10
Videotaped Modeling versus Videotaped Feedback: Similarities and Differences	13
Videotaped Modeling and Videotaped Feedback: A Combined Treatment Analysis	16
An Overview of Aptitude-Treatment Interaction Research	20
Videotaped Modeling: An Examination of Personality by Treatment Interactions	23
Locus of Control	23
Field-dependence	26
Videotaped Feedback: An Examination of Personality by Treatment Interactions	31
Locus of Control	31
Field-dependence	33
An Examination of the Relationship between General Mental Ability, Training Treatment and Performance in Training	34
An Examination of the Relationship between Locus of control, Field-dependence, General Mental Ability, Post Training Self- efficacy and Post Training Knowledge	37
Summary	40

CHAPTER 2: METHOD

Overview	42
Subjects	43
Training Treatment Conditions.	45
Measures	47
Procedure	50

CHAPTER 3: RESULTS

Scale Reliabilities	52
Comparison of Treatment Groups and Confederates	53
Preliminary Analyses	54
Hypothesis 1	55
Hypothesis 2	57
Hypothesis 3.	59
Hypothesis 4.	60
Hypothesis 5.	61
Hypothesis 6.	62
Hypothesis 7.	63
Hypotheses 8, 9 and 10	64
Process Model.	65

CHAPTER 4: DISCUSSION

Overview	71
Videotaped Modeling and Videotaped Feedback: Main Effects and Interaction	71
Personality Variables	75
Personality by Treatment Interactions	77
General Mental Ability ("g")	81
Process Model	82
Practical Implications.	84
Limitations	86
Future Research	88
Conclusions	89

BIBLIOGRAPHY	91
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APPENDICES

Appendix A - Learning Points	102
Appendix B - Videotaped Modeling Scripts	103

Appendix C - Practice Role Play	112
Appendix D - Measures	113
Demographic Variables	113
Locus of Control	114
Field-dependence	117
Behavioral pre-training role play	124
Behavioral post training role play	125
Behavioral Measure	126
Self-efficacy A	127
Self-efficacy B	129
Knowledge (A)	130
Knowledge (B)	132
Knowledge (C)	133
Appendix E - Post Hoc Analyses	134
An examination of the interaction between videotaped feedback and self-ratings	134
An examination of the interaction between videotaped feedback, self-ratings and self-efficacy	137
An examination of the relationship between self-ratings and the rater's ratings	139
An examination of a suppressor effect	140
An examination of the interaction between self-efficacy and training treatment	141
An examination of the interaction between feedback experience and training treatment	144

LIST OF TABLES

Table 1.	Summarization of Procedure	51
Table 2.	Means, standard deviations, internal consistency reliabilities and intercorrelations among all variables	54
Table 3.	Regression Results for the Impact of Videotaped Modeling and Videotaped Feedback on Post Training Role Play Performance . .	55
Table 4.	Means, Standard Deviations and Post Hoc Comparisons by Experimental Condition.	57
Table 5.	Regression Results for the Impact of Videotaped Modeling and Locus of Control on Post Training Role Play Performance	58
Table 6.	Regression Results for the Impact of Videotaped Modeling and Field-dependence on Post Training Role Play Performance	60
Table 7.	Regression Results for the Impact of Videotaped Feedback and Locus of Control on Post Training Performance	61
Table 8.	Regression Results for the impact of Videotaped Feedback and Field-dependence on Post Training Role Play Performance	62
Table 9.	Regression Results for the Impact of Videotaped Modeling and "g" on Post Training Role Play Performance	63
Table 10.	Regression Results for the Impact of Videotaped Feedback and "g" on Post Training Role Play Performance	64
Table 11.	Regression Results for the Impact of Videotaped Modeling, Videotaped Feedback and Field-dependence on Post Training Knowledge	66
Table 12.	Regression Results for the Impact of Videotaped Modeling, Videotaped Feedback and Locus of Control on Post Training Self-efficacy	69

Table 13.	Regression Results for the Impact of Knowledge and Self-efficacy on Post Training Role Play Performance	69
Table 14.	Regression Results for Process Model	70
Table 15.	Regression Results for Videotaped Feedback and Self-rating . . .	136
Table 16.	Regression Results for Videotaped Feedback, Self-efficacy and Self-rating	137
Table 17.	Means, Standard Deviations, and Intercorrelations Between Training Treatment, Self-ratings, and Training Outcome Variables	140
Table 18.	Regression Results for the Impact of Videotaped Modeling and Videotaped Feedback on Post Training Role Play Performance Controlling for Post Training Knowledge	141
Table 19.	Regression Results for Videotaped Modeling and Self-efficacy . .	142
Table 20.	Regression Results for Videotaped Feedback and Self-efficacy . .	143
Table 21.	Regression Results for Videotaped Modeling and Feedback Experience	145
Table 22.	Regression Results for Videotaped Feedback and Feedback Experience	145

LIST OF FIGURES

Figure 1.	A process model of the influence of videotaped modeling on performance in training	7
Figure 2.	A process model of the influence of videotaped feedback on performance in training	13
Figure 3.	Predicted interaction between videotaped modeling and videotaped feedback	19
Figure 4.	A diagrammatic representation of a disordinal interaction	21
Figure 5.	A diagrammatic representation of an ordinal interaction	21
Figure 6.	Predicted interaction between locus of control and videotaped modeling	27
Figure 7.	Predicted interaction between field-dependence and videotaped modeling	31
Figure 8.	Predicted interaction between locus of control and videotaped feedback	33
Figure 9.	Predicted interaction between fielddependence and videotaped feedback	34
Figure 10.	Predicted interaction between "g" and videotaped modeling	36
Figure 11.	Predicted interaction between "g" and videotaped feedback	37
Figure 12.	A process model of the relationship between videotaped modeling, videotaped feedback, locus of control, field-dependence, "g" and performance in training	41
Figure 13.	Training Treatment Conditions	42
Figure 14.	Interaction between videotaped modeling and videotaped feedback	56

Figure 15. Interaction between videotaped modeling and locus of control . . 59

Figure 16. Main effect and interaction for post training knoweldge. 67

Figure 17. Interaction between videotaped feedback and self-rating 136

Figure 18. Triple interaction between videotaped feedback, self-efficacy
and self-rating 138

Figure 19. Interaction between videotaped modeling and self-effiacy 144

Figure 20. Interaction between videotaped modeling and feedback
experience 146

INTRODUCTION

Organizations spend more than \$30 billion annually on the training and development of employees (Huber, 1985). Unfortunately, the effectiveness of training programs is often less than desirable (Brush & Licata, 1983; Goldstein, 1986). Consequently, both researchers and trainers alike have a vested interest in understanding the conditions under which learning will be enhanced.

One area of research that has shown promise in improving the effectiveness of training is research on the use of videotapes. Two types of videotaped information have received special attention in the literature: (1) a presentation of a videotaped model, and (2) videotaped feedback in which the trainee observes himself or herself (Decker & Nathan, 1985). Numerous studies have clearly demonstrated that presenting videotaped models aids in the learning of new behaviors (for excellent reviews see Decker & Nathan, 1985; Kanfer & Goldstein, 1980). Similarly, research on the impact of videotaped feedback indicates that this technique has tremendous potential to affect human behavior (Dowrick & Biggs, 1983; Hung & Rosenthal, 1978; Decker & Nathan, 1985).

One limitation of the videotaped modeling and videotaped feedback research, however, is that it has utilized a fixed treatment approach. That is, it was assumed that all individuals regardless of their knowledge, skills, abilities or other attributes (e.g., personality characteristics) would benefit from the same treatment. Recently,

it has been argued that behavior is determined by "a complex interplay of situations and persons" (Magnusson & Endler, 1977, and that training researchers need to examine how aptitudes (i.e., any characteristic of a person that is predictive of his or her success under a given treatment; Cronbach & Snow, 1977) and treatments interact to influence learning and performance (Baldwin & Ford, 1988; Wexley, 1984).

To that end, the purpose of the present research is four fold: (1) to provide a theoretical explanation for the processes underlying the effects of videotaped modeling and videotaped feedback, (2) to discuss the similarities and differences between videotaped modeling and videotaped feedback, (3) to examine the effectiveness of these two techniques separately and in combination with one another and, (4) to examine possible individual difference variables that may influence the effectiveness of these two techniques.

CHAPTER 1. LITERATURE REVIEW

Theoretical Overview

To date, research on videotaped modeling has relied heavily on Bandura's (1982) Social Learning Theory to explain its effects (Decker & Nathan, 1985), while most explanations of the effects of videotaped feedback share one of two themes, its motivational properties or its informational value (Hung & Rosenthal, 1978). With regard to its informational value, it has been suggested that the effects of videotaped feedback may be due to providing individuals with information not previously available to them, whether from ignorance or mistaken self-perceptions (Kanfer, 1970). Bandura (1986) has similarly argued that self-observation is the first step toward doing something to change one's behavior. In order for individuals to exert influence over their actions, they have to know what they are doing. With regard to its motivational properties it has been suggested that Bandura's concept of self-efficacy offers a framework to encompass the mechanisms underlying videotaped feedback effects (Hung & Rosenthal, 1978). Each of these perspectives are discussed in more detail below.

Videotaped Modeling: A Social Learning Theory Perspective

According to Bandura's Social Learning Theory (Bandura, 1977a, 1982), the primary determinants of behavioral change are: (1) expectations that one can successfully execute a particular behavior (self-efficacy); and (2) expectations that

a given behavior will lead to certain outcomes (outcome expectations). Although both are important, Bandura (1982) has given the concept of self-efficacy a more central role in the explanation of behavior change. Bandura asserts that individuals who doubt their self-efficacy will not attempt a behavior, regardless of their expectations of outcomes. Bandura (1977a) suggests that self-efficacy influences choice of activities, how much effort people will expend, and how long they will persist in the face of adversity. The stronger the perception of self-efficacy, the more likely the person is to engage in the activity, the greater his or her effort, and the longer his or her persistence.

Research on Social Learning Theory has contributed greatly to understanding the role of models in the learning process (Bandura, 1977b). According to Bandura (1986), modeling influences human behavior indirectly through its influence on self-efficacy and outcome expectations. Bandura (1982) suggests that vicarious experience is a major source of self-efficacy. Watching other similar people successfully perform a task can convey a vicarious sense of efficacy to individuals that they can complete the task as well. On the other hand, observing similar others fail will tend to lower perceptions of self-efficacy (Brown & Inouye, 1978). Outcome expectations are also thought to be influenced by models. By observing the consequences of a model's behavior, an observer is likely to gain information on whether or not a particular behavior will lead to desired outcomes.

Videotaped Modeling: A Review of the Literature

Bandura (1986), in his comprehensive review of the literature, cited numerous studies which have supported the mediating role of self-efficacy and outcome expectations in the vicarious learning process (e.g., Brown & Inouye, 1978; Schunk

& Hanson, 1985; Omizo, Cubberly & Cubberly, 1985; Hamilton, Thompson & White, 1970; Kazdin, 1974b; 1975). Research shows that the extent to which modeling will influence self-efficacy, outcome expectations and subsequent behavior change is dependent on the characteristics of the model (Baron, 1970; Flanders, 1968; Decker & Nathan, 1985; Bandura & Menlove, 1968). Each of these topics are described in more detail below.

Self-efficacy Expectations. Research examining the relationship between modeling and self-efficacy has shown that subjects exposed to successful models have greater increases in self-efficacy and achievement than subjects not exposed to models (Schunk & Hanson, 1985; Omizo, et al., 1985). In addition, observing a peer model perform a task effectively leads to higher self-efficacy and achievement than observing a teacher model (Schunk & Hanson, 1985) and participant modeling (i.e., performing a task while observing a successful model) leads to higher self-efficacy and achievement than merely observing a model (Omizo et al., 1985).

Outcome Expectations. Hamilton et al. (1970) have demonstrated the importance of rewarding the model. Their results showed that modeling was more effective in influencing behavior when the observers see the model either rewarded or punished for the behavior but is not effective when outcomes (i.e., either punishment or rewards) are absent. In addition, Kazdin (1974b; 1975) has shown that modeling with imagined favorable consequences had a significantly greater impact on behavior than modeling without them.

Model's Characteristics. Research shows that models will be most influential when the model is similar to the observer in terms of age, sex, cultural background, personality, and mood (Baron, 1970; Bandura, 1977a; Flanders, 1968; Kazdin, 1974a;

Thoresen & Hosford, 1973). Models should also be likeable (Sampson and Insko, 1964), prestigious (Duster & McAllister, 1973; Thoresen, Hosford, & Krumboltz, 1970), physically attractive (Bandura & Huston, 1961) and similar or slightly higher in competence than the observer (Dowrick, 1983; Kazdin, 1974a; Kornhaber & Schroeder, 1975; Rosenkrans, 1967).

If observers are particularly anxious, then coping models (i.e., models who themselves appear to be anxious but are effectively learning to cope with the situation) are generally preferred over models that demonstrate mastery and ease in performing the task (Dillon, Graham and Aidells, 1972; Kazdin, 1973, 1974a, 1975; Meichenbaum, 1971).

Self-efficacy and subsequent behavior change are further enhanced when multiple models are used. That is, watching different people master different tasks is superior to exposure to the same performances by a single model (Bandura & Menlove, 1968; Kazdin, 1974a, 1975, 1976). The rationale for multiple models is that the observer is more likely to identify with one of the models, and if people of widely differing characteristics succeed in many different situations then the observer has a more reasonable basis for increasing his or her own sense of efficacy. Greater modeling will also occur when a positive model is shown (with or without a negative model) rather than a model only depicting what not to do (Decker & Nathan, 1985; Baldwin, 1987).

Summary. Research has demonstrated that videotaped models influence self-efficacy (Bandura, 1986). Watching other similar people successfully perform a task can convey a sense of efficacy to individuals that they can perform the task as well. Research has also demonstrated that videotaped models have informational value

(Hamilton et al., 1970). By observing a model exhibit the desired behavior, individuals can form an idea of how specific acts must be combined and sequenced to produce a new behavior, and, by observing the consequences of a model's behavior, an observer is likely to gain information on whether or not a particular behavior will lead to desired outcomes. In sum, it is suggested that videotaped modeling influences learning and behavior indirectly through its influence on self-efficacy and the acquisition of knowledge. See Figure 1.

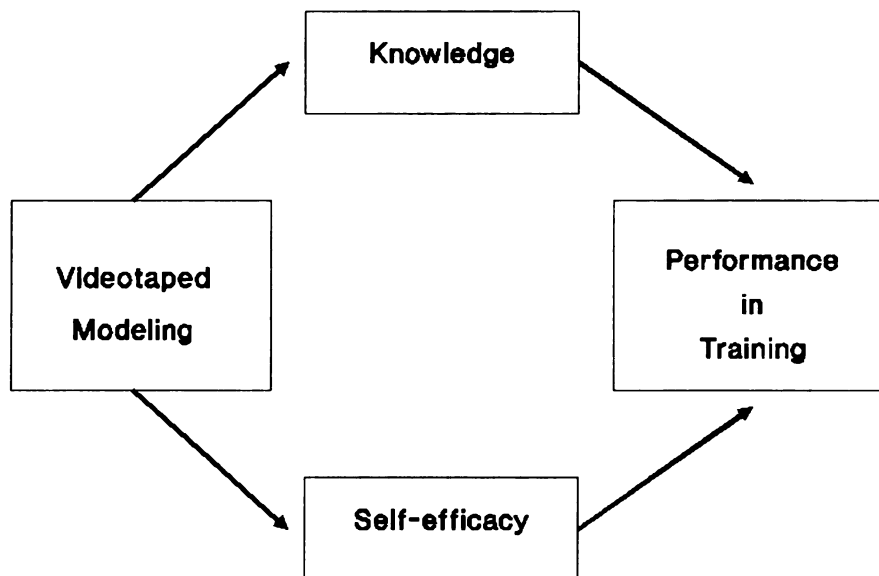


Figure 1. A process model of the influence of videotaped modeling on performance in training.

Videotaped Feedback: An Informational Perspective

It is a widely accepted notion among training researchers that feedback is an essential part of the human learning process (Goldstein, 1986; Wexley & Latham, 1981). Feedback provides individuals with information about the effectiveness of their efforts to perform a particular task. Such information allows individuals to make adjustments in their subsequent behavior if a discrepancy between actual and desired behavior is perceived to exist. Given the importance of feedback, videotaped feedback has some unique advantages. For example, unlike verbal feedback, the information imparted by videotaped feedback is not colored by others' values or interpretations. Rather, it emanates from a highly credible and unbiased source (the videotape). Thus, individuals can devote full attention to the content of the feedback, rather than the source of the information (Hung & Rosenthal, 1978). In addition, videotaped feedback allows individuals to see themselves as others see them. Thus, individual tendencies to protect or enhance one's self-image through cognitive distortion is lessened. In sum, from an informational perspective, videotaped feedback is effective in enhancing performance in training because it provides trainees with feedback that is both immediate and objective. This feedback allows trainees to change their subsequent behavior thereby increasing their knowledge and skills.

Videotaped Feedback: A Self-efficacy Perspective

According to Hung and Rosenthal (1978), Bandura's concept of self-efficacy offers a framework to encompass the mechanisms underlying the effects of videotaped feedback. As stated earlier, Bandura (1977a, 1982) asserts that self-efficacy (i.e., expectations that one can successfully execute a particular behavior)

plays a central role in the explanation of behavior change. Self-efficacy influences choice of activities, how much effort people will expend, and how long they will persist in the face of adversity. According to Bandura (1977a, 1982, 1986) people acquire information about their level of efficacy from four sources: performance accomplishments, vicarious experiences, verbal persuasion, and physiological states. Hung and Rosenthal (1978) suggest that the first two sources (performance accomplishments and vicarious experiences) have special relevance since they enter into any treatment on videotaped feedback. Performance accomplishment occurs when the individual performs the behavior being videotaped, and vicarious input occurs when the individual engages in self-observation.

Recent research by Gonzalez and Dowrick (1982) and Dowrick (1983) lends support to the use of videotaped feedback as a self-efficacy enhancing technique. In one study Dowrick (1983) examined the effects of two videotape feedback conditions, observing one's errors versus observing one's correct behaviors. The subjects were 18 evenly matched pairs of pool players who competed with each other twice. After the first round, losers only were assigned to one of the two treatment conditions. In one condition tapes were edited to show only successful shots, and in the other condition only the missed shots were shown. Results showed that all subjects in the "successful shot" condition showed increases in performance whereas less than half the other players improved.

Gonzalez and Dowrick (1982) conducted a study to investigate whether videotapes edited so that the individual sees himself or herself performing correctly work by providing information about proper behavior or by boosting self-efficacy. This study was conducted using the same procedure as that described in the Dowrick

(1983) study except, rather than observing one's errors, the videotapes were edited so that unsuccessful shots were made to look successful. Results showed that both groups had significant improvements in performance over a control group and that virtually identical improvements were achieved with either apparent or real success on tape. These authors concluded that "successful" videotaped feedback (i.e., edited to look successful) works primarily by boosting self-efficacy and that motivation without skills information may, at least in some conditions, be sufficient for behavioral change using videotaped feedback.

Videotaped Feedback: A Review of the Literature

To date, only a handful of studies have examined the influence of videotaped feedback in training situations, however, research examining the effectiveness of videotaped feedback in psychotherapy and teacher education has been around for many years. Alger and Hogan (1969) have stated that "video tape recording represents a technological breakthrough with the kind of significance for psychiatry that the microscope has had for biology." Subsequent reviews in the psychotherapy literature (Sanborn, Pyke & Sanborn, 1975; Gur & Sackeim, 1978; Hung & Rosenthal, 1978) and the teacher education literature (Fuller & Manning, 1973) have been far less enthusiastic. Furthermore, many of the earlier studies were highly inadequate in terms of methodology. For example, lack of a control group, highly subjective outcome measures and experimenter bias were common problems (Hung & Rosenthal, 1978).

With regard to studies examining the influence of videotaped feedback in training situations, Barbee and Keil (1973) examined the impact of videotaped feedback on the job interviewing skills of culturally disadvantaged persons. Sixty

four clients from three manpower agencies were randomly assigned to one of three treatment conditions: (a) a combined treatment group consisting of videotaped feedback and behavior modification techniques (identification of key behaviors, rehearsal and reinforcement); (b) a videotaped feedback only group; and (c) a no-treatment control group. Results indicated that the combined treatment group had significantly greater improvement in interview behavior. However, since these researchers did not include a behavior modification-only treatment group, it is impossible to conclude whether videotaped feedback had any additive contribution to learning and behavior change over and above that of the behavior modification techniques.

Speas (1979) examined the impact of four treatments: modeling, role playing, modeling plus role playing, and modeling plus role playing and videotaped feedback on the interviewing skills of 56 soon-to-be released male in-mates. Her results indicated that the modeling plus role playing and the modeling plus role playing and videotaped feedback groups scored significantly greater than the control group (i.e., subjects on a waiting list) on all dependent measures. In addition, the videotaped feedback group was the only treatment group which was rated significantly higher than the control group on probability of hire.

Del Rey (1978) examined the impact of two types of augmented information feedback on dart throwing skill, knowledge of performance (videotaped feedback) versus knowledge of results (verbal feedback on the difference between one's pretest score and present score), on dart throwing skill. Her results indicated that while all subjects did receive immediate results feedback from the task itself, subjects who were given knowledge of performance (videotaped feedback) had significantly better

form and accuracy on the post test than subjects who were given knowledge of results.

Finally, Decker (1983) examined the impact of rehearsal group size and videotaped feedback on the training skills of 36 undergraduates. Specifically, the training program was designed to teach "on-the-job training" behaviors. Subjects were randomly assigned to one of three conditions: (1) one observer/videotaped feedback, (2) large group observing/videotaped feedback, (3) large group observing/no videotaped feedback. A multivariate analysis of variance with a priori contrasts revealed that subjects in the condition employing one observer and videotaped feedback had significantly higher performance than the other two conditions.

Summary. Numerous studies have supported the use of videotaped feedback in learning and behavior change situations (Barbee & Keil, 1973; Decker, 1983; Del Rey, 1978; Speas, 1979; Thoresen & Hosford, 1973). It has been suggested that videotaped feedback influences learning and behavior change indirectly through its impact on self-efficacy and the acquisition of knowledge. See Figure 2. Earlier it was suggested that videotaped modeling also influences learning and behavior change indirectly through its impact on self-efficacy and the acquisition of knowledge. Thus, both videotaped modeling and videotaped feedback are predicted to influence learning and behavior change via the same underlying process (i.e., Figure 2 is the same as Figure 1).



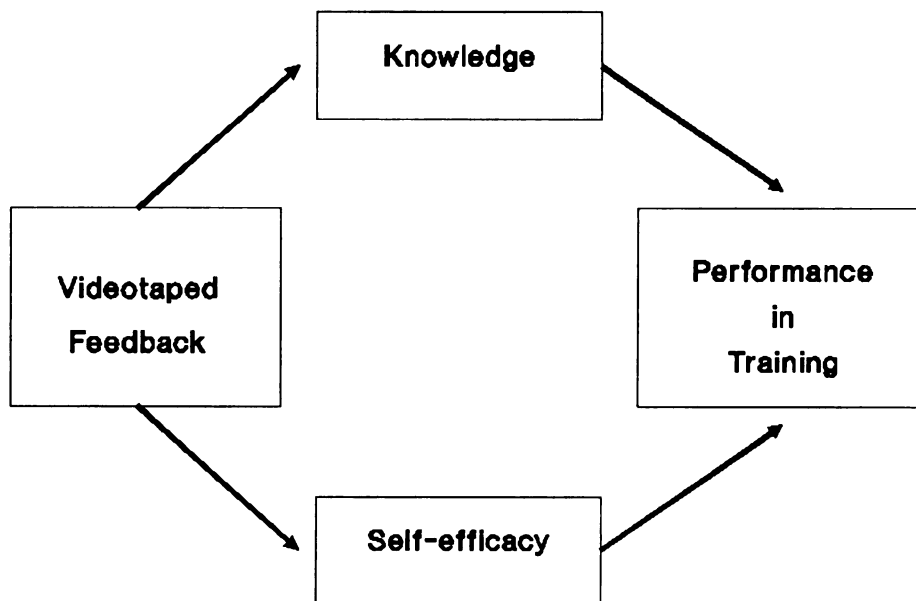


Figure 2. A process model of the influence of videotaped feedback on performance in training.

Since both training techniques are predicted to influence learning and behavior change via the same underlying processes, one might ask whether or not the two techniques are indeed different, and if they are different, what is the "meaning" of this difference with regard to its influence on self-efficacy and the acquisition of knowledge? These issues are discussed in further detail below.

Videotaped Modeling Versus Videotaped Feedback: Similarities and Differences

One could argue that videotaped feedback is a specific form of videotaped modeling in which the observer and the model are the same person. If the individual performed the desired behavior correctly on the videotape he or she would serve as a positive model for him- or herself. Conversely, if the individual performed the desired behavior incorrectly on the videotape he or she would serve as a negative model for him- or herself. The two techniques are different, however,

in that an individual observing him-or herself would have perfect identification with the model. In a videotaped modeling treatment, identification with the model would depend on the similarity between the observer and the model. Since research has shown that observers' perceptions of being similar to the model have a significant impact on the effectiveness of modeling (Baron, 1970; Bandura, 1977a; Flanders, 1968; Kazdin, 1974a; Thoresen & Hosford, 1973), one might expect that videotaped feedback would, in some situations, have a more profound impact on self-efficacy than videotaped modeling. In support of this argument, Bandura (1986) has found that performance accomplishments (i.e., observing oneself succeed or fail) have a stronger impact on self-efficacy than modeling (i.e., observing someone else succeed or fail).

The two techniques may also differ in the amount of information provided. Modeling tapes are constructed so that they include examples of each of several learning points. Videotaped feedback tapes, on the other hand, will only include those behaviors exhibited by the trainee. Thus, videotaped feedback tapes may or may not include all the learning points. As a result, one would expect videotaped feedback to be less effective than videotaped modeling as a training technique for tasks that require visual demonstrations. For example, physical tasks such as dancing, aerobics, painting, golf, etc. may require visual demonstrations in order for trainees to learn effectively. Without first having a visual demonstration, trainees may not be able to produce the desired behavior on their own and as a result, observing oneself perform a task on videotape may have little or no impact on their subsequent performance. For other tasks it may not be as necessary for the trainee to observe the behavior being performed correctly in order to be able to produce the

behavior him or herself. For example, for social skills training, such as interview training, it may not be necessary to observe a model maintaining eye contact with the interviewer to learn to maintain eye contact.

Videotaped modeling and videotaped feedback are also different in that videotaped modeling provides information about someone else's ability to perform a particular behavior while videotaped feedback provides individuals with information about their own performance efforts. Information about one's own performance is crucial for learning and behavior change. In order for an individual to improve his or her performance, he or she needs to know that he or she is doing something wrong (Bandura, 1986). Thus, being aware that one's own performance is unsatisfactory is a necessary but not sufficient condition for behavior change. Self-observation through the use of videotaped feedback allows trainees to compare their actual behavior to that of a standard and thereby identify what they are doing wrong. Modeling, on the other hand does not provide this type of information. Trainees in a modeling training program may learn what the correct behaviors are but not whether they can perform them themselves. In other words, videotaped feedback has greater personal relevance for the trainee. Research in the area of communication has demonstrated that personal relevance has a positive influence on attention and retention processes (Hovland, Janis & Kelly, 1953).

In summary, while both videotaped modeling and videotaped feedback are predicted to influence performance in training through the same underlying processes (i.e., knowledge and self-efficacy), several important differences between the two techniques were noted including: degree of identification with the model, number or quality of behaviors exhibited by the model, and personal relevance. It has been

suggested that identification with the model and personal relevance may be greater when using videotaped feedback and that the number or quality of behaviors exhibited by the model may be greater when using videotaped modeling. However, since the present study will utilize a fixed effects design, one is necessarily limited in making conclusions or generalizations to the specific treatments used, therefore it is not the intent of this study to examine the relative effect of each treatment.

Videotaped Modeling And Videotaped Feedback: A Combined Treatment Analysis

As stated earlier, modeling and performance accomplishments are the two most influential sources of self-efficacy (Bandura, 1982; 1986). Observing a model successfully perform a task may convey a sense of efficacy to the observer that he or she can perform the task as well, while videotaped feedback may provide individuals with information about their performance accomplishments. From an information perspective, modeling provides individuals with visual information on how to combine and sequence their actions to produce the new behavior, while videotaped feedback makes individuals more aware of discrepancies between intended and actual behavior allowing them to increase their effort or change their strategy on subsequent trials. Thus, from both a self-efficacy perspective and an informational perspective, one might argue that a combined treatment condition including both modeling and videotaped feedback would have a greater impact on self-efficacy and performance than either treatment alone.

One study that has examined the relative and combined effects of modeling and videotaped feedback is that of Walter (1975). This author examined the effects of modeling and videotaped feedback on the group problem solving behavior of 227 college students. Subjects were assigned to one of five experimental conditions

(1 = no instructions, 2 = instructions, 3 = videotaped feedback + instructions, 4 = modeling + instructions, 5 = videotaped feedback + videotaped modeling + instructions). In Experiment I, the instructions consisted of telling subjects (N=133) to be more non-evaluative and to try to generate as many ideas as possible. In Experiment II, the instructions consisted of telling subjects (N = 144) to be more evaluative of the major points which were most likely to yield good solutions.

A total of 14 different behavioral changes were examined in each experiment resulting in a total of 28 separate analyses of variance tests. The results indicated that 12 statistically significant behavioral shifts were attributable to modeling, seven statistically significant shifts were attributable to videotaped feedback and five statistically significant shifts were attributable to the interaction of videotaped feedback and modeling. However, five of the seven significant effects found for the videotaped feedback manipulation occurred in the first experiment and were opposite to what was predicted. It appears that subjects exposed to videotaped feedback in the first experiment became less verbal, less interactive and more inhibited. The author attributed this finding to the fact that subjects in the first experiment expressed great curiosity, suspicion, and anxiety about possible experimental manipulations between and after the problem solving efforts. No such feelings were expressed by subjects in the second experiment. In summary, it is difficult to draw conclusions from Walter's (1975) experiments due to major methodological flaws including high demand characteristics and high experimentwise error.

Based on previous research which has demonstrated that modeling and videotaped feedback have a positive impact on behavior change (Speas, 1979; Del

Rey, 1978; Decker, 1983; Kazdin, 1973, 1974a, 1975, 1976; Bandura & Menlove, 1968; Baldwin, 1987), it is predicted that both videotaped modeling and videotaped feedback will have a significant positive impact on performance in training. It is also predicted that the combined treatment condition including both modeling and videotaped feedback will have a greater impact on self-efficacy and performance than either treatment alone and that subjects in the no videotaped feedback/no videotaped modeling condition will have significantly lower performance than subjects in any other condition (the no-modeling condition refers to a training treatment that includes instruction and practice but no videotape of a model performing the task, the no-videotaped feedback treatment condition refers to a training treatment in which trainees receive instruction and opportunity to practice but do not observe themselves performing the task on videotape). More specifically, it is predicted that:

- H1: There will be two main effects and an interaction such that (1) subjects in the videotaped modeling treatment conditions will have higher performance than subjects in the no videotaped modeling treatment conditions, (2) subjects in the videotaped feedback treatment conditions will have higher performance than subjects in the no videotaped feedback treatment conditions, and (3) subjects in the combined treatment condition will have significantly greater performance than subjects in any other condition and subjects in the no videotaped feedback/no videotaped modeling condition will have significantly lower performance than subjects in any other condition. (See Figure 3.).

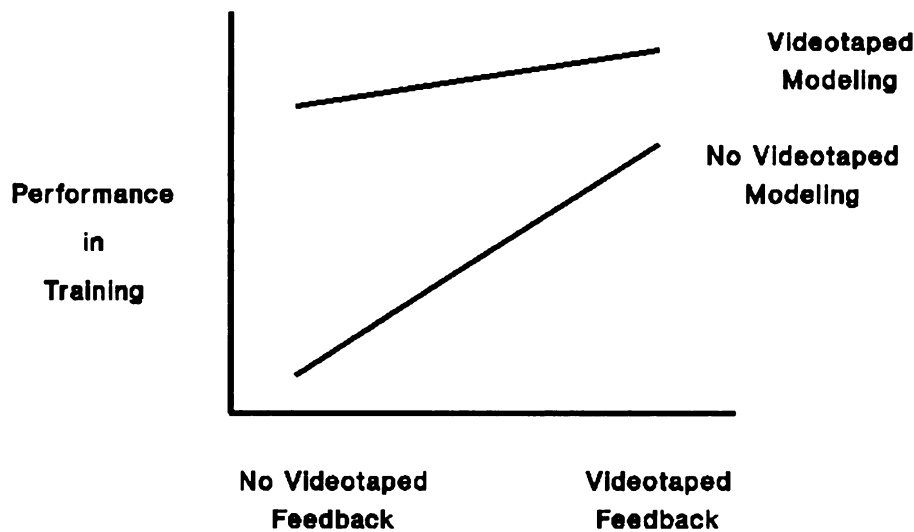


Figure 3. Predicted interaction between videotaped modeling and videotaped feedback.

To date, research that has examined the effectiveness of videotaped modeling and videotaped feedback has utilized a fixed treatment approach. That is, it was assumed that all individuals regardless of their knowledge, skills, abilities or other attributes (e.g., personality characteristics) would benefit from the same treatment. Recently, it has been argued that behavior is determined by "a complex interplay of situations and persons" (Magnusson & Endler, 1977; Weiss & Adler, 1984), and that training researchers need to examine how aptitudes (i.e., "any characteristic of a person that forecasts his or her probability of success under a given treatment;" Cronbach & Snow, 1977) and treatments interact to influence learning and performance (Baldwin & Ford, 1988; Wexley, 1984). Thus, it is suggested that individual differences may interact with the effects of videotaped modeling and videotaped feedback to influence training outcomes. In the following section,

research examining the effect of the interaction between individual differences and training treatments will be discussed in more detail.

An Overview of Aptitude-Treatment Interaction Research

The basic premise underlying aptitude-treatment interaction (ATI) research is that no single procedure provides optimal learning for all individuals. Some individuals will be more successful with one training technique whereas other individuals will be more successful with an alternative training technique. Consequently, a greater proportion of individuals will be successful in attaining the training objectives when the training program is differentiated for different types of individuals.

Aptitudes and treatments may interact in two ways to influence performance in training. The first type of ATI, a disordinal interaction, indicates that one treatment yields high achievement for individuals at one end of the aptitude continuum whereas a different treatment yields high achievement for individuals at the other end (See Figure 4.). Performance would be maximized, then, if the individuals at each end of the continuum received different treatments. In the second type of ATI, an ordinal interaction, the aptitude-treatment regressions may have different slopes but the regression lines do not intersect within the aptitude range of interest (See Figure 5.). In other words, one treatment is superior for all individuals, but the magnitude of the difference between treatments varies at different aptitude levels. Ordinal interactions, like disordinal interactions, may also lead to differential assignment of individuals to treatments if the treatment that consistently yields higher achievement is more expensive than the other treatment. The more expensive treatment would be used only for those who benefit from it the



most. Those individuals who achieve at approximately the same level regardless of treatment would receive the less expensive treatment.

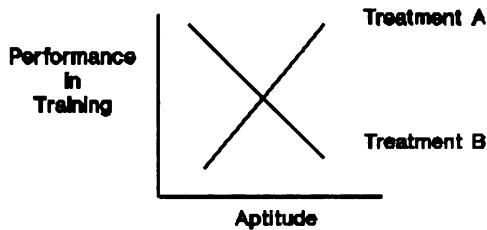


Figure 4. Diagrammatic representation of a disordinal interaction.

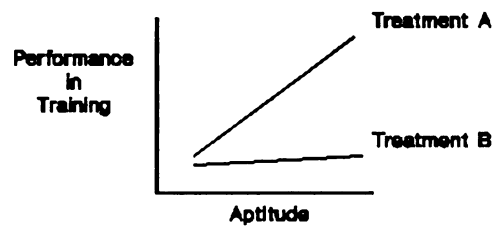


Figure 5. Diagrammatic representation of an ordinal interaction.

Even though the notion that people respond differently in different situations is intuitively appealing and has received a great deal of research interest, there has been considerable debate over whether or not ATIs actually exist (Bracht, 1970), and whether designing different treatments for different individuals is practical (Gehlbach, 1979).

With regard to the first issue, most reviews have concluded that there is little or no support for the existence of aptitude by treatment interactions. For example, Bracht (1970) systematically analyzed 90 ATI studies and found that only 5 provided evidence of a disordinal interaction. The other 85 indicated either no interaction or ordinal interactions. Berlinger and Cahen (1973) concluded that most studies of interaction have not been replicated, and when replicated, interactions have not been confirmed. More recently, Pintrich, Cross, Kozma and McKeachie (1986) similarly

stated that ATI research findings cannot be used with any confidence to construct general principles of instructional design.

Many researchers are still optimistic that ATIs exist, however, and feel that methodological problems provide alternative explanations for the relatively unsupportive results found thus far (Berlinger & Cahen, 1973; Cronbach & Snow, 1977; Snow & Lohman, 1984). For example, Cronbach and Snow (1977) argued that the results of many studies (both positive and negative) must be discounted because of poor research procedures including: use of subgrouping rather than moderated regression, failure to correct for error of measurement and inadequate sample size.

With regard to practicality, Millman (1974) argued that adaptive treatment is impractical because it only benefits a few individuals. This is because in most disordinal interactions the aptitude-treatment regression lines intersect at one of the extremes of the normal distribution of the aptitude, and most cases are in the middle where there are small differences between treatments. Burns (1980) has also argued against the practicality of adaptive treatment claiming that aptitudes often change over the course of a treatment, and thus, a particular treatment assignment decision may be valid for only a limited period of time. Consequently, aptitudes would have to be reassessed periodically and individuals would have to be reassigned to a different treatment if their aptitude changed.

Perhaps a more important explanation for the unsupportive results found in ATI studies is the type of aptitude examined. To date, most ATI studies have used measures of general or specific ability. Since, general ability and specific ability (to a lesser extent) have been found to be highly correlated with performance across a wide range of tasks and situations (Jensen, 1986; Hunter, 1986; Thorndike, 1986),

one would expect a main effect for ability such that high ability individuals perform better than low ability individuals regardless of treatment. Thus disordinal interactions would be extremely unlikely and ordinal interactions would be likely but of little significance. In support of this argument, Whitener (1989) conducted a meta-analysis of studies that examined the effect of the interaction between ability and instructional technique. She found that the weighted average regression coefficient for the interaction term was .11 with a 90 % confidence interval ranging between -.005 to .225. Thus, this author found no support for the existence of aptitude-treatment interactions when ability was the aptitude being examined.

It is suggested that personality variables, as opposed to general or specific abilities, may be more likely to interact with training treatments to influence training outcomes. This is because personality variables often have motivational components (Rotter, 1966; Korman, 1970). Recent research in the area of training has found that motivation, as well as ability, plays a major role in determining training outcomes (Ryman & Biersner, 1975; Tubiana & Benshakar, 1982; Baldwin & Karl, 1987). It has also been suggested that personality variables influence training outcomes through their influence on trainee motivation (Noe, 1986). In support of the existence of personality by treatment interactions, Bracht (1970) noted that three of the five studies which reported significant disordinal interactions used personality variables.

The present study will attempt to extend past research on adaptive treatment by examining whether personality variables are more likely than general ability to interact with training treatment to influence training outcomes. Two personality variables will be examined: locus of control and field-dependence. These two

variables were chosen because of their relevance to the two training techniques examined in this study. For example, locus of control has been found to influence information search (Davis & Phares, 1967), while field-dependence has been found to influence the amount of attention paid to social stimuli (Witkin & Goodenough, 1977). It is predicted that both of these variables will have a significant impact on the effectiveness of both videotaped modeling and videotaped feedback. In addition, this study will test the proposition made above that personality variables are more likely to interact with training treatment to influence training outcomes than general or specific abilities. To that end, the relationship between "g", general mental ability, and the two videotaped training treatments will be examined. Finally, the impact of field-dependence and locus of control on self-efficacy and knowledge will be examined.

Videotaped Modeling: An Examination of Personality by Treatment Interactions

Locus of Control. According to Rotter (1966), individuals who have an internal locus of control believe that positive and negative events are contingent on their own behavior, and therefore, are under personal control. Individuals who have an external locus of control believe that outcomes are unrelated to their own behaviors, beyond personal control, and therefore attribute the causes for events to luck, fate, or the actions of others.

Research on achievement behavior clearly suggests that internals are more achievement oriented than externals. For example, Nowicki and Strickland (1973) found that internal beliefs in children were related to higher grades in school, as did Gruen, Koerts, and Baum (1974) and Botinelli and Weizmann (1973). Similarly,

Brown and Strickland (1972) found internal beliefs to be related to high grade-point averages for college students.

Waters (1972) found that internal beliefs were associated with greater persistence on a difficult and time consuming task described as dependent on their own skill. External beliefs, in contrast, were associated with greater persistence on tasks described as dependent on chance.

Davis and Phares (1967) found that locus of control had a significant impact on the information seeking behavior of 84 college students. Subjects were led to believe that they were involved in a study of social influence and attitude change and that their task was to influence the attitude of another person concerning the Vietnam War. Subjects were then given a few minutes to think about what information they might like to have about the person they would be attempting to influence. Results indicated that internals asked for significantly more information about the other person than did externals.

Baumgartel, Reynolds and Pathan (1984) conducted a survey of 260 managers who had participated in a one-week management development program designed to improve self-understanding, interpersonal effectiveness and skill in group membership. Their results indicated that those individuals who reported greater effort and success in applying new knowledge were more likely to be internals than externals. These same authors replicated this study in a sample of 246 managers in India and found the same results.

Chambliss and Murray (1979) examined the impact of locus of control on 68 college women involved in a weight loss program. During the first two weeks all subjects were given a standard weight reduction program including moderate diet,

mild exercise, and simple behavioral techniques, as well as 14 diet pills to be taken once a day (a placebo). At the end of the 2-week period half of the subjects were debriefed about the pills and were told that successful weight loss was a result of their own effort (self-efficacy enhancing condition) while the other half was told that successful weight loss was a result of the diet pills (drug efficacy condition). These authors found that internals in the efficacy enhancing condition lost significantly more weight in the second 2-week period than any of the other three groups (i.e., internals-drug efficacy, externals-self-efficacy, externals-drug efficacy).

In sum, these studies suggest that internals are more likely than externals to: (a) actively seek out information in social situations (Davis & Phares, 1967), (b) apply new knowledge gained in training to work settings (Baumgartel, et al. 1984), and (c) change their behavior in treatments designed to enhance self-efficacy (Chambliss & Murray, 1979).

Since internals have the tendency to accept responsibility for outcomes, it is suggested that internals will be more likely to believe that learning is a result of personal effort. Thus, internals may respond more readily to modeling, because they tend to believe that they, like the models, are in control of their environments. Externals, on the other hand, may not benefit from modeling because of their tendency to attribute success or failure to factors beyond their control. In other words, externals believe that outcomes are not a result of one's own behavior (Rotter, 1966). It follows then, that externals may also believe that changing one's behavior to imitate a model would have little impact on their own performance.

Based on the literature reviewed above it is predicted that:

- H2: There will be two main effects and an interaction such that (1) internals will have higher performance than externals, (2) individuals in the modeling treatment will have higher performance than those in the no-modeling treatment, and (3) the relationship between modeling and performance will be greater for internals than externals (See Figure 6.).

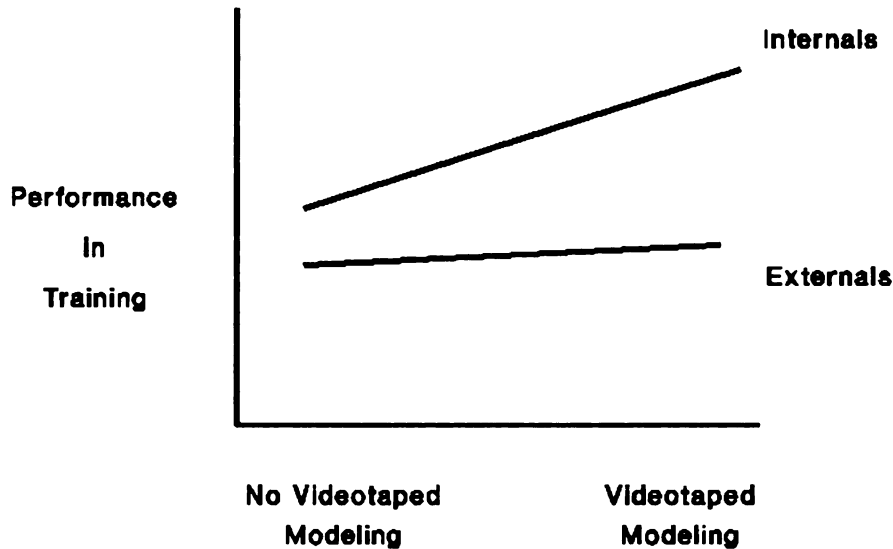


Figure 6. Predicted interaction between locus of control and videotaped modeling.

Field-dependence. Witkin and Goodenough's (1977, 1981) concept of field-dependent-independent cognitive style may also have implications for adaptive treatment. Witkin and Goodenough (1981) define this concept as having three characteristics. "First, it is a pervasive dimension of individual functioning, showing itself in the perceptual, intellectual, personality, and social domains, and connected in its formation with the development of the organism as a whole. Second, it involves individual differences in process rather than content variables; that is to say, it refers to individual differences in the *how* rather than the *what* of behavior. Third, people's standing on the dimensions is stable over time" (p. 58).

One of the main features of field-dependence-independence is the tendency to rely on either one self or the external environment as referents for behavior. Individuals who rely on themselves are said to have field-independent cognitive styles while individuals who rely on external referents are said to have field-dependent cognitive styles. Field-dependence-independence, measured as one's ability to determine the upright in space, is significantly related to disembedding ability (i.e., the ease of locating simple figures in a complex figure)(Dumsha, Minard & McWilliams, 1973; Pizzamiglio, 1976; Witkin, Goodenough & Karp, 1967).

While field-dependence-independence and locus of control bear a surface similarity, Witkin and Goodenough (1981) claim that the two constructs are conceptually quite different. These authors assert that "field-dependence-independence is a process variable, representing degree of autonomous functioning in assimilating information from self and field, [while] locus of control is an attitudinal or belief variable, representing expectancies of internal or external control of reinforcement, or greater or less fatalism as an outlook toward life" (p. 48). In other words, it is possible for someone to have a tendency to search and attend to external information (i.e., field-dependent) and still believe that one is in control of one's own fate. In support of this argument, numerous studies have shown that measures of these two dimensions are unrelated (Bartelt, 1970; Deever, 1968; Fitz, 1971; Lefcourt, Gronnerud, & McDonald, 1973; Lefcourt, Hogg, & Sordini, 1975; Lefcourt & Telegdi, 1971; Roodin, Broughton, & Vaught, 1974; Rotter, 1966; Shapson, 1973; Tobacyk, Broughton, & Vaught, 1975; Zara, 1970).

Research examining the relationship between field-dependence and social behavior has demonstrated that people who are field dependent in perception of the

upright and who have limited disembedding ability have an interpersonal orientation, whereas people who are field independent and competent in disembedding have an impersonal orientation (Witkin & Goodenough, 1981). Thus, field-dependent individuals, more than field-independent individuals, pay selective attention to social cues; they favor situations that bring them into contact with others over solitary situations; they prefer educational-vocational domains that are social in content and require working with people; they seek physical closeness to people in their social interactions; and they are more open in their feelings (Witkin & Goodenough, 1977). Other characteristics that have been ascribed to people who are field dependent on tests of perception of the upright and who have low disembedding ability include warm, affectionate, tactful, accommodating, nonevaluative and accepting of others, not likely to express hostility directly against others when such feelings are aroused in an interpersonal context. People who are field independent tend to be demanding, inconsiderate, manipulating others as a means of achieving personal ends, cold and distant in relations with others (Witkin & Goodenough, 1977).

Research on the relation between field dependence-independence and educational-vocational preferences, choices, and performance (Quinlan & Blatt, 1972; Witkin, Moore, Goodenough, & Cox, 1977; Witkin, Moore, Oltman, Goodenough, Friedman, Owen, & Raskin, 1977) suggests that people are likely to favor and do better in educational-vocational domains to which their cognitive styles suit them. Since, field-dependent people, compared with field-independent ones, give more evidence of interpersonal competencies, it is suggested that field-dependent people will perform better than field-independent people in training programs focusing on interpersonal skills.

The results of other studies suggest that field-dependence-independence may moderate the extent to which individuals are influenced by social information (Ruble & Nakamura, 1972; Koran, Snow & McDonald, 1971). For example, Ruble and Nakamura (1972) examined the influence of a social cue (i.e., the experimenter repeatedly looked and leaned very slightly toward the card containing the correct figure) on the performance of children involved in a concept-attainment task. Their results showed that field-dependent children tended to do better under this condition than when the social cue was absent.

In addition, Koran, Snow, and McDonald (1971) examined the impact of field-dependence and videotaped modeling on the acquisition of teaching skills. Their results showed that field-dependent teachers were found to benefit significantly more from the videotaped modeling treatment than field-independent teachers, whereas the field-independent teachers did better, but not significantly so, in the written modeling treatment (subjects read a written script).

In sum, these studies suggest that field-dependent individuals are more likely than field-independent individuals to attend to social stimuli and to benefit from videotaped modeling. In addition, field-dependent individuals tend to have greater interpersonal skills than field-independent individuals. Based on these findings, it is predicted that:

H3: There will be two main effects and an interaction such that (1) field-dependent individuals will have higher performance than field-independent individuals, (2) individuals in the modeling treatment will have higher performance than those in the no-modeling treatment, and (3) the relationship between modeling and performance will be greater for field-dependent individuals than field-independent individuals (See Figure 7.).

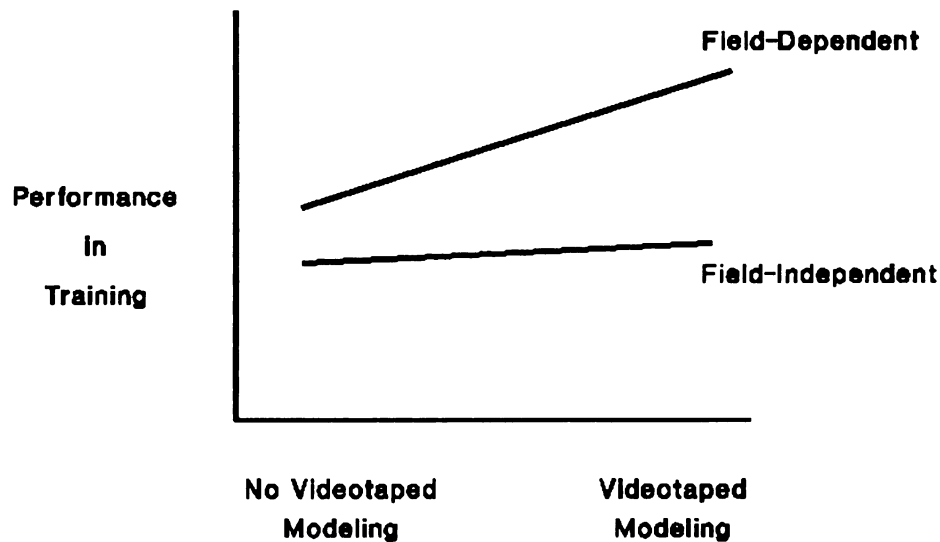


Figure 7. Predicted interaction between field-dependence and videotaped modeling.

Videotaped Feedback: An Examination of Personality by Treatment Interactions

Locus of Control. Dweck (1975) and Diener and Dweck (1978) have shown that children who attribute failure to insufficient effort (i.e., an internal factor), as opposed to factors outside their control, are less likely to give up on a task after experiencing repeated failure. In addition, research by Strassberg (1973) has found that internals tend to have higher expectations for success than externals. Based on the results of these studies it is suggested that internals, who have a predisposition to attribute all outcomes (i.e., success and failures) to internal factors, may be more likely than externals, to respond to negative feedback with increased effort. It is further suggested that internals, when viewing a videotape of their own performance, are more likely than externals to increase their effort on a subsequent trial if they perceive a discrepancy between their actual performance and the standard.

Another area of research that seems relevant is research on intrinsic and extrinsic feedback (Baron, Cowan, Ganz & McDonald, 1974; Baron & Ganz, 1972). These studies demonstrated that internals performed better on form discrimination tasks when given intrinsic feedback (i.e., subjects were allowed to discover for themselves whether their responses were right or wrong) rather than extrinsic feedback (i.e., the experimenter informed subjects whether or not their responses were right or wrong). Externals, on the other hand, made more correct responses under extrinsic feedback conditions. It is suggested that these results may also generalize to videotaped feedback. That is, internals may respond more favorably to conditions in which they can observe for themselves the accuracy of their performance. Externals, on the other hand, may need specific verbal feedback from others. Since videotaped feedback, in and of itself, does not include feedback from an external source, but instead, allows the individual to evaluate his or her performance for him or herself, it is suggested that videotaped feedback should be more effective for internals than externals.

In sum, the studies reviewed above suggest that internals will perform better in situations in which they can discover for themselves the accuracy of their performance. In addition, internals are more likely than externals to respond to negative feedback with increased effort. Therefore, it is predicted that:

- H4: There will be two main effects and an interaction such that (1) internals will have higher performance than externals, (2) individuals in the videotaped feedback treatment will have higher performance than those in the no-videotaped feedback treatment, and (3) the relationship between videotaped feedback and performance will be greater for internals than externals. (See Figure 8.)

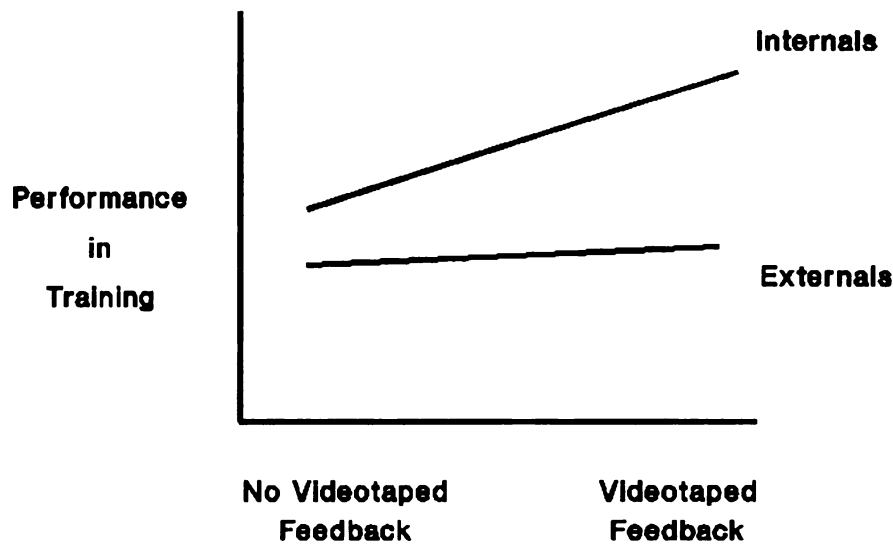


Figure 8. Predicted interaction between locus of control and videotaped feedback.

Field-dependence. As noted earlier, one of the main features of field-dependence-independence is the tendency to rely on either oneself or the external environment as referents for behavior. Individuals who rely on themselves are said to have field-independent cognitive styles while individuals who rely on external referents are said to have field-dependent cognitive styles. It was also noted that field-dependent individuals pay greater attention to social cues, have a greater need for information from external sources, have greater interpersonal competency, and benefit more from videotaped modeling than field-independent individuals (Witkin & Goodenough, 1981; Karp, 1977). Thus, it is suggested that field-dependent individuals will be more likely than field-independent individuals to benefit from information on the appropriateness of their social behavior (i.e., videotaped feedback). Therefore, it is predicted that:

H5: There will be two main effects and an interaction such that (1) field-dependent individuals will have higher performance than field-independent individuals, (2) individuals in the videotaped feedback treatment will have higher performance than those in the no-videotaped feedback treatment, and (3) the relationship between videotaped feedback and performance will be stronger for field-dependent individuals than field-independent individuals (See Figure 9.).

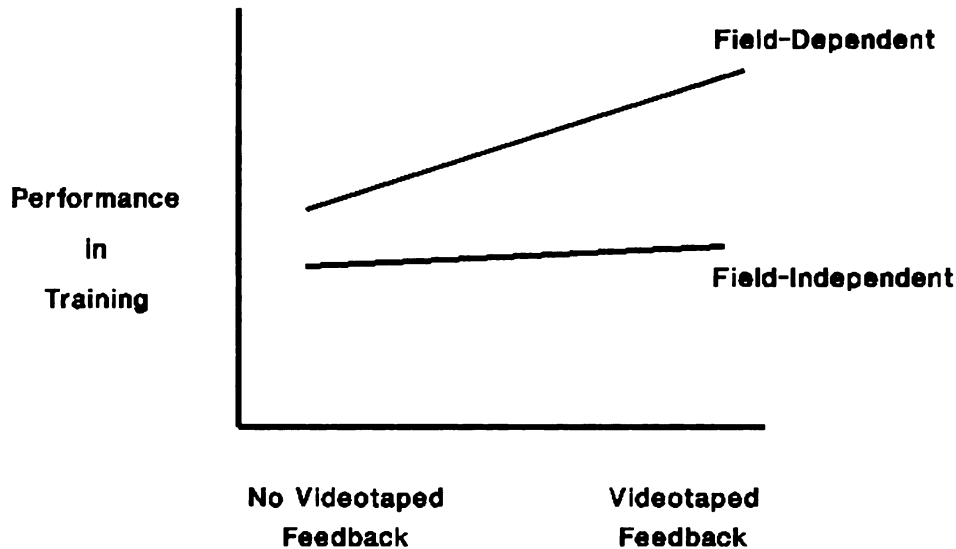


Figure 9. Predicted interaction between field-dependence and videotaped feedback.

An Examination of the Relationship Between General Mental Ability ("g"), Training Treatment, and Performance in Training

The hypothesis of general mental ability, in which human individual differences range widely, was first formally proposed by Sir Francis Galton (1869). L.L. Thurstone, a leading American psychometrician, spent many years trying to devise tests that he hoped would provide pure measures of a number of supposedly distinct abilities, such as verbal, numerical, spatial, reasoning, and memory. However, no matter how refined and homogeneous these various tests were made,

they always displayed substantial positive correlations with one another, indicating that all of these tests measured something in common--a general factor (Jensen, 1986). Galton's hypothesis of general mental ability was not subject to rigorous empirical scrutiny until Charles Spearman (1904, 1927) invented factor analysis. Factor analysis is essentially a class of mathematical techniques for converting a number of observed variables (e.g., test scores) into a usually much smaller number of hypothetical variables, called factors, which together represent all or most of the variance that any of the observed variables have in common. It is possible to factor analyze the correlations between three or more oblique (i.e., correlated) factors, thereby yielding one or more higher order factors. The highest order factor at the apex of the hierarchical factor structure is the general factor, which, following Spearman, is conventionally labeled *g* when the observed variables entering into the factor analysis are scored on a wide variety of tests of mental abilities. Factors below the general factor in the hierarchy are referred to as group factors, because their variance is shared by only certain groups of tests. Prominent group factors are verbal, spatial, and numerical ability.

Earlier, it was suggested that general ability would be unlikely to correlate differently with performance in alternative treatments since considerable research evidence shows that correlations between general ability and performance generalize across a wide range of tasks and situations (Jensen, 1986; Hunter, 1986; Thorndike, 1986). Thus, there is little reason to expect that modeling would interact with "*g*" to influence training outcomes. Instead, it is most likely that there will be a main effect for "*g*" such that individuals with higher ability perform better than lower ability individuals in both the modeling and no-modeling treatment conditions.

Based on the modeling research reviewed earlier (Kazdin, 1973, 1974a, 1975, 1976; Bandura & Menlove, 1968; Baldwin, 1987), one would also expect a main effect for modeling, such that all individuals (regardless of ability) perform better in the modeling condition than the no-modeling condition

Thus, it is predicted that:

- H6: There will be a main effect for ability and modeling such that high ability individuals perform better than low ability individuals in both the modeling and no-modeling treatments and individuals in the modeling treatment perform better than individuals in the no-modeling treatment (See Figure 10).

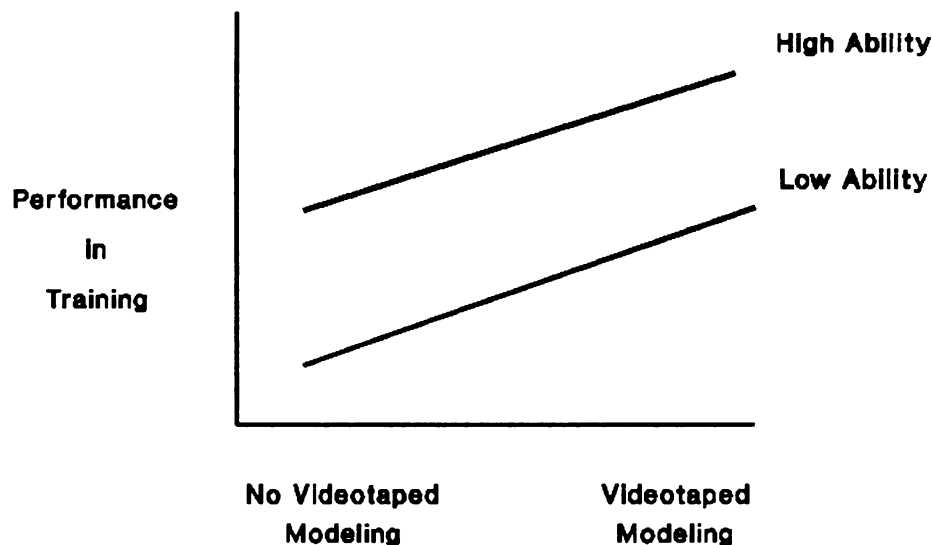


Figure 10. Predicted relationship between "g" and videotaped modeling.

As was suggested above with regard to modeling, there is little reason to expect that videotaped feedback will interact with "g" to influence training outcomes. Instead, it is most likely that there will be a main effect for "g" such that individuals with higher ability will perform better than lower ability individuals in both the videotaped feedback and no-videotaped feedback treatment conditions. In addition, based on previous research which has demonstrated that videotaped feedback has

a positive impact on learning and behavior change (Speas, 1979; Del Rey, 1978; Decker, 1983), it is predicted that:

- H7: There will be a main effect for ability and videotaped feedback such that high ability individuals perform better than low ability individuals in both the videotaped feedback and no-videotaped feedback treatments and individuals in the videotaped feedback treatment perform better than individuals in the no-videotaped feedback treatment (See Figure 11).

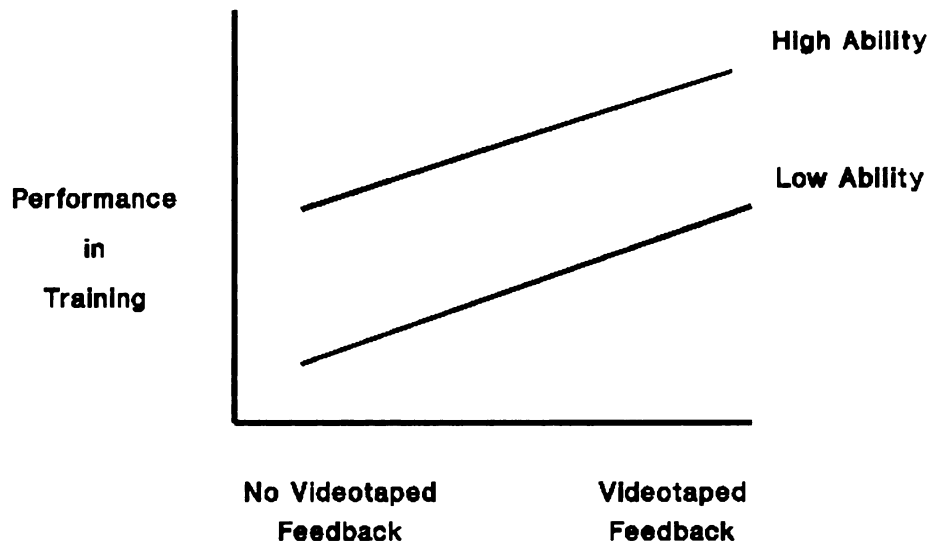


Figure 11. Predicted relationship between "g" and videotaped feedback.

An Examination of the Relationship between Locus of Control, Field-dependence, "g" Self-efficacy and Knowledge

Earlier it was noted that while locus of control and field-dependence are conceptually similar, research has demonstrated that the two constructs are usually unrelated (Bartelt, 1970; Deever, 1968; Fitz, 1971; Lefcourt et al, 1973; Lefcourt et al., 1975; Lefcourt & Telegdi, 1971; Roodin et al., 1974; Rotter, 1966; Shapson, 1973; Tobacyk et al., 1975; Zara, 1970). Field-dependence is a cognitive variable which describes an individual's way of processing information, whereas, locus of control is

an attitudinal or motivational variable which describes an individual's tendency to attribute the causes of outcomes to either internal or external factors. Given these differences it is predicted that these two variables, locus of control and field-dependence, will moderate the impact of training treatment on performance through their impact on different underlying processes. Specifically, field-dependence, a cognitive/information processing variable, is predicted to influence knowledge but not self-efficacy. That is, one's tendency to rely on oneself or the environment as referents for behavior is not expected to influence one's confidence in one's ability to perform a particular behavior (i.e., self-efficacy) but will effect how much information is learned (i.e., knowledge) from external sources (videotaped modeling and videotaped feedback). Locus of control, an attitudinal/motivational variable, is predicted to influence both self-efficacy and knowledge. This prediction is based on research which has shown that locus of control is a significant predictor of academic achievement (Brown & Strickland, 1972) and effort-performance expectancies (Lied & Pritchard, 1976). Therefore, in addition to the direct effects predicted earlier (i.e., it was predicted that locus of control and field-dependence would have a direct effect on performance in training, see hypotheses 2, 3, 4 and 5), it is also predicted that:

- H8: Internals will demonstrate greater knowledge and self-efficacy than externals, and
- H9: field-dependent individuals will exhibit greater knowledge than field-independent individuals.

Knowledge and self-efficacy may also be related. For example, it's possible that the more knowledge an individual has about how to perform a particular task,

the greater his or her confidence in his or her ability to perform the task. On the other hand, knowing what to do or how to behave in a particular situation is not the same as actually doing it. An individual may know what he or she should do in a particular situation but may still have a low level of confidence in his or her ability to actually carry out the required behavior.

General mental ability has been found to be a significant predictor of performance in school, college, the armed services training programs, and in hundreds of different occupations in business, industry, and the civil service (Jensen, 1986; Hunter, 1986). Thus, in addition to having a direct effect on performance in training, one would expect general mental ability to have a main effect on knowledge as well. Therefore it is predicted that:

H10: High ability individuals will demonstrate greater knowledge than low ability individuals.

It is also possible that "g" might influence self-confidence with high ability individuals having greater self-confidence than low ability individuals. However, self-efficacy is a task specific variable and general mental ability may not necessarily be related to one's confidence in one's ability to perform an interpersonal task.

Finally, it should be noted that previous research that has examined the relationship between locus of control and "g", and field-dependence and "g" has in most cases found little or no relationship. For example, Rotter (1966) reported that correlations between locus of control and measures of intelligence have ranged from .03 to -.22, while Witkin and Goodenough (1981) reported that mean correlations between field-dependence and vocabulary, and verbal comprehension were .04 and .14, respectively, and the relationship between field-dependence and spatial ability

ranged between .30 and .60. These authors concluded that some correlation between field-dependence and general mental ability should be expected given that most measures of intelligence contain measures of spatial ability.

Summary. The purpose of this study is to examine the main and interactive effects of videotaped modeling and videotaped feedback on performance in training and to examine whether "g", locus of control, and field-dependence moderate the effectiveness of these two techniques. It was predicted that videotaped modeling and videotaped feedback would have significant main effects on performance. In addition, it was predicted that there would be a significant interaction between the two treatments such that subjects in the no videotaped feedback/no videotaped modeling condition would have significantly lower performance than subjects in any other condition. With regard to the individual difference variables, it was suggested that both locus of control and field-dependence would moderate the impact of both videotaped modeling and videotaped feedback on performance, while "g" would not interact with either treatment. Finally, it was predicted that locus of control, field-dependence and "g" would all have significant main effects on knowledge and performance in training, while only locus of control would have a significant main effect on self-efficacy. A process model depicting these predicted relationships is shown in Figure 12.

While it is possible that locus of control and field-dependence may interact with both treatment variables, or, with each other and one or both of the training treatment variables, these three and four-way interactions are very difficult to predict. Therefore, it is the intent of this study to explore these relationships but no specific predictions will be made.

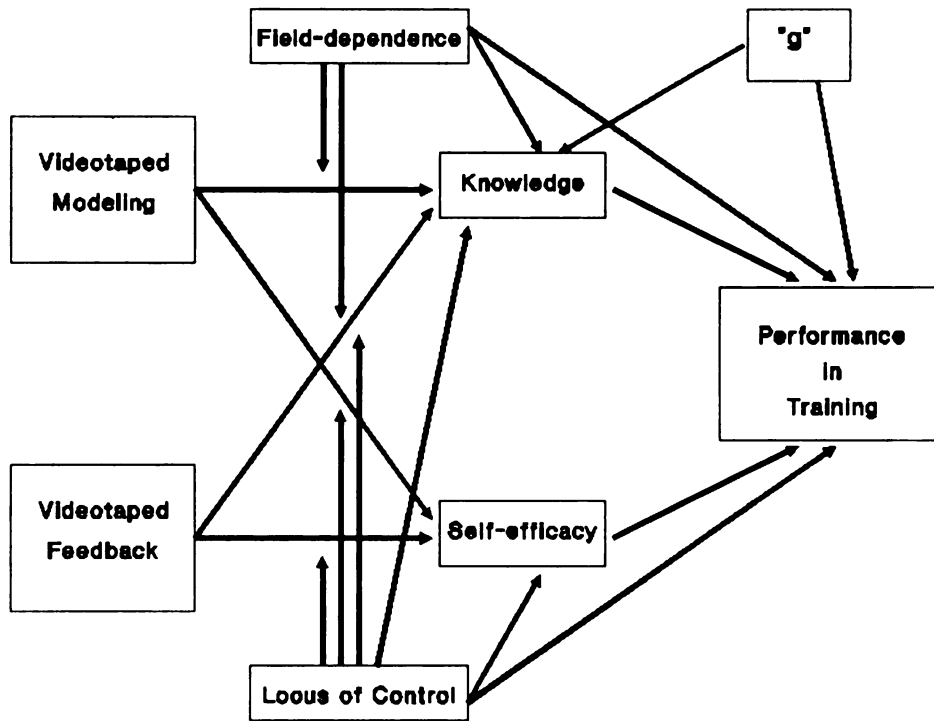


Figure 12. A process model of the relationship between videotaped modeling, videotaped feedback, locus of control, field-dependence, "g" and performance in training.

CHAPTER 2. METHOD

Overview

This study utilized a 2 x 2 between subjects design. The first factor, videotaped modeling consisted of two levels: with videotaped modeling and without videotaped modeling. The second factor, videotaped feedback also consisted of two levels: with videotaped feedback and without videotaped feedback. A summarization of these treatment conditions is shown in Figure 13. This study also examined the impact of three additional independent variables including locus of control, field-dependence and "g".

		Videotaped Modeling	
		With	Without
Videotaped Feedback	With	1	2
	Without	3	4

Figure 13. Training treatment conditions.

Subjects in all four training treatment groups received the same training content. The training content used in this research study was "How to give constructive negative feedback." This topic was chosen because previous research has found that there is a fairly low baseline rate of accurate behavior without prior training (Hymowitz, 1985). A pilot study of the subject population (college juniors and seniors, $N = 75$) revealed that most subjects reported moderate self-efficacy in their ability to give constructive negative feedback. Two measures of self-efficacy were used in the pilot study. In the first measure subjects rated how certain they were that they could give constructive negative feedback in 3 situations using a scale ranging from 0% (not certain at all) to 100% (absolutely certain). The mean for this measure was 70% ($sd = 7\%$). The second measure consisted of a 5 item scale similar to that used by Hollenbeck and Brief (1987). Responses were measured using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The mean for the second measure was 17.44 ($sd = 2.87$).

Subjects

Subjects in this study were 194 juniors and seniors enrolled in introductory management courses. All subjects received some minimal course credit for their participation. Thirteen subjects had to be eliminated due to missing data (inaudible videotapes). Of the remaining 181 subjects, forty-six percent of the subjects were females ($N = 84$) and fifty-four percent were males ($N = 97$). The mean age was 21.97 ($SD = 2.8$). Subjects were randomly assigned to one of the four treatment conditions. The final sample of 181 subjects were distributed across the four treatment conditions as follows: 42 subjects in condition 1, 46 in condition 2, 48 in condition 3, and 45 in condition 4.

In line with Cohen and Cohen's (1983) recommendations, an analysis was conducted to determine the appropriate sample size needed to detect significance. Since the purpose of this study was to examine interactions between personality and training treatment, the primary statistic of interest is sr^2 , or the percent of variance accounted for by the interaction term. In addition to estimating the effect size for the interaction term, it is necessary to estimate R^2 , or the amount of variance accounted for by the complete regression equation. Thus, a literature search was conducted to identify effect sizes for each of the major variables examined in this study. Koran, et al., (1971) reported an effect size of $sr^2 = .05$ for the interaction between field-dependence and videotaped modeling, thus, .05 will be used as an estimate for the interaction term in the present study. Baumgartel et al., (1984) reported a significant main effect for locus of control ($sr^2 = .05$) such that internals reported greater effort and success in applying new knowledge learned in a one week management training program. A meta analysis by Burke and Day (1986) reported an effect size of $sr^2 = .11$ for videotaped modeling. The average effect size for videotaped feedback in the three training studies reviewed earlier was $sr^2 = .14$ (Decker, 1983; Del Rey, 1978; Walter, 1975). Finally, based on the results of a recent training study by Karl, O'Leary and Martocchio (1990) it is estimated that pre-training feedback skills (as measured by one's performance in a pre-training role play) will account for approximately 25 percent of the variance in post-training feedback skills. The number of independent variables used in this power analysis was thirteen (1 = pre-training role play performance, 2 = videotaped modeling, 3 = videotaped feedback, 4 = videotaped feedback x videotaped modeling, 5 = locus of control, 6 = field-dependence, 7 = locus of control x videotaped modeling, 8 =

locus of control x videotaped feedback, 9 = field-dependence x videotaped modeling, 10 = field-dependence x videotaped feedback, 11 = self-efficacy, 12 = knowledge, 13 = "g"). In sum, assuming that the increment in explained variance for the interaction term is .05, in a complete regression equation that explains a large amount of variance ($R^2 = .50$, a conservative estimate based on the effect sizes reported above), the resulting sample size of 181 subjects provides power of .76 at an alpha level of .05 to test the major hypotheses.

Training Treatment Conditions

All four training treatment groups received training on how to give constructive negative feedback. The training lasted approximately 1 hour for all groups. The four treatment conditions to used were: (1) videotaped modeling with videotaped feedback, (2) videotaped modeling without videotaped feedback, (3) no videotaped modeling with videotaped feedback, (4) no videotaped modeling without videotaped feedback. Each of these is described below under the following headings: videotaped modeling, no videotaped modeling, videotaped feedback, and no videotaped feedback.

Videotaped modeling. The "with videotaped modeling" treatment conditions (Conditions 1 and 3) were conducted in a manner similar to the videotaped modeling component of a typical behavior videotaped modeling program: (a) a videotaped introduction of the topic by the trainer, (b) presentation and discussion of the underlying principles (i.e., learning points, See Appendix A.), and (c) presentation of the filmed models.

The videotaped modeling stimuli used in this study consisted of videotaped role plays of a supervisor giving feedback to a subordinate. Two different scenarios

were used. In the first scenario, Doug, the supervisor, talks with Jon, the subordinate about a cost overrun problem on a recent project. In the second scenario, Jim, the supervisor, talks with Darrell, the subordinate, about a chauvinistic comment he made to a female coworker. Each scenario has two forms: a good example of constructive negative feedback behavior and a poor example of negative feedback behavior. The scripts used in these scenarios can be found in Appendix B.

No Videotaped modeling. In the "without videotaped modeling" treatment conditions (Conditions 2 and 4), subjects received a videotaped introduction of the topic by the trainer and a presentation and discussion of the underlying principles (learning points). To ensure that the "without videotaped modeling" conditions were equal in length to the "with videotaped modeling" conditions, subjects in the "without videotaped modeling" conditions were asked to study the learning points for approximately 10 minutes.

Videotaped Feedback. In the "with videotaped feedback" conditions (Conditions 1 and 2), subjects practiced applying the learning points in a role play with a confederate. All role plays were videotaped and each subject viewed his or her own videotape at the conclusion of the role play. Subjects were also asked to rate their own performance in the role play using a 14-item behavioral rating scale. A description of the role play is included in Appendix C.

No Videotaped Feedback. In the "without videotaped feedback" conditions (Conditions 3 and 4), subjects practiced applying the learning points in a role play with a confederate. Subjects were also asked to rate their own performance in the role play using a 14-item behavioral rating scale. To ensure that the "without

videotaped feedback" conditions was equal in length to the "with videotaped feedback" conditions, subjects in the "without videotaped feedback" conditions were asked to study the learning points for approximately 5 minutes.

Measures (See Appendix D)

Seven variables were measured in this study: (a) background and demographics, (b) "g", (c) locus of control, (d) field-dependence, (e) performance, (f) knowledge of learning points, and (g) self-efficacy. Each of these is described below under the following subheadings: individual difference measures, dependent measure, and mediating variables.

Individual Difference Measures

Background and Demographics. Age, sex, class level, supervisory experience, and experience in giving feedback constituted the demographic data.

"g". Generally mental ability was measured using the Wonderlic Personnel Test. The Wonderlic Personnel is a 12 minute test consisting of 50 items. The Kuder Richardson KR-20 reported in the manual (Wonderlic, 1973) is .88.

Locus of Control. Locus of control was measured using Rotter's (1966) Internal-external Locus of Control Scale. The scale consists of 29 question pairs (6 items are fillers), using a force-choice format. One point is given for each external statement selected. Scores can range from zero (most internal) to 23 (most external). Rotter (1966) obtained an internal consistency coefficient (Kuder-Richardson) of .70 from a sample of 400 college students.

Field-dependence. Field-dependence was measured using the short form of the Group Embedded Figures Test (GEFT)(Jackson, 1956). The short form consists of 12 patterns in which are "embedded" specific figures which the individual must

find and trace. There is a 3-minute time limit for each pattern. An individual's total score is computed by summing the total seconds required to locate all 12 figures. Jackson (1956) found that the correlation between the 12-item scale used in this study and the original 24-item scale (Witkin, Dyk, Faterson, Goodenough, & Karp, 1962) correlated .96 for men and .97 for women. Karp (1977) reported that the original 24-item GEFT has shown consistently high correlations with other measures of field-dependence. Witkin et al. (1962) reported a test-retest reliability of .89.

Dependent Measure

Performance. The performance measure consisted of a role play in which each subject had to play the role of a supervisor who was required to give negative feedback to a subordinate (i.e., a confederate who was trained to follow a script). All role plays were videotaped and rated by two trained raters using a 14-item behavioral rating scale. Specifically, both raters were given a one hour training session that included a discussion of the learning points, a discussion of the behaviors exhibited in the modeling tapes, and a detailed description of key behaviors to look for. Raters were blind to treatments. The behavioral rating scale consisted of items derived from the learning points. For example, sample items included: "stated the purpose of the meeting early in the session," "avoided general evaluative statements," and asked for and listened openly to the employee's reasons for the behavior." Responses were measured on a 5-point scale ranging from outstanding use of the skill (5) to very poor use of the skill (1).

Mediating Variables

While the major purpose of this study was to examine the interaction between individual differences and the videotaped modeling and videotaped feedback

treatments, this study also examined the process by which videotaped modeling and videotaped feedback influence performance in training. According to the theoretical analysis discussed earlier, videotaped modeling and videotaped feedback influence performance indirectly through their impact on self-efficacy and task-related knowledge. Therefore, a measure of self-efficacy and knowledge was also administered. Each of these measures is described below.

Knowledge. The knowledge measure consisted of three paper and pencil tests. The first test consisted of 10 items. For each item, subjects indicated whether they felt the item was an appropriate or inappropriate example of constructive feedback behavior. In addition, they were asked to explain why they felt a particular item was inappropriate. On the second test subjects were asked to write how they would handle a particular feedback situation, including: what they would say and in what order they would say it. On the third test subjects were asked to list as many of the learning points as they could remember. All tests were scored by the researcher using the keys found in Appendix D.

Self-efficacy. Self-efficacy was measured using two formats. Format A was based on Bandura's (1982) conceptualization of self-efficacy and consisted of five scenarios involving a supervisor who must give negative feedback to a subordinate. For each scenario, subjects were asked to indicate: (a) whether they feel they can give the feedback described in the scenario in such a way that it would increase the subordinate's motivation and desire to improve (i.e., magnitude, measured as the total number of yes's), and (b) how certain they were that they could give the feedback (i.e., strength, measured as the sum of all certainty values). The certainty scale ranged from 0 to 100. Verbal descriptors occurred at the following points: 0

= not certain at all, 25 = slightly certain, 50 = moderately certain, 75 = highly certain, and 100 = absolutely certain. Since the Bandura-type measure of self-efficacy tends to have a low internal consistency reliability (e.g., Taylor et al., 1984 reported an internal consistency reliability of $\alpha = .60$) a second measure was developed. Format B consisted of a 7-item scale similar to that used by Hollenbeck and Brief (1987). Responses were measured using a 5-point Likert scale ranging from strongly disagree to strongly agree.

Procedure

Subjects were asked to sign up for one of thirty-six training sessions with six subjects per session. Training treatments were randomly distributed across sessions. Due to imperfect attendance, an additional eight sessions were added, resulting in a total of 44 training sessions. Subjects were trained in small groups of 2 to 6 people each. The training sessions and the administration of the pre and post measures lasted approximately 2 hours and 45 minutes.

A total of nine confederates participated in this study. Each confederate was given a two hour training session which included a discussion of the training content, a discussion of appropriate and inappropriate role play behaviors and several practice role plays in which confederates paired off with one another to practice each of the three role plays used in the training. All practice role plays were monitored by the researcher to ensure that each confederate was carrying out his or her role as intended. Confederates were also taught how to administer the Embedded Figures Test.

All conditions were conducted as follows. First, subjects in all conditions were given 60 minutes to complete the pre-training paper and pencil measures (i.e.,

demographic measure, locus of control, field-dependence, Wonderlic). Next they were given 5 minutes to review the pre-training behavioral role play and 10 minutes to perform the role play with a trained confederates. All role plays were videotaped. Next subjects participated in their assigned treatment conditions. At the conclusion of the training session, subjects completed the post training paper and pencil measures (i.e., knowledge and self-efficacy A & B). Finally, subjects were given 5 minutes to review the post training behavioral role play, and 10 minutes to perform the role play with a trained confederate. All role plays were videotaped. A summarization of this procedure is included in Table 1.

Table 1
Summarization of Procedure

PRE-TRAINING MEASURES

1. Paper and Pencil Measures (60 minutes)
 - a. Demographics
 - b. Locus of control
 - c. Field-dependence
 - d. Wonderlic
2. Pre-training Behavioral Role Play (15 minutes)

TRAINING TREATMENT (1 hour)

1. Introduction to topic
2. Presentation and discussion of learning points
3. Videotaped modeling (Conditions 1 and 3 only)
4. Practice role play
5. Videotaped feedback (Conditions 1 and 2 only)
6. Self-ratings

POST TRAINING MEASURES

1. Paper and Pencil Measures (15 minutes)
 - a. Knowledge
 - b. Self-efficacy
 2. Post training Behavioral Role Play (15 minutes)
-

CHAPTER 3. RESULTS

Scale Reliabilities

Individual Difference Variables. The internal consistency reliabilities for the individual difference measures were as follows: "g" ($\alpha = .68$), locus of control ($\alpha = .74$), field-dependence ($\alpha = .84$).

Mediating Variables. Since Bandura's two types of self-efficacy items (strength and magnitude) were highly correlated ($r = .66, p < .001$), all ten items were standardized to eliminate differences in response format and summed to form a single measure of self-efficacy ($\alpha = .71$). Cronbach's alpha for the 7-item Likert-type measure of self-efficacy was ($\alpha = .83$). Since the Bandura-type measure of self-efficacy is a more direct test of Bandura's self-efficacy theory and since Cronbach's alpha for the Bandura-type measure was sufficiently high, the second measure (i.e., format B) was dropped from further analyses. Internal consistency reliabilities for the three knowledge tests were .51 for test A, .57 for test B, and .58 for test C. The intercorrelations between tests were as follows: $r_{AB} = .03$, $r_{BC} = .12$, and $r_{AC} = .23$. Due to the extremely low scores found on test B (the average number of correct answers was 4.81 (sd = 1.96) out of 11), the greater degree of subjectivity involved in grading this test, and the fact that performance on test B was uncorrelated with general mental ability ($r = -.03, ns$), it was decided to eliminate test B from further analyses. Since test A and C were related to each other ($r_{AC} = .23, p < .001$) and

to general mental ability ($r_{\text{Test A, "g"}} = .10, p < .10, r_{\text{Test C, "g"}} = .28, p < .001$) test A and C were combined to form one single measure of knowledge ($\alpha = .65$).

Dependent Measure. Inter-rater reliability for the rating of pre and post training role play performance were ($r = .84$) and ($r = .71$), respectively. The average of the two rater's ratings were used as the final measure of pre- and post training role play performance. Cronbach's alpha for these measures were .72 (pre-training) and .77 (post training).

Comparison of Treatment Groups and Confederates.

The four treatment groups did not differ on any of the independent variables including locus of control ($F = .86, ns$), "g" ($F = .24, ns$), and field-dependence ($F = 1.28, ns$), nor on any of the following demographic variables: sex ($F = 1.74, ns$), age ($F = .20, ns$), supervisor experience ($F = 1.31, ns$), negative feedback experience ($F = .49, ns$), and grade point average ($F = 1.02, ns$). A significant difference between conditions was found for class level ($F = 7.81, p = .001$), such that conditions 2 and 3 had significantly more seniors than condition 1. Since class level was not significantly related to any of the independent or dependent variables examined in this study, with the exception of "g" ($r = -.14, p < .05$), this difference was not considered problematic and will not be considered in subsequent analyses.

A comparison of means across the nine confederates was conducted to determine if the confederate had any significant impact on role play performance. An analysis of variance revealed no significant difference among confederates for either the pre-training role play ($F = 1.75, ns$) or the post training role play ($F = 1.87, ns$).

Preliminary Analyses

Means, standard deviations, internal consistency reliabilities and intercorrelations among all variables are shown in Table 2. Correlations among the individual difference variables were significant but low. Specifically, the correlation between "g" and locus of control was ($r = -.18, p < .01$) indicating that internals tend to have greater intelligence than externals. The correlation between field-dependence and "g" was ($r = -.18, p < .01$) indicating that field-independent individuals tend to have greater intelligence than field-dependent individuals. No significant relationship was found between locus of control and field-dependence ($r = .12, ns$), indicating that internals are not more likely to be field-independent than dependent, nor are externals more likely to be field-dependent than field-independent.

Table 2
Means, standard deviations, internal consistency reliabilities^a and intercorrelations among all variables.

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Videotaped Modeling ^b	_____	_____	_____								
2. Videotaped Feedback ^b	_____	_____	_____	_____							
3. "g"	23.85	4.12	-.05	.03	(.68)						
4. Locus of Control	9.45	3.90	-.02	.10	-.18**	(.74)					
5. Field-dependence	502.65	280.08	.14*	-.03	-.18***	.12	(.84)				
6. Self-efficacy (A)	0.00	5.55	.01	.08	.16*	-.02	-.07	(.71)			
7. Knowledge	28.94	3.51	-.06	.05	.20**	-.04	-.17*	.20**	(.65)		
8. Pre-training role play performance	41.55	6.11	-.16*	.09	.01	.00	-.04	.17*	.06	(.72)	
9. Post training role play performance	54.34	6.63	.25***	.07	.14*	.05	-.04	.33***	.32***	.27***	(.77)

^aInternal consistency reliabilities are in the diagonal.

^bVideotaped modeling and videotaped feedback are dichotomous variables coded 0 = without, 1 = with.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Hypothesis 1

Hypothesis 1 predicted a main effect for videotaped modeling and videotaped feedback and a significant interaction such that subjects in the combined treatment condition would have significantly greater performance than subjects in any other condition and subjects in the no videotaped feedback/no videotaped modeling (control) condition would have significantly lower performance than subjects in any other condition. This hypothesis was tested using hierarchical moderated regression analysis in which post training role play performance was regressed on: (1) pre-training role play performance (PRE-TR PERF), (2) videotaped modeling (VM), (3) videotaped feedback (VF), and (4) the interaction between videotaped modeling and videotaped feedback (VMVF). The results are shown in Table 3.

Table 3
Regression Results for the Impact of Videotaped Modeling and Videotaped Feedback on Post Training Role Play Performance.

Step	Variable	R	R ²	Δ R ²
1.	Pre-training Role Play Performance	.274	.075	.075***
2.	Videotaped Modeling	.406	.165	.090***
3.	Videotaped Feedback	.410	.168	.003
4.	Videotaped Modeling x Videotaped Feedback	.437	.191	.023*

* $p < .05$.

*** $p < .001$.

As predicted, videotaped modeling had a significant impact on post training role play performance such that those subjects who received videotaped modeling showed significantly greater improvements in role play performance than those who did not receive videotaped modeling. The interaction between videotaped feedback

and videotaped modeling was also significant ($\Delta R^2 = .02, p < .05$). No main effect was found for videotaped feedback.¹ Thus, hypothesis 1 was only partially supported. The interaction between videotaped modeling and videotaped feedback is shown in Figure 14.

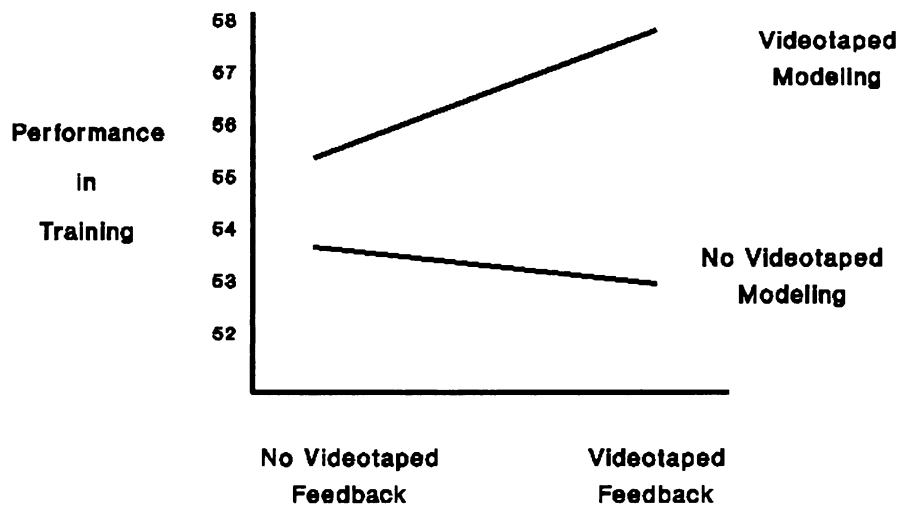


Figure 14. Interaction between videotaped modeling and videotaped feedback. (Regression equation: $\hat{Y} = .36 (\text{PRE-TR PERF}) + 2.0 (\text{VM}) - 1.26 (\text{VF}) + 3.99 (\text{VMVF}) + 38.1$)

¹One possible explanation as to why videotaped feedback had no main effect on post training role play performance is that videotaped feedback may have had a negative impact on the performance of some subjects and a positive impact on the performance of others. Observing oneself perform poorly at a task may lower self-efficacy and subsequent performance. On the other hand, observing oneself perform poorly may create self-dissatisfactions that serve as motivational inducements for enhanced effort. An alternative explanation as to why videotaped feedback had no main effect is that subjects were not able to make accurate evaluations of their own performance. A post hoc analysis examining these alternative explanations is presented in Appendix E.

Post hoc comparisons using the Fisher test (Keppel, 1982) revealed that subjects in the combined treatment condition including both modeling and videotaped feedback had greater post training performance than either treatment alone. However, contrary to what was predicted, subjects in the control group did not perform significantly worse than all other groups. Means, standard deviations and post hoc comparisons by experimental condition for pre-training role play performance, post training performance and performance change are shown in Table 4.

Table 4
Means, Standard Deviations and Post Hoc Comparisons ^a by Experimental Condition

Condition	Pre-Training		Post Training		Performance Change	
	M	SD	M	SD	M	SD
1. Control	41.45 ^a	4.91	52.95 ^a	5.61	11.30 ^a	6.60
2. Videotaped Modeling	40.59 ^a	5.30	54.65 ^a	7.54	14.07 ^b	7.87
3. Videotaped Feedback	43.48 ^a	6.82	52.42 ^a	6.48	8.94 ^a	6.35
4. Videotaped Modeling + Videotaped Feedback	40.58 ^a	6.77	57.38 ^b	5.65	16.80 ^c	7.66

^a Comparisons among the 4 conditions were tested using the Fisher Test at the .05 level. Means sharing common subscripts are not significantly different.

Hypothesis 2

Hypothesis 2 predicted a main effect for locus of control and videotaped modeling and a significant interaction such that the relationship between modeling and performance would be greater for internals than externals. This hypothesis was tested using hierarchical moderated regression analysis in which post training role play performance was regressed on: (1) pre-training role play performance, (2)

videotaped modeling, (3) locus of control (LOC), and (4) the interaction between videotaped modeling and locus of control (VMLOC). The results are shown in Table 5.

Table 5
Regression Results for the Impact of Videotaped Modeling and Locus of Control on Post Training Role Play Performance

Step	Variable	R	R ²	ΔR^2
1.	Pre-training Role Play Performance	.271	.073	.075***
2.	Videotaped Modeling	.397	.157	.084***
3.	Locus of Control	.400	.160	.003
4.	Videotaped Modeling x Locus of Control	.424	.180	.020*

* $p < .05$.

*** $p < .001$.

As predicted, videotaped modeling had a significant impact on post training role play performance such that those subjects who received videotaped modeling showed significantly greater improvements in role play performance than those who did not receive videotaped modeling. No main effect was found for locus of control. However, the interaction between videotaped modeling and locus of control explained a significant amount of variance in performance ($\Delta R^2 = .02$, $p < .05$). This interaction is displayed in Figure 15. Contrary to what was predicted the relationship between videotaped modeling and performance was greater for externals than internals.

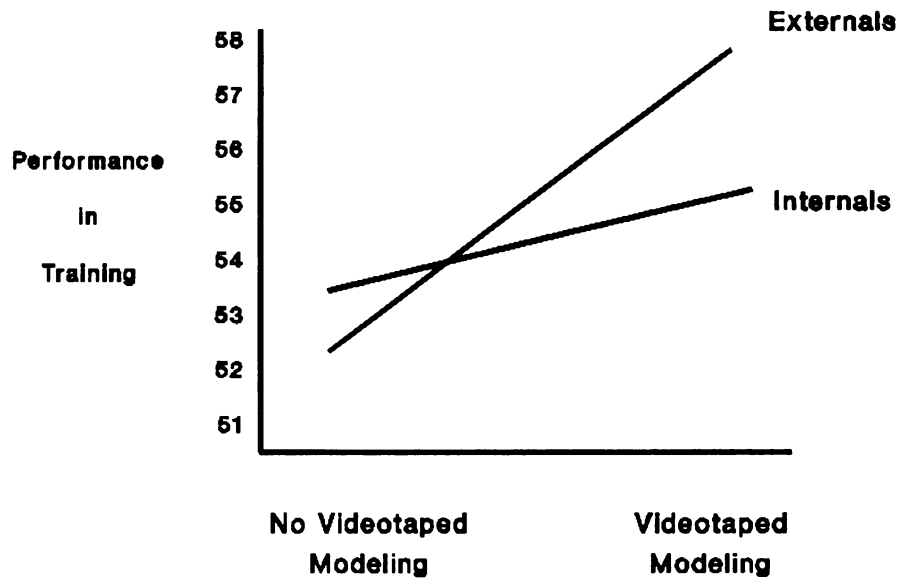


Figure 15. Interaction between videotaped modeling and locus of control. (Regression equation: $\hat{Y} = .35 (\text{PRE-TR PERF}) - .58 (\text{VM}) - .13 (\text{LOC}) + .47 (\text{VMLOC}) + 39.0$.)

Hypothesis 3

Hypothesis 3 predicted a main effect for field-dependence and videotaped modeling and a significant interaction such that the relationship between modeling and performance would be greater for field-dependent individuals than field-independent individuals. This hypothesis was tested using hierarchical moderated regression analysis in which post training role play performance was regressed on: (1) pre-training role play performance, (2) videotaped modeling, (3) field-dependence, and (4) the interaction between videotaped modeling and field-dependence. As predicted, videotaped modeling had a significant positive impact on post training role play performance, however no significant effects were found for

field-dependence or the interaction between field-dependence and videotaped modeling. These results are shown in Table 6.

Table 6
Regression Results for the Impact of Videotaped Modeling and Field-dependence on Post Training Role Play Performance

Step	Variable	R	R ²	Δ R ²
1.	Pre-training Role Play Performance	.274	.075	.075***
2.	Videotaped Modeling	.406	.165	.090***
3.	Field-dependence	.412	.170	.005
4.	Videotaped Modeling x Field-dependence	.413	.170	.000

*** $p < .001$.

Hypothesis 4

Hypothesis 4 predicted a main effect for locus of control and videotaped feedback and a significant interaction such that the relationship between videotaped feedback and performance would be greater for internals than externals. This hypothesis was tested using hierarchical moderated regression analysis in which post training role play performance was regressed on: (1) pre-training role play performance, (2) videotaped feedback, (3) locus of control, and (4) the interaction between videotaped feedback and locus of control. Contrary to what was predicted, no significant effects were found for either videotaped feedback, locus of control or the interaction between videotaped feedback and locus of control. These results are shown in Table 7.

Table 7

Regression Results for the Impact of Videotaped Feedback and Locus of Control on Post Training Performance

Step	Variable	R	R ²	Δ R ²
1.	Pre-training Role Play Performance	.271	.073	.073***
2.	Videotaped Feedback	.275	.076	.003
3.	Locus of Control	.278	.078	.002
4.	Videotaped Feedback x Locus of Control	.284	.081	.003

*** $p < .001$.

Hypothesis 5

Hypothesis 5 predicted a main effect for field-dependence and videotaped feedback and a significant interaction such that the relationship between videotaped feedback and performance would be greater for field-dependent individuals than field-independent individuals. This hypothesis was tested using hierarchical moderated regression analysis in which post training role play performance was regressed on: (1) pre-training role play performance, (2) videotaped feedback, (3) field-dependence, and (4) the interaction between videotaped feedback and field-dependence. Contrary to what was predicted, no significant effects were found for either videotaped feedback, field-dependence or the interaction between videotaped feedback and field-dependence. These results are shown in Table 8.

Table 8
Regression Results for the Impact of Videotaped Feedback and Field-dependence on Post Training Role Play Performance

Step	Variable	R	R ²	Δ R ²
1.	Pre-training Role Play Performance	.274	.075	.075***
2.	Videotaped Feedback	.278	.077	.002
3.	Field-dependence	.280	.078	.001
4.	Videotaped Feedback x Field-dependence	.289	.083	.005

*** $p < .001$.

Hypothesis 6

Hypothesis 6 predicted a main effect for ability and videotaped modeling and no interaction. The results of a hierarchical moderated regression analysis in which post training role play performance was regressed on: (1) pre-training role play performance, (2) videotaped modeling, (3) "g", and (4) the interaction between videotaped modeling and "g" is shown in Table 9. As predicted, both videotaped modeling and "g" had a significant impact on post training role play performance, and the interaction between "g" and videotaped modeling was not significant.

Table 9
Regression Results for the Impact of Videotaped Modeling and "g" on Post Training Role Play Performance

Step	Variable	R	R ²	ΔR^2
1.	Pre-training Role Play Performance	.273	.074	.074***
2.	Videotaped Modeling	.404	.164	.110***
3.	"g"	.433	.188	.024*
4.	Videotaped Modeling x "g"	.434	.188	.000

* $p < .05$.

*** $p < .001$.

Hypothesis 7

Hypothesis 7 predicted a main effect for ability and videotaped feedback and no interaction. The results of a hierarchical moderated regression analysis in which post training role play performance was regressed on: (1) pre-training role play performance, (2) videotaped feedback, (3) "g", and (4) the interaction between videotaped feedback and "g" is shown in Table 10. As predicted, the interaction between "g" and videotaped feedback was not significant. However, contrary to what was predicted, no significant effect was found for videotaped feedback, and the main effect for "g" was only marginally significant ($\Delta R^2 = .018$, $p = .07$).

Table 10
Regression Results for the Impact of Videotaped Feedback and "g" on Post Training Role Play Performance

Step	Variable	R	R ²	ΔR^2
1.	Pre-training Role Play Performance	.274	.075	.075***
2.	Videotaped Feedback	.278	.077	.002
3.	"g"	.308	.095	.018
4.	Videotaped Feedback x "g"	.325	.106	.011

* $p < .05$.
 *** $p < .001$.

Hypotheses 8, 9 and 10

Hypothesis 8 predicted a main effect for locus of control such that internals would demonstrate greater self-efficacy and greater knowledge than externals. Neither the correlation between locus of control and self-efficacy ($r = -.02$, *ns*), nor the correlation between locus of control and knowledge were significant ($r = -.03$, *ns*), thus hypothesis 8 was not supported. Hypothesis 9 predicted a main effect field-dependence such that field-dependent individuals would demonstrate greater knowledge than field-independent individuals. The correlation between field-dependence and knowledge was significant but in the opposite direction ($r = -.19$, $p < .01$). Hypothesis 10 predicted a main effect for "g" such that high ability individuals would demonstrate greater knowledge than low ability individuals. The correlation between "g" and knowledge was significant ($r = .25$, $p < .001$) thus, hypothesis 10 was supported.

Process Model

In addition to testing the ten hypotheses discussed earlier, this study also examined the underlying process by which videotaped modeling and videotaped feedback interact with individual differences. It was suggested that locus of control and field-dependence would moderate the impact of training treatment on performance through their impact on self-efficacy and knowledge. More specifically, field-dependence, a cognitive/information processing variable, was predicted to influence knowledge but not self-efficacy, and locus of control, an attitudinal/motivational variable, was predicted to influence both self-efficacy and knowledge. An analysis of these underlying processes was conducted using two hierarchical moderated regression equations. In the first equation, knowledge was regressed on (1) videotaped modeling, (2) videotaped feedback, (3) the interaction between videotaped modeling and videotaped feedback, (4) field-dependence, (5) locus of control, (6) the interaction between field-dependence and videotaped modeling, (7) the interaction between field-dependence and videotaped feedback, (8) the interaction between locus of control and videotaped modeling, and (9) the interaction between locus of control and videotaped feedback. In the second equation, self-efficacy was regressed on (1) videotaped modeling, (2) videotaped feedback, (3) the interaction between videotaped modeling and videotaped feedback, (4) locus of control, (5) the interaction between locus of control and videotaped modeling, and (6) the interaction between locus of control and videotaped feedback. These results are shown in Table 11 and Table 12.

Table 11

Regression Results for the Impact of Videotaped Modeling, Videotaped Feedback and Field-dependence on Post Training Knowledge

Step	Variable	R	R ²	ΔR^2
1.	Videotaped Modeling	.068	.005	.005
2.	Videotaped Feedback	.078	.006	.001
3.	Videotaped Modeling x Videotaped Feedback	.191	.036	.030*
4.	Field-dependence	.252	.064	.028*
5.	Locus of Control	.255	.065	.001
6.	Field-dependence x Videotaped Modeling	.263	.069	.004
7.	Field-dependence x Videotaped Feedback	.265	.070	.001
8.	Locus of Control x Videotaped Modeling	.266	.071	.001
9.	Locus of Control x Videotaped Feedback	.277	.077	.006

* $p < .05$.

Table 12

Regression Results for the Impact of Videotaped Modeling, Videotaped Feedback and Locus of Control on Post Training Self-efficacy.

Step	Variable	R	R ²	ΔR^2
1.	Videotaped Modeling	.014	.000	.000
2.	Videotaped Feedback	.087	.008	.008
3.	Videotaped Modeling x Videotaped Feedback	.142	.020	.012
4.	Locus of Control	.148	.022	.002
5.	Locus of Control x Videotaped Modeling	.166	.028	.006
6.	Locus of Control x Videotaped Feedback	.239	.057	.029*

* $p < .05$.

** $p < .01$.

Neither videotaped modeling nor videotaped feedback had a significant effect on post training knowledge. There was a significant interaction between videotaped modeling and videotaped feedback and a main effect for field-dependence. However, contrary to what was predicted, field-independent subjects exhibited greater knowledge than field-dependent subjects and subjects in the combined treatment group exhibited significantly lower post training knowledge than subjects in any other group. These results are shown in Figure 16.

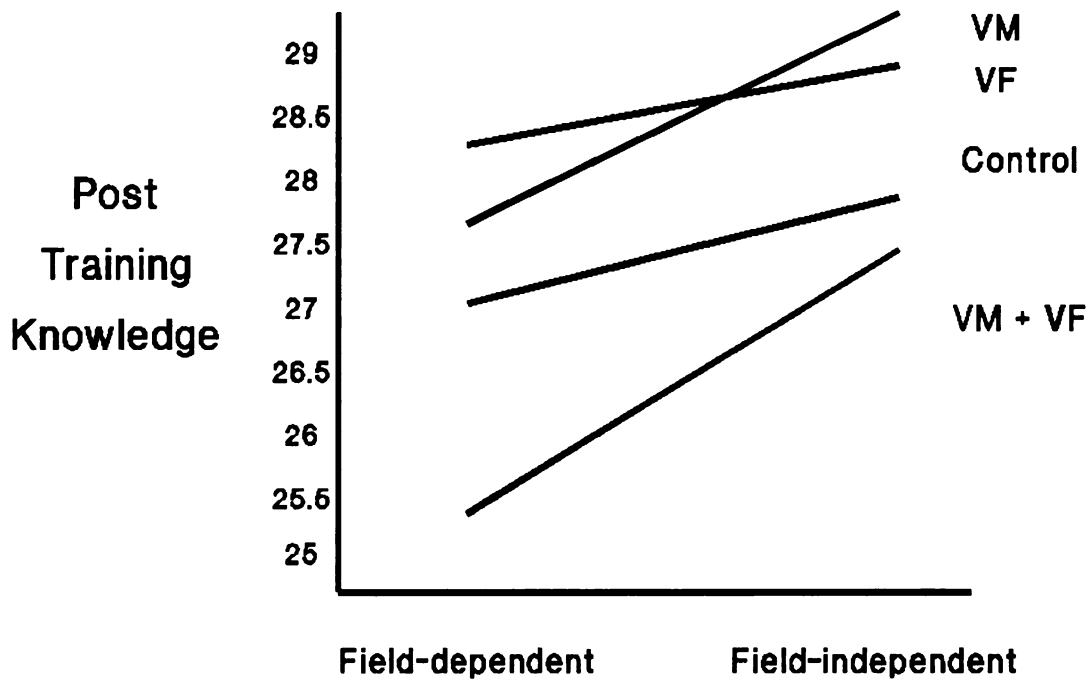


Figure 16. Main effect and interaction for post training knowledge. (Regression equation: $\hat{Y} = 2.2 \text{ (VM)} + 2.36 \text{ (VF)} - 2.57 \text{ (VMVF)} - .001 \text{ (FD)} + .06 \text{ (LOC)} - .0015 \text{ (VMFD)} + .001 \text{ (VFFD)} - .05 \text{ (VMLC)} - .14 \text{ (VFLC)} + 27.47$.)

With regard to the regression result for post training self-efficacy, neither videotaped modeling, videotaped feedback, nor the interaction between videotaped modeling and videotaped feedback had a significant impact on post training self-efficacy. In addition, the interaction between locus of control and videotaped modeling was not significant. The increase in R^2 for the interaction between locus of control and videotaped feedback was significant ($\Delta R^2 = .029, p < .05$), however, the R^2 for the complete regression equation was not ($F = 1.65, ns$).

A final set of analyses was conducted to examine the impact of the mediating variables on the dependent variable and, to examine the impact of the independent variables on the dependent variables controlling for the mediating variables. In the first equation post training role play performance was regressed on knowledge and self-efficacy controlling for pre-training role play performance. In the second equation post training role play performance was regressed on: (1) pre-training role play performance, (2) knowledge, (3) self-efficacy, (4) videotaped modeling, (5) videotaped feedback, (6) the interaction between videotaped modeling and videotaped feedback, (7) locus of control, (8) field-dependence, (9) "g", (10) the interaction between videotaped modeling and locus of control, (11) the interaction between videotaped feedback and locus of control, (12) the interaction between videotaped modeling and field-dependence, and (13) the interaction between videotaped feedback and field-dependence. The results of these analyses are shown in Table 13 and Table 14.

Table 13
Regression Results for the Impact of Knowledge and Self-efficacy on Post Training Role Play Performance.

Step	Variable	R	R ²	ΔR^2
1.	Pre-training Role Play Performance	.231	.053	.053**
2.	Knowledge	.383	.146	.085***
3.	Self-efficacy	.486	.236	.090***

* $p < .05$.

** $p < .01$.

*** $p < .001$.

The results shown in Table 13 indicate that both knowledge and self-efficacy explained a significant amount of variance in post-training role play performance. However, further analysis revealed that videotaped modeling, the interaction between videotaped modeling and videotaped feedback, and the interaction between videotaped modeling and locus of control explained a significant amount of variance in post training role play performance over and above that explained by post training knowledge and post training self-efficacy. Thus, knowledge and self-efficacy do not appear to mediate the relationship between training treatment and post training performance. See Table 14.

Table 14
Regression Results for Process Model

Step	Variable	R	R ²	ΔR^2
1.	Pre-training role play performance	.229	.052	.052***
2.	Knowledge	.430	.185	.133***
3.	Self-efficacy	.494	.244	.059***
4.	Videotaped Modeling	.566	.321	.077***
5.	Videotaped Feedback	.570	.325	.004
6.	Videotaped Modeling x Videotaped Feedback	.608	.370	.045***
7.	Locus of Control	.610	.372	.002
8.	Field-dependence	.611	.373	.001
9.	"g"	.612	.374	.001
10.	Locus of Control x Videotaped Modeling	.640	.410	.036**
11.	Locus of Control x Videotaped Feedback	.640	.410	.000
12.	Field-dependence x Videotaped Modeling	.642	.412	.002
13.	Field-dependence x Videotaped Feedback	.642	.412	.000

** $p < .01$.

*** $p < .001$.

CHAPTER 4. DISCUSSION

Overview

The purpose of this research was to examine the separate and combined effects of videotaped modeling and videotaped feedback on performance in training and to examine possible individual difference variables that may influence the effectiveness of these two techniques. In addition, this research presented and tested a theoretical model of the processes underlying the effects of videotaped modeling and videotaped feedback. Overall the results of this research supported the effectiveness of videotaped modeling and the combination of videotaped modeling and videotaped feedback. The effectiveness of videotaped feedback by itself was not supported nor were the proposed underlying relationships. In addition, none of the proposed personality by treatment interactions were supported. One significant personality by treatment interaction was found, however, it was opposite to that which was predicted. These results are discussed in more detail below.

Videotaped Modeling and Videotaped Feedback: Main Effects and Interaction

Based on past research (Decker & Nathan, 1985; Dowrick & Biggs, 1983) it was predicted that both videotaped modeling and videotaped feedback would have a positive impact on performance in training. It was also predicted that a combined treatment condition including both modeling and videotaped feedback would have a greater impact on performance than either treatment alone. As predicted

videotaped modeling had a significant impact on post training role play performance such that those subjects who received videotaped modeling showed significantly greater improvements in role play performance than those who did not receive videotaped modeling. In addition, subjects in the combined treatment condition had greater post training performance than subjects in any other group. Thus, the results of this study support past research on the effectiveness of videotaped modeling (Decker & Nathan, 1985; Kanfer & Goldstein, 1980) and extend past research by providing evidence that videotaped modeling in combination with videotaped feedback leads to greater performance than either treatment alone.

Contrary to what was predicted, no main effect was found for videotaped feedback. One possible explanation as to why videotaped feedback had no main effect on post training role play performance is that subjects were not able to make accurate evaluations of their own performance. This study, unlike other studies which have reported a significant effect for videotaped feedback (Decker, 1983; Barbee & Keil, 1973; Speas, 1979), did not include feedback from the trainer. Instead subjects were allowed to watch their videotapes in private. Perhaps feedback from the trainer is necessary in order for videotaped feedback to be effective.

In order to examine the possibility that subjects were not able to make accurate evaluations of their own performance, a post hoc analysis was conducted to examine the relationship between self-ratings on the practice role play and a trained rater's ratings on the practice role play. The results of this analysis revealed a significant but low correlation ($r = .30, p < .001$) between the performance ratings of the trained rater and subject self-ratings. Further analysis revealed that self-ratings on the practice role play were significantly related to videotaped feedback

condition such that subjects in the videotaped feedback conditions gave themselves slightly higher ratings than subjects in the no videotaped feedback conditions. In sum, these results offer some support for the suggestion that subjects did not benefit from videotaped feedback because they were not able to make accurate evaluations of their own performance.

Another possible explanation as to why videotaped feedback had no main effect on post training performance is that all subjects did receive feedback from the task itself. That is, on a task such as this, it is possible to evaluate one's own performance without external feedback. Perhaps watching oneself on videotape does not provide significantly more information than performing the task alone.

Another possible explanation as to why videotaped feedback had no main effect on post training performance is that videotaped feedback may have had a negative impact on the performance of some subjects and a positive impact on the performance of others. Observing oneself fail at a task may lower self-efficacy and subsequent performance. It is also possible that observing oneself fail may create self-dissatisfactions that serve as motivational inducements for enhanced effort (Bandura & Cervone, 1986). According to Bandura (1986), social cognitive theory postulates two cognitive mechanisms that influence motivation and behavior. The first operates anticipatorily through self-efficacy and outcome expectations. The second, labeled a self-regulatory mechanism (Bandura, 1986), operates through internal standards and self-evaluative reactions to one's performance. When people commit themselves to explicit standards, perceived negative discrepancies between their actual performance and their internal standard creates self-dissatisfactions that serve as motivational inducements for enhanced effort. To quote Bandura (*in press*):

People initially motivate themselves through feedforward control by setting themselves valued challenging standards that create a state of disequilibrium After people attain the standard they have been pursuing, they generally set a higher standard for themselves. The adoption of further challenges creates new motivating discrepancies to be mastered. Similarly, surpassing a standard is more likely to raise aspiration than to lower subsequent performance to conform to the surpassed standard. Self-motivation thus involves a dual cyclic process of disequilibrating discrepancy production followed by equilibrating discrepancy reduction. (c.f. Locke & Latham, 1990; p. 20)

Past research supports the existence of self-regulatory mechanisms. For example, research has shown that: (a) individuals react to initial failure to reach a performance standard by intensifying their effort, whereas repeated failures lead to giving up the standards (Campion & Lord, 1982), (b) the higher one's self-dissatisfaction with substandard performance and the stronger one's perceived self-efficacy for goal attainment, the greater the subsequent intensification of effort (Bandura & Cervone, 1983), and (c) subjects who receive negative feedback perform at higher levels on subsequent trials than subjects who receive positive feedback (Podsakoff & Farh, 1989).

While no specific goal or standard was assigned in this study, subjects were asked to try to include as many of the learning points as possible in their role plays. In addition, subjects in this study were asked to rate their performance on the practice role play. Therefore, a post hoc analysis was performed to examine whether self-evaluative reactions to one's performance (i.e., self-ratings of one's performance) moderate the impact of videotaped feedback on post training performance. The results of this analysis showed that subjects who received videotaped feedback and gave themselves lower self-ratings had higher post training performance than subjects who gave themselves higher self-ratings (See Appendix E.). This result is consistent with past research which has shown that individuals

react to perceived negative discrepancies between their actual performance and a standard by intensifying their effort and performance on subsequent trials (Campion & Lord, 1982; Podsakoff & Farh, 1989). Further analysis revealed a marginally significant triple interaction ($p < .10$) between self-efficacy, videotaped feedback and self-ratings such that the greatest improvement in performance was achieved by subjects who received videotaped feedback and had high self-efficacy and low self-ratings. This result supports past research which showed that the greatest intensification of effort occurred for subjects who had high self-efficacy and were highly dissatisfied with their performance (Bandura & Cervone, 1983). In sum, the results of this study support past research which has demonstrated the existence of a self-regulatory mechanism (Bandura, 1986) in which individuals react to perceived negative discrepancies between their actual performance and their internal standard by enhancing subsequent effort. In addition, this study extends past research by demonstrating that this self-regulatory mechanism operates in a training setting with the use of videotaped feedback.

Personality Variables

Hypotheses 2 through 5 predicted main effects for locus of control and field-dependence such that internals would have greater post training performance than externals, and field-dependent individuals would have greater post training performance than field-independent individuals. These predictions were based on past research which has demonstrated that internals have greater success in learning situations than externals (Nowicki & Strickland, 1973; Brown & Strickland, 1972; Baumgartel et al., 1984), and that field-dependent individuals tend to have greater interpersonal competencies than field-independent individuals (Witkin &

Goodenough, 1981). Contrary to what was predicted, no main effect for locus of control or field-dependence was found.

One possible explanation as to why locus of control did not have a main effect on post training performance is related to the type of training techniques used. The present study used one social influence technique (i.e., videotaped modeling) and one self-regulation technique (i.e., videotaped feedback). Past research suggests that externals are highly responsive to external social reinforcement and are more influenced by conformity pressures in social influence situations than are internals (Baron & Ganz, 1972). Internals, on the other hand, have a higher level of achievement motivation than externals and are better able to regulate their behavior by self-reinforcement (Baron & Ganz, 1972). It's possible that the greater achievement motivation and self regulation ability of internals did not put them at an advantage over externals in this study because the training techniques used were designed to include either self-regulation or social influence.

Field-dependence may not have had a main effect on post training performance because of the training content used. In this study, subjects were taught how to give negative feedback. Field-dependent individuals are described as being warm, accommodating and accepting of others (Witkin & Goodenough, 1977). It's possible that field-dependent individuals found the task of giving negative feedback more difficult than field-independent individuals. Thus, even though field-dependent individuals, compared with field-independent individuals, tend to have greater interpersonal competencies (Witkin et al, 1977a; Witkin et al, 1977b), this may not have helped them on the negative feedback task used in this study since these individuals also have the tendency to be nonevaluative and accepting of others.

Field-independent individuals, on the other hand, who are described as being cold, distant and impersonal in their interactions with others (Witkin & Goodenough, 1977), may have considered this an easy task. However, field-independent individuals may not have had an advantage over field-dependent individuals because the task not only involved giving negative feedback, but showing concern for the other person's feelings.

Personality by Treatment Interactions

Hypothesis 2 predicted a significant interaction between locus of control and videotaped modeling such that the relationship between modeling and performance would be greater for internals than externals. This prediction was based on previous research which demonstrated that internals are more likely than externals to change their behavior in treatments designed to enhance self-efficacy (Chambliss & Murray, 1979). It was also suggested that internals may respond more readily to modeling, since they tend to believe that they, like the models are in control of their environments. Externals, on the other hand, may believe that changing one's behavior to imitate a model would have little impact on their own performance, since they tend to believe that outcomes are not a result of their own behavior. A significant interaction was found, however, contrary to what was predicted, the relationship between videotaped modeling and performance was greater for externals than internals.

One possible explanation as to why the results of this study did not support that of Chambliss and Murray (1979) is that this study used videotaped modeling as the training intervention whereas the other study used a performance accomplishment intervention (i.e., subjects were told that weight loss was due to

their own effort rather than placebo diet pills). It is possible that internals in comparison to externals may be less responsive to external cues (videotaped modeling) as opposed to internal cues (performance accomplishments). It is also possible that externals, as opposed to internals may be less confident in the appropriateness of their own behavior and as a result may be more likely to utilize the kind of information provided by behavior models. In addition, as noted earlier, past research has shown that externals are highly responsive to external social reinforcement and are more influenced by conformity pressures in social influence situations than are internals (Baron & Ganz, 1972). In sum, it is suggested that the prediction made in Hypothesis 2 was based on a misinterpretation of Rotter's (1966) conceptualization of locus of control. A more accurate interpretation may be that internals, who are confident in their ability to control their own environment, should be less likely to imitate external role models, whereas externals may believe that the only way they can control their environment is to imitate other people's behavior.

Hypothesis 3 predicted a significant interaction between field-dependence and videotaped modeling such that the relationship between modeling and performance would be greater for field-dependent individuals than field-independent individuals. This prediction was based on past research which showed that field-dependent teachers were found to benefit significantly more from videotaped modeling than field-independent teachers (Koran et al., 1971). In this study, however, no significant interaction was found. One possible explanation as to why field-dependent individuals in this study did not benefit more from videotaped modeling than field-independent individuals was mentioned earlier. That is, it's possible that field-dependent individuals who tend to be nonevaluative and accepting of others, found

the task of giving negative feedback more difficult than field-independent individuals who tend to be cold, distant and impersonal in their interactions with others (Witkin & Goodenough, 1977). Thus, even though field-dependent individuals, compared with field-independent individuals tend to benefit more from videotaped modeling (Koran et al., 1971) this may not have helped them in this study because the task (i.e., giving negative feedback) required them to do something that they tend to avoid (i.e., being evaluative and nonaccepting of others).

An alternative explanation may be that field-independent individuals are just as likely to be influenced by high performing models as field-dependent individuals. For example, Weiss and Nowicki (1981) examined the impact of model competence and observer field-dependence on task satisfaction. Their results indicated that the task attitudes of field-dependent subjects were significantly influenced by the expressed attitudes of a model regardless of the model's competence, whereas the task attitudes of field-independent subjects were only influenced by high performing models. Thus, there may have been no interaction between field-dependence and videotaped modeling in this study because the models shown were high performing models.

Hypothesis 4 predicted a significant interaction between locus of control and videotaped feedback such that the relationship between videotaped feedback and performance would be greater for internals than externals. This prediction was based on past research which has shown that children who attribute failure to insufficient effort (an internal factor) are less likely to give up on a task after experiencing failure (Diener & Dweck, 1978) and that internals perform better when given intrinsic feedback (i.e., subjects were allowed to discover for themselves



whether their responses were right or wrong) as opposed to extrinsic feedback (i.e., the experimenter informed subjects whether or not their responses were right or wrong; Baron et al., 1974; Baron & Ganz, 1972). Contrary to what was predicted no significant interaction effect was found in this study.

One possible explanation as to why no interaction effect was found is that this study compared an intrinsic feedback situation with a no feedback situation rather than comparing an intrinsic feedback situation with an extrinsic feedback situation. Perhaps a significant locus of control by videotaped feedback interaction would have been found if subjects had participated in one of two videotaped feedback treatments: one in which subjects were allowed to watch their videotape on their own, and one in which subjects were given feedback from the experimenter during or after observation of their videotape.

The absence of an interaction effect may also be due to the ability of internals to regulate their behavior by self-reinforcement (Baron & Ganz, 1972). Internals, as opposed to externals, may not have benefited more from videotaped feedback because they already possess self-regulation ability. Perhaps videotaped feedback serves a compensatory function for externals that increases their self-regulation activity. Thus, the tendency for internals, in comparison to externals, to respond more favorably to intrinsic feedback situations may have been offset by the tendency of videotaped feedback to increase the self-regulation activity of externals.

Hypothesis 5 predicted a significant interaction between field-dependence and videotaped feedback such that the relationship between videotaped feedback and performance would be greater for field-dependent individuals than field-independent individuals. This prediction was based on research which has shown that field-

dependent individuals pay greater attention to social cues and have a greater need for information from external sources (Witkin & Goodenough, 1981; Karp, 1977). Thus, it was suggested that field-dependent individuals would be more likely than field-independent individuals to benefit from information on the appropriateness of their social behavior (i.e., videotaped feedback). Contrary to what was predicted no significant interaction was found.

One possible explanation as to why there was no significant interaction between field-dependence and videotaped feedback is that field-dependent individuals, who rely on external social cues for their behavior, may not be able to benefit from videotaped feedback unless it is interpreted by an external source. As noted earlier, this study compared an intrinsic feedback situation with a no feedback situation. Perhaps field-dependent individuals, in comparison to field independent individuals, would have performed better in the videotaped feedback treatment if feedback from the experimenter on the quality of the subject's performance had been included as part of the training intervention.

General Mental Ability ("g")

Hypotheses 6 and 7 predicted a main effect for general mental ability such that high ability individuals in all treatment conditions would have greater post training performance than low ability individuals. In general, high ability individuals did perform better than low ability individuals in all treatment conditions, however, this difference was only marginally significant (the partial correlation between post training performance and "g" controlling for pre-training performance was ($pr(178) = .14, p = .06$). One possible explanation as to why "g" did not have a significant effect on performance in this study may be due to individual differences

in negative feedback experience. A post hoc analysis confirmed that "g" explained a significant amount of variance in post training role play performance after controlling for pre-training role play performance and negative feedback experience ($\Delta R^2 = .03$, $p < .05$). Thus, the results of this study confirm past research which suggests that "g" is correlated with performance across a wide range of tasks and situations (Jensen, 1986; Hunter, 1986; Thorndike, 1986).

In addition to the above mentioned main effects, hypothesis 6 predicted that the interaction between videotaped modeling and "g" would not be significant and hypothesis 7 predicted that the interaction between videotaped feedback and "g" would not be significant. As predicted, no significant interactions between "g" and training treatment were found. These results support past research indicating that most ability by treatment interactions are not significant (Whitener, 1989).

It was also predicted that high ability individuals would demonstrate greater knowledge than low ability individuals. The results of this study confirmed this prediction. Post training knowledge was significantly related to "g" such that high ability individuals performed better on the post training learning tests than low ability individuals.

Process Model

It was suggested that videotaped modeling and videotaped feedback may influence performance in training indirectly through their impact on knowledge and self-efficacy. The results showed that neither videotaped modeling nor videotaped feedback had a significant impact on post training knowledge. There was a significant interaction between videotaped modeling and videotaped feedback, however, contrary to what was predicted, subjects in the combined treatment group

exhibited significantly lower post training knowledge than subjects in any other group. This finding may be due to the experimental procedure used in this study. In order to ensure that the duration of each training session was approximately the same across all training treatments, subjects in all conditions except the combined treatment condition were given time to study the learning points before taking their learning tests. It's possible that this extra study time was beneficial to performance on the learning test but not on the post training role play.

It is also possible that the true impact of the combined treatment condition on post training role play performance may be suppressed because of the negative impact it has on knowledge (i.e., the beta coefficient for the impact of the combined treatment on knowledge was $\beta = -.30$). A suppressor effect occurs when the relationship between the independent variables hides or suppresses their real relationships with the dependent variable, which would be larger were they not correlated (Cohen and Cohen, 1983). In order to examine the possibility of a suppressor effect, an analysis was performed to examine the impact of the combined treatment condition on post training role play performance controlling for post training knowledge. The results of this analysis supported the existence of a suppressor effect (See Appendix E.). When the effects of post training knowledge are controlled, the effect size for the combined treatment condition increases ($sr^2 = .048$, $p < .001$, versus $sr^2 = .023$, $p < .05$).

With regard to post training self-efficacy, neither videotaped modeling, videotaped feedback nor any of the predicted interactions had a significant effect on post training self-efficacy. This result may be due to the type of self-efficacy measure used. Subjects were given descriptions of five real world situations and

were asked how confident they were in their ability to give negative feedback to the employee described in such a way that would increase the employee's motivation and desire to improve without offending the employee. Even though both the videotaped modeling treatment and the combined videotaped modeling/videotaped feedback treatment were sufficiently strong to increase performance in a role play situation, they may not have been strong enough to influence subject's perceptions of how well they could give feedback in a real world situation. Perhaps training treatment would have had a significant impact on self-efficacy if subjects had been asked to indicate their confidence in their ability to give feedback in a role play situation.

An additional set of analyses revealed that both knowledge and self-efficacy explained a significant amount of variance in post-training role play performance, however, since videotaped modeling, the interaction between videotaped modeling and videotaped feedback, and the interaction between videotaped modeling and locus of control explained a significant amount of variance in post training performance over and above that explained by post training knowledge and post training self-efficacy, knowledge and self-efficacy do not appear to be mediators. However, as mentioned above, the failure of self-efficacy and knowledge to mediate the relationship between training treatment and post training performance may be due to the experimental procedures used in this study.

Practical Implications

The findings of the present study have several practical implications for training professionals. In agreement with previous research (Decker & Nathan, 1985; Bandura, 1986) videotaped modeling had a positive impact on the

performance of all individuals. However, this study found that videotaped modeling had a greater impact on the performance of externals than internals. This finding should be good news to practitioners since past research has shown that internals have greater success in learning situations than externals (Nowicki & Strickland, 1973; Brown & Strickland, 1972; Baumgartel et al., 1984). Thus, those training practitioners who are debating whether to use videotaped modeling due to time or money constraints should be advised that modeling, in addition to having a positive impact on the performance of all subjects, has an even bigger impact on the performance of externals who tend to have lower performance than internals in learning situations. This study also found that a combined training treatment including videotaped modeling and videotaped feedback had a greater impact on post training performance than either treatment alone. This finding suggests that in order to maximize performance in training it's not enough to show someone what to do, you also need to give them feedback on the quality of their performance efforts. The results of this study suggest that videotaped feedback may be a successful way of providing that feedback.

A third finding of interest to practitioners is that videotaped feedback did not have a significant main effect on performance, in fact individuals in the videotaped feedback (without videotaped modeling) treatment showed less improvement in performance than subjects in the control group, although this difference was only marginally significant ($p = .10$). As mentioned earlier, this could be due to the way in which videotaped feedback was provided. Trainees in this study were allowed to watch and interpret their videotape on their own in a private room. In order for videotaped feedback to be effective it's possible that the individual may also need



feedback from an outside source on the quality of the behaviors being exhibited on the videotape.

Limitations

Several limitations of the present research should be discussed. First, the experimental procedures used in this study may have distorted the findings with regard to the impact of videotaped modeling and videotaped feedback on self-efficacy and knowledge. As mentioned earlier, this study found that subjects in the combined treatment condition had the lowest post training knowledge, the highest post training role play performance and no significant difference between other groups with regard to post training self-efficacy. It was suggested that the subjects in the combined treatment group may have performed lower on the learning tests than subjects in any other group because they, unlike the others, were not allowed any study time. It was also noted that the self-efficacy measure used in this study measured self-efficacy for giving feedback in real world situations as opposed to self-efficacy for this task (i.e., a role play situation). In sum, the results of this study with regard to knowledge gained and self-efficacy do not support past research and it is felt that the experimental procedures used may be the cause. While it is important to keep duration of training consistent across all experimental conditions, future research should avoid using study time as a time filler because this may distort results with regard to learning criteria.

Another limitation of this study involves the external validity of the results obtained here. This research involved the training of undergraduates in an interpersonal skill (i.e., how to give negative feedback). The extent to which findings from this sample, setting, and task are generalizable to the training of managers in

organizational settings is uncertain. For example, managers working in organization typically have more experience in giving negative feedback. It is possible that videotaped modeling and videotaped feedback may be more effective in training individuals with lower experience. A post hoc analysis of the data in the present study offers some support for this prediction (See Appendix E). A significant interaction between feedback experience and training treatment was found such that videotaped feedback had a positive impact on the performance of individuals with little or no feedback experience and a negative impact on the performance of individuals with greater negative feedback experience. Videotaped modeling also had a greater impact on inexperienced individuals, although this difference was not significant ($p > .10$).

Another boundary condition may be that the variance in locus of control may be smaller in a managerial sample than in a student sample. For example, research on locus of control suggests that managers are more likely to have an internal locus of control as opposed to an external locus of control (Mitchell, Smyser, & Weed, 1975). As a result, the finding that externals are more likely to benefit from videotaped modeling than internals, may not be replicated in a managerial sample in which there are very few externals. Further research in a field setting is sorely needed in this area.

Finally, it should be noted that there were a large number of hypotheses tested in this study suggesting the possibility of high experimentwise error. According to Cohen and Cohen (1983), Type I error in multiple regression/correlation analysis can be assessed by using a procedure similar to the Fisher test (Fisher, 1963). That is, the contribution to Y variance of an entire set of variables

is tested for significance by the standard F test. If the F for a given set is significant, the independent variables which make up the set may be tested individually for significance by means of a standard t -test. Since the regression equation containing the entire set of variables measured in this study was significant ($F = 5.31, p < .001$), one can conclude that experimentwise error is not a serious problem in this study.

Future Research

While educational researchers and clinical psychologists have been conducting research on videotaped feedback for several years (Bailey & Sowder, 1970; Fuller & Manning, 1973) research on videotaped feedback has just recently started to receive attention in the training literature (Decker, 1983). Videotape technology has improved greatly over the past twenty years and it is now much cheaper and easier to use videotaped feedback than ever before. However, more research is needed in this area before we can confidently recommend its use. This study found that videotaped feedback did not have a positive impact on the performance of all subjects. Future research should examine the conditions under which videotaped feedback is beneficial to performance in training. This study found that videotaped feedback is beneficial when combined with videotaped modeling. It was also found to be beneficial for subjects who rate themselves low after watching themselves on videotape. While past research has demonstrated that videotaped feedback combined with trainer feedback is superior to trainer feedback alone, future research should examine whether videotaped feedback combined with trainer feedback is superior to videotaped feedback alone.

Future research should also continue to examine personality by treatment interactions. Even though none of the predicted personality by treatment interactions were supported in this study, it is felt that this may be due to either the training content (i.e., giving negative feedback) or the training procedures used. For example, future research should examine the interaction between field-dependence and videotaped modeling for other managerial skills such as conducting a meeting, public speaking, or active listening. Future research should also examine whether externals in comparison to internals and field-dependent individuals in comparison to field-independent individuals, benefit more from videotaped feedback that includes trainer feedback than from videotaped feedback that does not include trainer feedback. Finally, future research should examine the relationship between training technique and other personality variables such as self-esteem, self-focus and self-monitoring. This recommendation is based on past research which has found that these variables have a significant effect on learning and performance in various situations (Snyder, 1974; Brockner & Hulton, 1978; Salomon & McDonald, 1970; Weiss, 1977; Weiss, 1978).²

Conclusions

Overall the results of this research support the effectiveness of videotaped modeling and the combination of videotaped modeling and videotaped feedback on post training role play performance. The effectiveness of videotaped feedback without videotaped modeling was not supported. In addition, the results of this

²Additional post hoc analyses were conducted on the interaction between training treatment and self-efficacy. Only one of the interaction between videotaped feedback and self-efficacy was significant. See Appendix E.

study did not support the proposed personality by treatment interactions. Several explanations for these results were offered. It is felt that videotaped feedback may still show promise in improving performance in training when combined with feedback from the trainer and that personality by treatment interactions may also be found under these conditions. Future research is necessary to examine these predictions more directly.

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APPENDICES

APPENDIX A



APPENDIX A

LEARNING POINTS

DO's

1. Talk with the employee in a private location.
2. Use eye contact.
3. Be aware of nonverbal behaviors.
4. Explain the problem to the employee without hostility.
5. Criticize the behavior, not the employee.
6. Be specific.
7. Ask for and listen openly to the employee's reasons for the behavior.
8. Show that you understand the employee's feelings.
9. Ask the employee for his or her ideas on how to solve the problem.
10. Ask the employee if there is anything that you can do to help.
11. Agree to review performance at a later date.

DON'Ts

1. Use general evaluative statements.
2. Scold or belittle the employee because of their actions.
3. Make attributions for the causes of the employee's behavior.
4. Compare the employee to other employees.
5. Rush through the feedback session.

APPENDIX B

APPENDIX B

VIDEOTAPED MODELING SCRIPTS

SCRIPT USED IN VIDEOTAPE # 1

"COST OVERRUNS # 1"

(Running Time: 2 minutes)

SETTING: An office with a desk. One chair is positioned in front of the desk, one chair is positioned on the side of the desk, and one chair is behind the desk. The supervisor, Doug is alone in the office sitting behind the desk. Jon knocks on the door, enters the room and sits in front of the desk.

DOUG: Hi Jon, come on in. There are some things I would like to talk to you about. First of all I want you to know that, in general, I think you are a pretty good engineer.

(DON'T USE GENERAL EVALUATIVE STATEMENTS)

You have achieved some good results on the cushion assembly, seating assembly and engine assembly projects. And in general you've done that without my help, which is nice. I like to see engineers who are capable of running their own ship. Captains so to speak of their own ship. But personally I would have to say that you're in the lower half of the 10 engineers that I supervise. Not nearly as good as Bill Randall for example.

(DON'T COMPARE THE EMPLOYEE TO OTHER EMPLOYEES)

And, I guess I would have to say that this is because you are just not persistent enough, you're not thorough enough, you just don't have the stick-to-it-ness that is required to see a project through. Your co-workers, are continually saying you're a burden basically. They go around tying up all of the loose ends for your own failure.

(DON'T SCOLD OR BELITTLE THE EMPLOYEE BECAUSE OF THEIR ACTIONS)

JON: What do you mean not thorough enough? After all of the good projects that I have done for you, you can think of me as having no stick-to-it-ness.

DOUG: Well, you know what I mean.

JON: NO, I don't, can you give me an example?

DOUG: I shouldn't have to give you examples. Look you've got to admit that on that one project you ran into some cost over runs. This basically was because you ran off and made decisions without gathering the appropriate information. I think that this is because things have always come too easy for you.

(DON'T MAKE ATTRIBUTIONS FOR THE CAUSES OF THE EMPLOYEE'S BEHAVIOR)

You know it's the old adage when the going gets tough, rather than get tough yourself, you take the easy way out. And your co-workers in general say the same thing as far as needing to follow up on things that you are responsible for. Now, I really don't want to end this conversation on a negative note. I think that if you would just concentrate on these weaknesses and try to improve in these areas that overall you could be a good employee.

Do you have anything to say?

JON: No, I think you've said it all.

(DON'T RUSH THROUGH THE FEEDBACK SESSION)

* * * *THE END* * * *

SCRIPT USED IN VIDEOTAPE # 2

"COST OVERRUNS # 2"

(Running Time: 2 minutes, 20 seconds)

SETTING: An office with a desk. One chair is positioned in front of the desk, one chair is positioned on the side of the desk, and one chair is behind the desk. The supervisor, Doug is alone in the office standing behind the desk.

(USE EYE CONTACT)

(BE AWARE OF NONVERBAL CUES)

Jon knocks on the door, enters the room and sits in front of the desk.
Doug sits facing Jon at the side of the desk.

DOUG: Hi, Jon!

JON: Hi Doug, how are you?

DOUG: Pretty good, yourself?

JON: Fine.

DOUG: Basically the purpose of this meeting is to talk about some of the past projects that you have been working on.

(EXPLAIN TO THE EMPLOYEE THE PURPOSE OF THE MEETING)

You did an outstanding job on the engine assembly project and some of the innovations you made on that project can be directly attributed to your hard work and ingenuity. On your last project, however, I noticed there were some cost overruns.

(EXPLAIN THE PROBLEM TO THE EMPLOYEE WITHOUT HOSTILITY)

(CRITICIZE THE BEHAVIOR, NOT THE EMPLOYEE)

(BE SPECIFIC)

JON: Well yes. I guess we underestimated the man power required to finish the project.

DOUG: What do you think caused these cost overruns?

JON: Well I guess it's my fault because I didn't get the information from the proper people. I had a tough time getting the information I needed and as a result I guess I just got to the point where I just decided to go ahead on my own, and as a result that's what caused the cost overruns.

(ASK FOR AND LISTEN OPENLY TO THE EMPLOYEE'S REASONS FOR THE BEHAVIOR)

DOUG: Well then it looks like the problem is due to your inability to get the appropriate information to enable you to make correct decisions. How do you think we can make certain that this doesn't happen again in the future?

(ASK THE EMPLOYEE FOR HIS OR HER IDEAS ON HOW TO SOLVE THE PROBLEM)

JON: Well, I guess in the future I guess I'm going to have to try to be more persistent in trying to obtain the information I need, and pay a little more attention to detail before making a final decision on a project.

DOUG: I agree 100% with that, well is there anything that I can do to help?

(ASK THE EMPLOYEE IF THERE IS ANYTHING THAT YOU CAN DO TO HELP)

JON: No, I don't think so but you know it gets awful frustrating sometimes when you're trying to put together a project and you need information from certain individuals and you can't get them to answer you phone calls, you can't get them to answer your memos, they're never in their office, you know you just get frustrated after while and that causes you to make mistakes and that's why I'm having the cost overruns.

DOUG: I can really feel for the frustration you're experiencing with the road blocks, and the obstacles that exist with the communication process. Is there any area I can help with to relieve you of these problems? Maybe I could make some contacts for you?

(SHOW THAT YOU UNDERSTAND THE EMPLOYEE'S FEELINGS)

JON: Well, yes in certain situations, that would be a great idea.

DOUG: Okay, just let me know when you need my help and I'll do whatever I can. By the way what's the project deadline for your new project?

JON: Well, I think that project is coming along fine, it's supposed to be completely finished in 2 or 3 months, I believe the actual completion date is May 1st.

DOUG: Well then why don't I back with you on March 1st to check with you on the progress you're making on the new project.

(AGREE TO REVIEW PERFORMANCE AT A LATER DATE)

*** * * THE END * * ***

SCRIPT USED IN VIDEOTAPE # 3

"A CHAUVINISTIC REMARK # 1"

(Running Time: 40 seconds)

SETTING: An office with a desk. One chair is positioned in front of the desk, one chair is positioned on the side of the desk, and one chair is behind the desk. The supervisor, Jim is alone in the office sitting behind the desk. Darrell knocks on the door, enters the room and sits in front of the desk.

JIM: Hi Darrell, come on in. There is something I would like to talk to you about. I've heard that you are somewhat bigoted toward your female coworkers.

(DON'T SCOLD OR BELITTLE THE EMPLOYEE BECAUSE OF THEIR ACTIONS)

DARRELL: Bigoted? What do you mean bigoted?

JIM: I think you know.

DARRELL: If I said something out of line, I'm sorry but I assure you I never meant anything by it. I'm certainly not a bigot.

JIM: Well, others seem to think differently. You know I used to think you were a pretty good manager, but now, I don't know what to think.

(DON'T USE GENERAL EVALUATIVE STATEMENTS)

Look, Bob Jones has more female employees in his unit than you and he never has these kinds of accusations made of him.

(DON'T COMPARE THE EMPLOYEE TO OTHER EMPLOYEES)

You know I really think this women thing is due to your own insecurities as a man. I think that in general, the women you work with threaten you.

(DON'T MAKE ATTRIBUTIONS FOR THE CAUSES OF THE EMPLOYEE'S BEHAVIOR)

Well, I don't know what else to say, except that I hope we never have to have this conversation again.

(DON'T RUSH THROUGH THE FEEDBACK SESSION)

* * * *THE END* * * *

SCRIPT USED IN VIDEOTAPE # 4

"A CHAUVINISTIC REMARK # 2"

(Running Time: 1 minute, 30 seconds)

SETTING: An office with a desk. One chair is positioned in front of the desk, one chair is positioned on the side of the desk, and one chair is behind the desk. The supervisor, Jim is alone in the office standing behind the desk.

Darrell knocks on the door, enters the room and sits in front of the desk. Jim sits facing Darrell at the side of the desk.

(BE AWARE OF NONVERBAL CUES)

JIM: Hi, Darrell!

DARRELL: Hi Jim, how are you?

JIM: Pretty good yourself?

DARRELL: Fine

JIM: Basically the purpose of this meeting is to discuss an incident that was recently brought to my attention.

(EXPLAIN TO THE EMPLOYEE THE PURPOSE OF THE MEETING)

(USE EYE CONTACT)

Now it's probably minor, but I think it's something we should talk about. It involved a comment you made to a female co-worker.

(EXPLAIN THE PROBLEM TO THE EMPLOYEE WITHOUT HOSTILITY)

DARRELL: What comment? What did I say?

JIM: Well it was a comment you made that was interpreted as being quite sexist or chauvinistic.

(CRITICIZE THE BEHAVIOR, NOT THE EMPLOYEE)

(BE SPECIFIC)

DARRELL: Sigh. I knew this was going to come up, but I really don't see any reason for it. Really, Jim, I didn't mean anything by it. I was really trying to compliment her on the fine job that she had done. If I came off as chauvinistic it was just the way she interpreted it. No way was I a chauvinist in that situation.

(ASK FOR AND LISTEN OPENLY TO THE EMPLOYEE'S REASONS FOR THE BEHAVIOR)

JIM: Yes, I realize that people often interpret things differently than they were intended. However, if we are going to maintain good working relationships with our coworkers, we've got to be careful in how we phrase our opinions.

(SHOW THAT YOU UNDERSTAND THE EMPLOYEE'S FEELINGS)

DARRELL: Yes, well I guess I can see why she may have misinterpreted my remark.

JIM: Well, what do you think you could do differently in the future to prevent this from happening again?

(ASK THE EMPLOYEE FOR HIS OR HER IDEAS ON HOW TO SOLVE THE PROBLEM)

DARRELL: I'll just have to choose my words more carefully.

JIM: Is there anything I can do to help?

(ASK THE EMPLOYEE IF THERE IS ANYTHING THAT YOU CAN DO TO HELP)

DARRELL: Well no, I don't think so, but if I have any further problems I'll get back to you.

JIM: Good, why don't I check back with you in a couple of weeks, say the first of the month. and we'll see how things are going. Thanks for your time Darrell. I've got great confidence in you.

(AGREE TO REVIEW PERFORMANCE AT A LATER DATE)

* * * *THE END* * * *

APPENDIX C



APPENDIX C

PRACTICE ROLE PLAY

ROLE FOR SUBJECT: Supervisor, Pat Johnson

Robin Benson has been with your company, a management consulting firm, for the past nine months. She/he is extremely intelligent and displays a great deal of initiative and creativity. Her/his only real fault is that she/he is sometimes rude, arrogant and uncooperative. She/he has a tendency to criticize her/his coworkers ideas without taking their feelings into account. Frequently, Robin's comments are accurate, but she/he often cause defensiveness in the rest of the group.

This was the case in a recent group meeting between yourself, Robin and three other employees. On several occasions Robin interrupted a peer's comments to point out the weaknesses in that idea. At one point she/he said, "No way! Are you crazy or did you leave your brains at home today? That's absolutely ridiculous. It would never work. First of all," At this point the recipient of this tirade clammed up and didn't say another word for the rest of the meeting.

You have decided to talk briefly with Robin about this behavior in a few minutes.

ROLE FOR CONFEDERATE: Robin Benson

You are Robin Benson a junior consultant for a major management consulting firm. You have recently graduated from Harvard with an M.B.A. You love your job and attack each project with a great deal of enthusiasm. Unfortunately your co-workers don't share your enthusiasm. Most of them are dull and unimaginative.

Your boss, Pat Johnson has just notified you that she/he would like to talk to you about a group meeting you attended earlier this week. Overall, you feel the meeting went quite well. You expressed a lot of good ideas and Pat seemed to agree with you.

APPENDIX D

APPENDIX D

MEASURES

DEMOGRAPHIC VARIABLES

1. What is your class level? _____ Junior _____ Senior
2. What is your age? _____ years
3. What is your G.P.A.? _____ (out of 4.0)
4. What is your sex? _____ Female _____ Male
5. Have you ever held a supervisory position?
(If you answered No, skip questions 6 and 7.)
 _____ Yes _____ No
6. Have you ever given negative feedback to one of your subordinates?
_____ Yes _____ No
(If you answered No, skip question 7.)
7. Approximately how many times have you given negative feedback to one or
 more of your subordinates.



LOCUS OF CONTROL

For each of the items below, circle the statement that you agree with most.

- | | | |
|--------|----|--|
| FILLER | 1. | <ul style="list-style-type: none"> 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. |
| B | 2. | <ul style="list-style-type: none"> 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. |
| A | 3. | <ul style="list-style-type: none"> 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. |
| A | 4. | <ul style="list-style-type: none"> 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. |
| A | 5. | <ul style="list-style-type: none"> 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. |
| B | 6. | <ul style="list-style-type: none"> 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. |
| B | 7. | <ul style="list-style-type: none"> 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. |
| FILLER | 8. | <ul style="list-style-type: none"> a. Heredity plays the major role in determining one's personality. b. It is one's experiences in life which determine what one is like. |
| B | 9. | <ul style="list-style-type: none"> 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. |



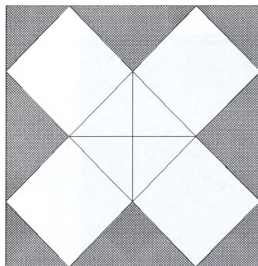
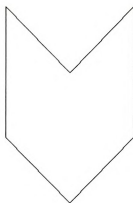
- A 10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
- A 11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
b. Getting a good job depends mainly on being in the right place at the right time.
- A 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.
- A 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 anyhow.
- FILLER 14. a. There are certain people who are just no good.
b. There is some good in everybody.
- A 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.
- B 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 or nothing to do with it.
- B 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.
- B 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."
- FILLER 19. a. One should always be willing to admit mistakes.
b. It is usually best to cover up one's mistakes.



- B 20. a. It is hard to know whether or not a person really likes you.
b. How many friends you have depends on how nice a person you are.
- B 21. a. In the long run the bad things that happen to use are balanced by the good ones.
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
- A 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.
- B 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.
- FILLER 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.
- B 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.
- A 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.
- FILLER 27. a. There is too much emphasis on athletics in high school.
b. Team sports are an excellent way to build character.
- A 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.
- B 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 an national as well as on a local level.

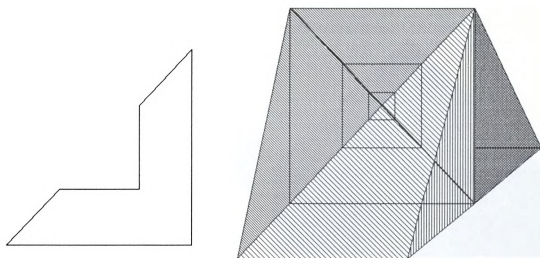
*FIELD-DEPENDENCE***COLOR KEY****RED****GREEN****ORANGE****BLUE****YELLOW****BROWN****BLACK****Instructions:**

I am going to show you a series of colored designs. After you examine each design, I will show you a simpler figure, which is contained in the larger design. Your job will be to locate the smaller figure inside the larger figure. Let's go through a practice trial to show you how it is done. First I will show you the simple figure for 15 seconds, then I will take it away and show you the larger design. As soon as you find the figure please trace it with your pen so that I can make sure it is correct.

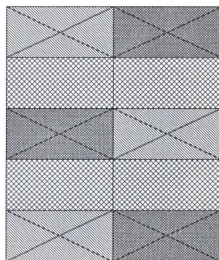
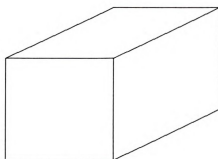
*Practice Trial*

We will proceed the same way on all trials. I would like to add that in every case the smaller figure will be present in the larger design. It will always be in the upright position. There may be several of the smaller figures in the same large design, but you are to look only for the one in the upright position. Work as quickly as you can, since I will be timing you; but be sure the figure you find is exactly the same as the original figure both in size and in proportions. If you ever forget what the small figure looks like, you may ask to see it again. Are there any questions?

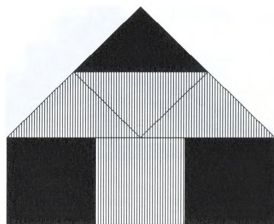
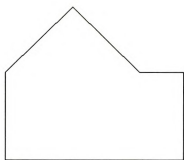




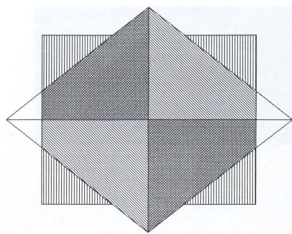
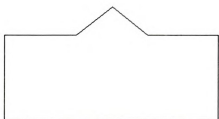
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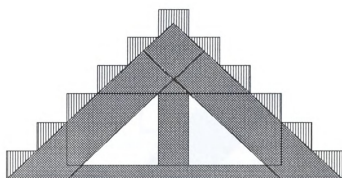
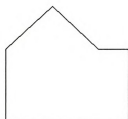
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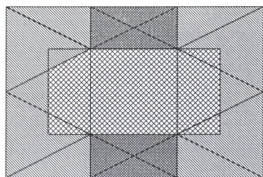
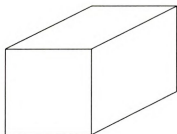
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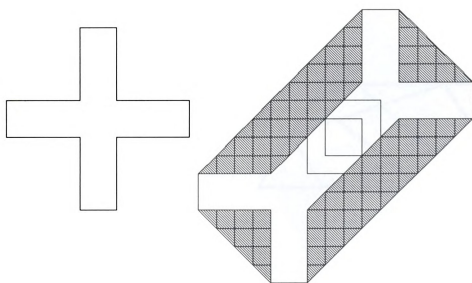
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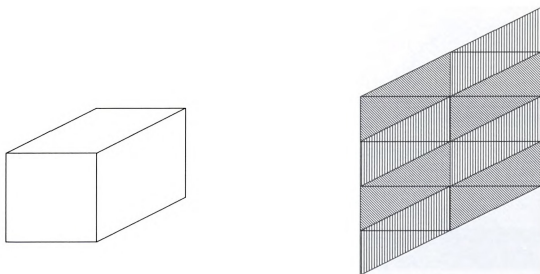
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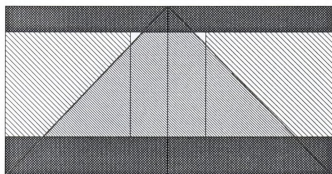
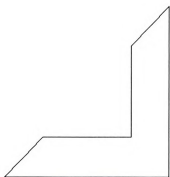


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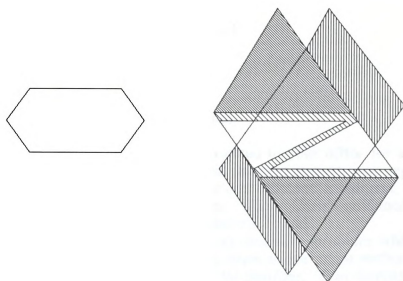




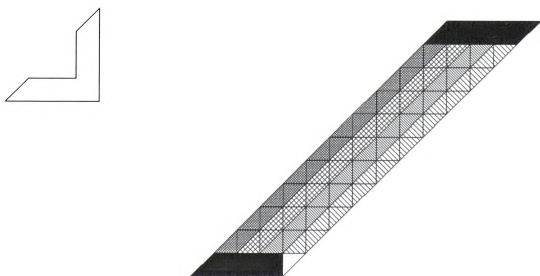
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*BEHAVIORAL PRE-TRAINING ROLE PLAY***ROLE FOR SUBJECT: President Pat Jones**

You have just asked Chris Marshall to come to your office for a conference. Chris is the production manager for the firm. In most respects, you regard Chris as an ideal executive. Chris is cost-conscious and efficient, intelligent, and displays great initiative and unquestionable integrity. Under Chris's guidance, output has increased steadily. Moreover, Chris is a personal friend.

You have called Chris to your office to discuss a problem which has been bothering you. Despite Chris's many virtues, there is one major problem. Younger executives in the department refuse to work for him/her. They complain that Chris is authoritarian and never allows them to handle any problem on their own. Chris is constantly looking over their shoulder and tells them exactly how to conduct even the most trivial aspects of their job.

Recently many bright young people have left the company. You are determined that Chris must either reverse this trend or leave the company himself/herself.

You would like to appoint Chris to the vacant position of executive vice-president of the company. At the same time, you are afraid that you may have to terminate Chris for the good of the company.

ROLE FOR CONFEDERATE: Production Manager Chris Marshall

You have just been notified that your boss, Pat Jones, the president of the company, wants to see you in his office. Pat Jones is an old personal friend, and you have enjoyed working for him/her.

You are the production manager and productivity has never been higher. You are very proud of your accomplishments but there is one problem that bothers you. The quality of lower and middle managers in your department is extremely low. You have lost several of these people lately, but you were glad to see most of them go. Most of them were irresponsible and not very bright. It is your feeling that the company should offer substantially higher salaries in hopes of attracting better quality personnel. In addition, you feel that they should institute a personnel testing program to weed out incompetent and irresponsible applicants.

*BEHAVIORAL POST TRAINING ROLE PLAY***ROLE FOR SUBJECT: Blair Stanley, Department Head**

You are Blair Stanley the head of the electrical section in the engineering Department at the American Construction Company. Pat Burke is one of eight first-line supervisors who reports to you. Pat's unit is very productive and his group has shown steady improvement over the last two years. However, his cooperation with other supervisors in the section leaves much to be desired. Before you made him a supervisor his originality and technical knowledge were available to your whole section. Now he acts like a lone wolf. You've asked other supervisors to talk over certain problems with him but they tell you he offers no suggestions. He tells them he's busy or listens disinterestedly to their problems, kids them or makes sarcastic remarks, depending on his mood. Recently he allowed Terry Smith, one of the supervisors in another unit, to make a mistake that he could have forestalled by letting him know the status of certain design changes which he knew about and had seen. It is expected that supervisors cooperate on matters involving design changes that affect them. You are meeting with Pat in a few minutes to discuss this matter.

ROLE FOR CONFEDERATE: Pat Burke, Supervisor

You are Pat Burke, a supervisor of the electrical section in the Engineering Department at the American Construction Company. One junior designer, six draftsmen, and two clerks report to you. You feel that you get along fine with your group. You have always been pretty much of an idea person and apparently have the knack of passing on your enthusiasm to others in your group. There is a lot of "we" feeling in your unit because it is obvious that your group is the most productive.

The other supervisors in your section do not have your enthusiasm. Some of them are dull and unimaginative. You used to help them a lot, but you soon found that they leaned on you and before long you were doing their work. Since you no longer help the other supervisors your production has gone up.

You did one thing recently that has bothered you. There was a design change in a set of plans and you should have told Terry Smith (a fellow supervisor) about it, but it slipped your mind. Terry was out when you had it on your mind and then you got involved in a hot idea with your junior designer, and forgot all about the matter with Terry. As a result, Terry had to make a lot of unnecessary changes and he was quite sore about it. You told him you were sorry and offered to make the changes, but he turned down the offer.

BEHAVIORAL MEASURE

Please rate your own performance in the practice role play using the following scale:

- 5 - Outstanding use of the skill
- 4 - Good use of the skill
- 3 - Average use of the skill
- 2 - Poor use of the skill
- 1 - Very poor or no use of the skill

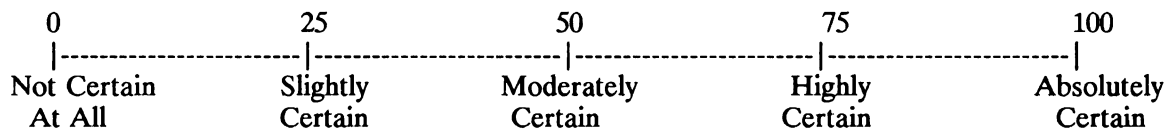
- | | |
|-----------|--|
| 5 4 3 2 1 | 1. Explained the problem to the employee without hostility. |
| 5 4 3 2 1 | 2. Criticized the behavior, not the employee. |
| 5 4 3 2 1 | 3. Avoided general evaluative statements. |
| 5 4 3 2 1 | 4. Described specifically what the employee had done incorrectly. |
| 5 4 3 2 1 | 5. Avoided making attributions for the causes of the employee's behavior. |
| 5 4 3 2 1 | 6. Asked for and listened openly to the employee's reasons for the behavior. |
| 5 4 3 2 1 | 7. Showed that he/she understood the employee's feelings. |
| 5 4 3 2 1 | 8. Asked the employee for his or her ideas on how to solve the problem. |
| 5 4 3 2 1 | 9. Asked the employee if there was anything that he/she could do to help. |
| 5 4 3 2 1 | 10. Agreed to review performance at a later date. |
| 5 4 3 2 1 | 11. Did not rush through the feedback session |
| 5 4 3 2 1 | 12. Avoided comparing the employee to other employees. |
| 5 4 3 2 1 | 13. Used Eye contact. |
| 5 4 3 2 1 | 14. Used appropriate nonverbal behavior. |

SELF-EFFICACY A

Listed below are five situations involving performance feedback. Under the column, CAN DO, place a check () below the situations in which you feel you could give effective performance feedback. That is, do you feel you could present the feedback described in such a way that it will increase the employee's motivation and desire to improve without offending the employee?

Next, for the situations you checked under the CAN DO column, indicate in the CERTAINTY column, how certain you are that you could give effective performance feedback (that is how strong is your belief that you could give the feedback described in such a way that it would increase the employee's motivation and desire to improve).

Rate your degree of certainty by recording a number from 0 to 100 using the scale below:



1. Sue Johnson is an extremely nice, energetic person who is fun to have around. She is always eager to help out and seems to motivate everyone around her. She is also extremely sensitive and has on two occasions broken into tears when told that she was doing something wrong. Recently, you noticed that she has been making an excessive number of personal calls during work hours. How certain are you that you could provide Sue with effective performance feedback?

CAN DO

CERTAINTY

2. James Smith is an exceptionally competent employee. He has been with your company for 10 years. As far as productivity and dependability are concerned he is your top employee. Recently you have received several complaints from his female co-workers that he makes sexist comments to them. You are especially concerned about this because the turnover rate for women in his department is higher than in other departments, and you're afraid that someone might file a sexual harassment charge. How certain are you that you could provide James with effective performance feedback?

CAN DO

CERTAINTY



3. Karen Black is one of your assistant managers. She is your brightest and most highly skilled employee. Recently you have received several complaints from her employees. It seems that she is very critical of their work and often leaves them feeling inept, confused or stupid. She never tells them when they do something right, only when they do something wrong. How certain are you that you could provide Karen with effective performance feedback?

CAN DO

CERTAINTY

4. Dan Green is a conscientious hard working employee. When it comes to effort, he tries harder than any of your other employees. He is also very meticulous when it comes to details, and always turns in top quality work. Unfortunately, he takes twice as long to finish his work assignments as anyone else. This is costing your department a lot of money in overtime. Furthermore, your other employees have been complaining that Dan doesn't pull his own weight and that they are getting tired of having to do extra work because he is always behind. How certain are you that you could provide Dan with effective performance feedback?

CAN DO

CERTAINTY

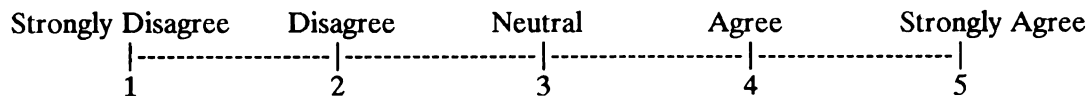
5. Your organization prohibits smoking in all public areas, therefore, employees are no longer allowed to smoke at their desks. Smoking is allowed only in the smoking lounge, which is a very small out of the way room located two floors up. You have on two occasions caught Tom Wilson smoking at his desk. Yesterday you overheard him telling another co-worker that he didn't give a *#@\$! what you said, no one could take away his rights. How certain are you that you could provide Tom with effective performance feedback?

CAN DO

CERTAINTY

SELF-EFFICACY B

Poorly presented performance feedback can result in distrust, hostility, dissatisfaction, and turnover. Effective performance feedback should be motivational and should encourage development. For each of the following items please use the scale below:



- | | |
|--|-----------|
| 1. I am confident in my ability to give effective negative performance feedback to others. | 1 2 3 4 5 |
| 2. I feel certain that when I tell others what they are doing wrong, they feel motivated to improve. | 1 2 3 4 5 |
| 3. I think that my skill in giving effective negative feedback could be improved substantially. | 1 2 3 4 5 |
| 4. I don't feel that I am very good at giving effective negative performance feedback to others. | 1 2 3 4 5 |
| 5. My negative feedback skills are not as good as I would like. | 1 2 3 4 5 |
| 6. My ability to give effective negative feedback is better than most people's. | 1 2 3 4 5 |
| 7. It is very difficult for me to give effective negative feedback to others. | 1 2 3 4 5 |



KNOWLEDGE (A)

For each of the items listed below please indicate whether you feel it is an appropriate (A) or inappropriate (I) example of constructive feedback behavior. In addition, if you feel the behavior is inappropriate, give a brief explanation why.

- I A 1. "You are doing fine, but you could do a little better."

General evaluative statement. Not specific.

- I A 2. "Overall, you're not a bad employee."

General evaluative statement. Not specific

- I A 3. "You've still got a lot of room for improvement. Look at John and Sue for example. They haven't had any problems getting their reports turned in on time."

Compared the employee to other employees.

- I A 4. The feedback giver does almost all of the talking.

The feedback giver should ask and listen openly to the employee's reasons

for the behavior, ask for ideas on how to solve the problem, and ask

what he/she (the feedback giver) can do to help.



- I A 5. "I can't believe you forgot about the meeting. 'I forgot' is not an acceptable excuse. It's time you grew up and stopped being so irresponsible."

Don't scold or belittle the employee. Explain the problem to the employee without hostility.

- I A 6. "I can understand you're having a creativity block, we all get stuck from time to time."

Showed understanding of the employee's feelings.

- I A 7. "This is the third time this week that you've been late coming back from lunch."

Explained the problem to the employee without hostility.

- I A 8. "What can I do to help you improve your writing skills?"

Asked the employee what he/she could do to help.

- I A 9. "I would like to meet with you next Wednesday, between four and five o'clock to discuss how the solutions from this meeting are working."

Agreed to review performance at a later date.

- I A 10. "Jan, have you got a minute?" Why don't we go get some coffee and donuts in the employee snack room. "I want to discuss a recent phone conversation I had with one of your clients."

Should discuss the problem in a private location.



KNOWLEDGE (B)

Recently, your secretary has been acting rude toward clients. She never smiles, or greets them when they come into the office. She often acts like she's too busy to bother with them. Describe below how you would go about telling her that her performance is unacceptable. Describe in detail how you would handle the situation (i.e., what you would say to her and in what order you would say it?).

Subjects received 1 point each for including the following learning points in their answer.

DO's

- 1. Talk with the employee in a private location.**
- 2. Use eye contact.**
- 3. Be aware of nonverbal behaviors.**
- 4. Explain the problem to the employee without hostility.**
- 5. Criticize the behavior, not the employee.**
- 6. Be specific.**
- 7. Ask for and listen openly to the employee's reasons for the behavior.**
- 8. Show that you understand the employee's feelings.**
- 9. Ask the employee for his or her ideas on how to solve the problem.**
- 10. Ask the employee if there is anything that you can do to help.**
- 11. Agree to review performance at a later date.**

KNOWLEDGE (C)

In the space below, list as many of the learning points that you can remember.

Subjects received 1 point each for listing the following learning points in their answer.

DON'Ts

- 1. Use general evaluative statements.**
- 2. Scold or belittle the employee because of their actions.**
- 3. Make attributions for the causes of the employee's behavior.**
- 4. Compare the employee to other employees.**
- 5. Rush through the feedback session.**

DO's

- 1. Talk with the employee in a private location.**
- 2. Use eye contact.**
- 3. Be aware of nonverbal behaviors.**
- 4. Explain the problem to the employee without hostility.**
- 5. Criticize the behavior, not the employee.**
- 6. Be specific.**
- 7. Ask for and listen openly to the employee's reasons for the behavior.**
- 8. Show that you understand the employee's feelings.**
- 9. Ask the employee for his or her ideas on how to solve the problem.**
- 10. Ask the employee if there is anything that you can do to help.**
- 11. Agree to review performance at a later date.**

APPENDIX E



APPENDIX E

POST HOC ANALYSES

An Examination of the Interaction Between Videotaped Feedback and Self-ratings

One possible explanation as to why videotaped feedback had no main effect on post training performance is that videotaped feedback may have had a negative impact on the performance of some subjects and a positive impact on the performance of others. Observing oneself fail at a task may lower self-efficacy and subsequent performance. It is also possible that observing oneself fail may create self-dissatisfactions that serve as motivational inducements for enhanced effort (Bandura & Cervone, 1983). According to Bandura (1986), social cognitive theory postulates two cognitive mechanisms that influence motivation and behavior. The first operates anticipatorily through self-efficacy and outcome expectations. The second, labeled a self-regulatory mechanism (Bandura, 1986), operates through internal standards and self-evaluative reactions to one's performance. When people commit themselves to explicit standards, perceived negative discrepancies between their actual performance and their internal standard creates self-dissatisfactions that serve as motivational inducements for enhanced effort. Past research supports the existence of self-regulatory mechanisms. For example, research has shown that:

(a) individuals react to initial failure to reach a performance standard by intensifying

their effort, whereas repeated failures lead to giving up the standards (Campion & Lord, 1982), (b) the higher one's self-dissatisfaction with substandard performance and the stronger one's perceived self-efficacy for goal attainment, the greater the subsequent intensification of effort (Bandura & Cervone, 1983), and (c) subjects who receive negative feedback perform at higher levels on subsequent trials than subjects who receive positive feedback (Podsakoff & Farh, 1989).

While no specific goal or standard was assigned in this study, subjects were asked to try to include as many of the learning points as possible in their role plays. In addition, subjects in this study were asked to rate their performance on the practice role play. Therefore, a post hoc analysis was performed to examine whether self-evaluative reactions to one's performance (i.e., self-ratings of one's performance) moderate the impact of videotaped feedback on post training performance. This post hoc prediction was tested using a hierarchical moderated regression analysis in which post training role play performance was regressed on: (1) pre-training role play performance, (2) videotaped feedback, (3) self-rating (SRT), and (4) the interaction between videotaped feedback and one's self-rating (VFSRT). See Table 15.

As predicted the interaction between videotaped feedback and self-rating was significant. Subjects who received videotaped feedback and gave themselves lower self-ratings had greater post training performance than subjects who gave themselves higher self-ratings. The opposite was true for subjects who did not receive videotaped feedback. That is, subjects who gave themselves higher self-ratings had higher post training performance than subjects with gave themselves lower self-ratings. This interaction is displayed in Figure 17.

Table 15.
Regression Results for Videotaped Feedback and Self-rating^a.

Step	Variable	R	R ²	ΔR^2
1.	Pre-training Role Play Performance	.275	.076	.076***
2.	Videotaped Feedback	.279	.078	.002
3.	Self-rating	.283	.080	.002
4.	Videotaped Feedback x self-rating	.319	.102	.022*

* $p < .05$.

*** $p < .001$.

^aCoefficient alpha for the self-rating measure was .78.

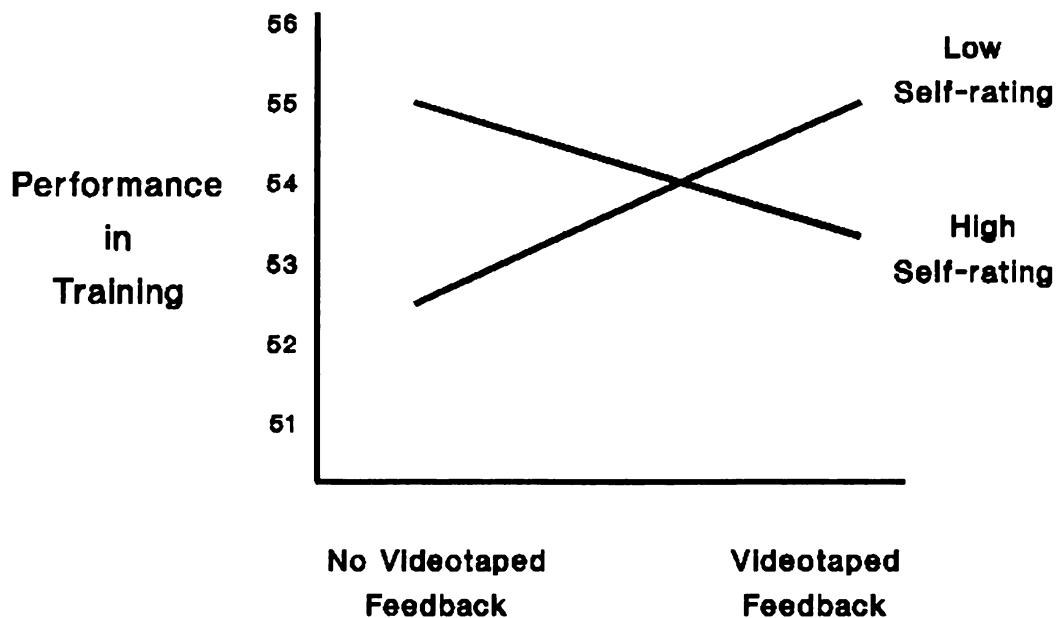


Figure 17. Interaction between videotaped feedback and self-rating. (Regression equation: $\hat{Y} = .29 (\text{PRE-TR PERF}) + 17.0 (\text{VF}) + .19 (\text{SRT}) - .33 (\text{VFSRT}) + 28.97$.)



An Examination of the Interaction Between Videotaped Feedback, Self-ratings and Self-efficacy

An additional regression analysis was performed to examine whether self-efficacy interacts with feedback sign (self-ratings) and videotaped feedback to influence subsequent performance. In other words, post training role play performance was regressed on: (1) pre-training role play performance, (2) videotaped feedback, (3) self-rating (SRT), (4) self-efficacy (SE), (5) the interaction between videotaped feedback and one's self-rating (VFSRT), (6) the interaction between videotaped feedback and self-efficacy (VFSE), and (7) the triple interaction between videotaped feedback, self-rating and self-efficacy (VFSRTSE). The results of this regression analysis are shown in Table 16.

Table 16
Regression Results for Videotaped Feedback, Self-efficacy and Self-ratings.

Step	Variable	R	R ²	ΔR^2
1.	Pre-training Role Play Performance	.261	.068	.068***
2.	Videotaped Feedback	.269	.072	.004
3.	Self-rating	.276	.076	.004
4.	Self-efficacy	.394	.155	.079***
5.	Videotaped Feedback x self-rating	.411	.169	.014†
6.	Videotaped Feedback x self-efficacy	.428	.183	.014†
7.	Videotaped Feedback x self-rating x self-efficacy	.445	.198	.015†

† $p < .10$.
*** $p < .001$.

A marginally significant triple interaction was found ($sr^2 = .015$, $p < .10$) such that the lower one's self-rating and the higher one's self-efficacy, the greater one's post training performance. Thus, the results of this study are similar to that of Bandura and Cervone (1983) who found that the higher one's self-dissatisfaction with substandard performance and the stronger one's perceived self-efficacy for goal attainment, the greater the subsequent intensification of effort. This triple interaction is displayed in Figure 18.

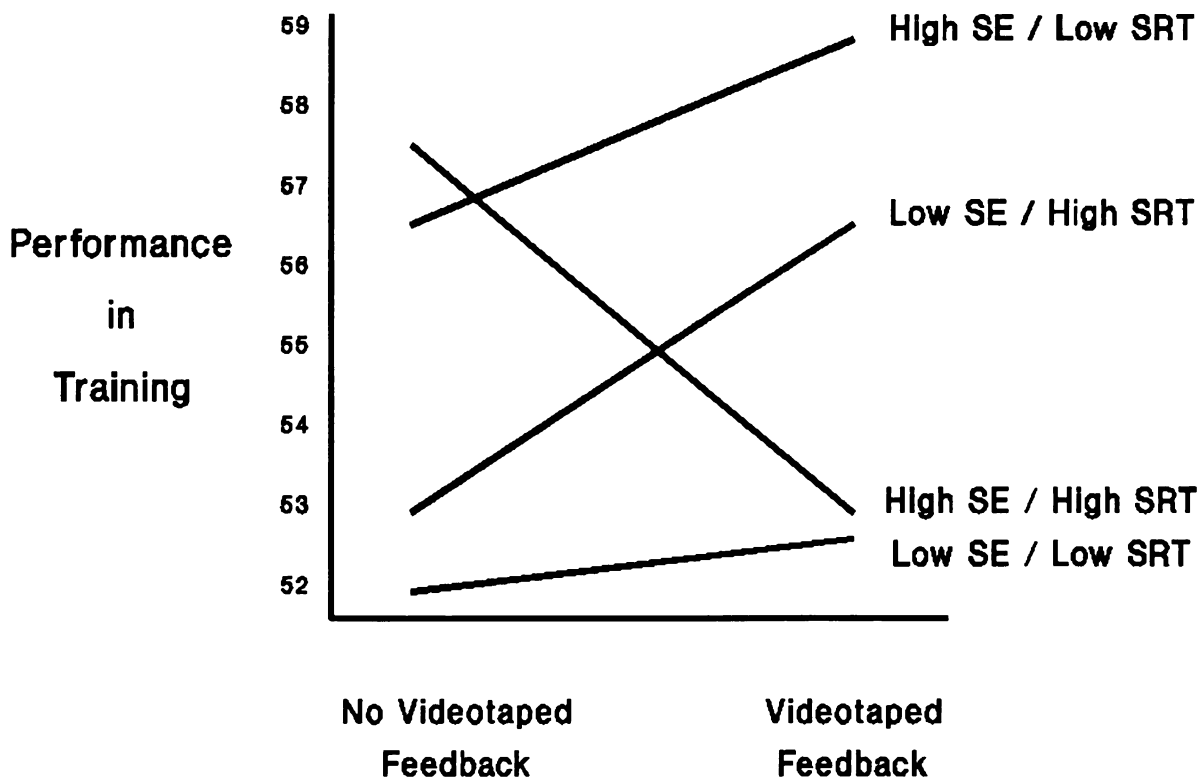


Figure 18. Triple interaction between videotaped feedback, self-efficacy and self-rating. (Regression equation: $\hat{Y} = .23 (\text{PRE-TR PERF}) + 8.8 (\text{VF}) + .05 (\text{SRT}) + .45 (\text{SE}) - .15 (\text{VFSRT}) + 1.48 (\text{VMSRT}) - .04 (\text{VFSESRT}) + 42.3$.)



An Examination of the Relationship Between Self-ratings and the Rater's Ratings

An alternative explanation as to why videotaped feedback had no main effect on post training role play performance is that subjects were not able to make accurate evaluations of their own performance. In order to test this prediction self-ratings on the practice role play were correlated with performance ratings on the practice role play. Performance ratings on the practice role play were obtained from one of the trained raters who evaluated a sample ($N=127$) of the videotaped practice role plays using the same 14-item behavioral rating scale used to evaluate the pre-training and post training role plays (67 of the 194 videotaped practice role plays were either taped over or inaudible). The results of this analysis revealed a correlation coefficient of ($r = .30, p < .001$) suggesting a significant but low level of agreement between the performance ratings of the trained rater and subject self-ratings. Further analysis revealed that subjects in the videotaped feedback conditions were no more or less accurate than subjects in the no-videotaped feedback conditions. More specifically, the correlation between self-ratings and performance ratings was ($r = .29, p < .01$) for subjects in the videotaped feedback conditions and ($r = .30, p < .01$) for subjects in the no videotaped feedback conditions. In addition self-ratings on the practice role play were significantly related to videotaped feedback condition ($r = .15, p < .05$) such that subjects in the videotaped feedback conditions gave themselves slightly higher ratings (Mean = 51.6, SD = 5.6) than subjects in the no videotaped feedback conditions (Mean = 49.8, SD = 6.7). Correlations are shown in Table 17.

Table 17

Means, standard deviations, and intercorrelations between training treatment, self-ratings and training outcome variables.

Variable	M	SD	1	2	3	4	5	6	7	8
1. Videotaped Modeling ^b	—	—	—							
2. Videotaped Feedback ^b	—	—	—	—						
3. Self-ratings	50.73	6.20	.01	.15*	—					
4. Self-efficacy (A)	.00	5.56	.01	.08	.35***	—				
5. Knowledge	28.94	3.51	-.06	.05	.02	.20**	—			
6. Pre-training role play performance	41.55	6.11	-.16*	.09	.17**	.17*	.06	—		
7. Practice role play performance	51.43	6.14	.15*	.00	.30***	-.01	.13	.11	—	
8. Post training role play performance	54.34	6.63	.25***	.07	.10	.33***	.32***	.27***	.27***	—

^bVideotaped modeling and videotaped feedback are dichotomous variables coded 0 = without, 1 = with.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

An Examination of a Suppressor Effect

Since post training knowledge was positively related to post training role play performance ($r = .32$, $p < .001$), and the combined treatment condition was found to have a positive impact on post training role play performance ($\beta = .26$, $p < .05$) and a negative impact on post training knowledge ($\beta = -.30$, $p < .05$), the true impact of the combined treatment condition on post training role play performance may be suppressed because of the negative impact it has on knowledge. In order to examine the possibility of a suppressor effect, an additional analysis was performed to examine the impact of the combined treatment condition on post training role play performance controlling for post training knowledge. Specifically, post training

role play performance was regressed on: (1) pre-training role play performance, (2) knowledge, (3) videotaped modeling, (4) videotaped feedback, (5) the interaction between videotaped modeling and videotaped feedback.

Table 18
Regression Results for the Impact of Videotaped Modeling and Videotaped Feedback on Post Training Role Play Performance Controlling for Post Training Knowledge

Step	Variable	β	R	R ²	ΔR^2
1.	Pre-training Role Play Performance	.29	.249	.062	.062***
2.	Post training knowledge	.37	.398	.158	.096***
3.	Videotaped Modeling	.10	.514	.264	.106***
4.	Videotaped Feedback	-.17	.516	.267	.003
5.	Videotaped Modeling x Videotaped Feedback	.39	.561	.315	.048***

* $p < .05$.

** $p < .01$.

*** $p < .001$.

The results shown in Table 18 support the existence of a suppressor effect. When the effects of post training knowledge are controlled, the effect size for the combined treatment condition increases ($sr^2 = .048$, $p < .001$, versus $sr^2 = .023$, $p < .05$).

An Examination of the Interaction Between Self-efficacy and Training Treatment

Research has shown that low self-esteem subordinates were more likely to imitate or model their supervisors than high self-esteem subordinates (Weiss, 1977; 1978). Since self-efficacy is a similar construct to self-esteem, it is suggested that low self-efficacy subjects in this study may benefit more from videotaped modeling than high self-efficacy subjects. Research has also shown that the performance of low

self-esteem individuals, but not high self-esteem individuals, decreases under conditions of high self-focus (a mirror, an audience or a videotape camera) (Brockner, 1979). This finding suggest that videotaped feedback may have a negative effect on the performance of low self-efficacy individuals, but not high self-efficacy individuals. In order to test these predictions two hierarchical moderated regression analyses were performed. In the first equation performance on the post training role play was regressed on: (1) pre-training role play performance, (2) videotaped modeling, (3) self-efficacy and (4) the interaction between videotaped modeling and self-efficacy. In the second equation performance on the post training role play was regressed on: (1) pre-training role play performance, (2) videotaped feedback, (3) self-efficacy, and (4) the interaction between videotaped feedback and self-efficacy. The results of these analyses are shown in Table 19 and Table 20.

Table 19
Regression Results for the Interaction Between Videotaped Modeling and Self-efficacy

Step	Variable	R	R ²	Δ R ²
1.	Pre-training Role Play Performance	.261	.068	.068***
2.	Videotaped Modeling	.386	.149	.121***
3.	Self-efficacy	.476	.227	.078***
4.	Videotaped Modeling x Self-efficacy	.477	.228	.001

*** $p < .001$.



Table 20
Regression Results for the Interaction Between Videotaped Feedback and Self-efficacy

Step	Variable	R	R ²	ΔR^2
1.	Pre-training Role Play Performance	.261	.068	.068***
2.	Videotaped Feedback	.269	.072	.004
3.	Self-efficacy	.393	.154	.082***
4.	Videotaped Feedback x Self-efficacy	.422	.178	.024*

* $p < .05$.
 *** $p < .001$.

No significant interaction was found between videotaped modeling and self-efficacy, however, there was a significant interaction between videotaped feedback and self-efficacy, such that low self-efficacy individuals performed better in the videotaped feedback conditions than the no videotaped feedback conditions and high self-efficacy individuals performed better in the no videotaped feedback conditions than the with videotaped feedback conditions. See Figure 19.

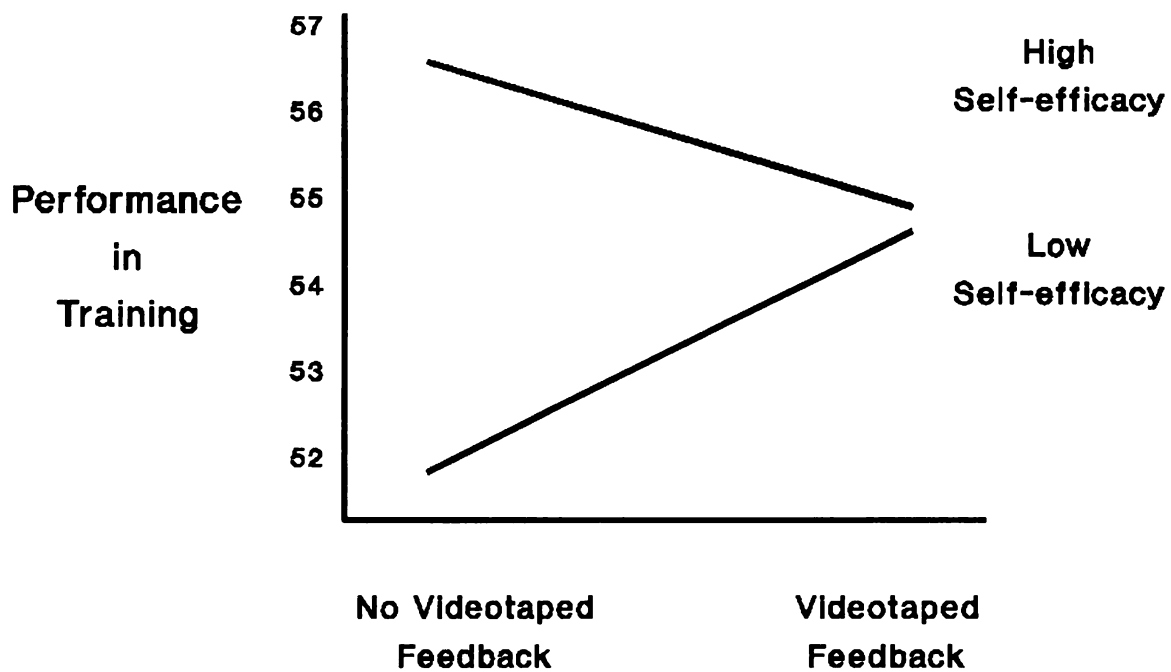


Figure 19. Interaction between videotaped feedback and self-efficacy. (Regression equation: $\hat{Y} = .24 (\text{PRE-TR PERF}) + .65 (\text{VF}) + .46 (\text{SE}) - .42 (\text{VFSE}) + 44.28.$)

An Examination of the Interaction Between Feedback Experience and Training Treatment

A final set of analyses were performed to examine the possibility that experienced feedback givers would be less likely to benefit from videotaped modeling and videotaped feedback than inexperienced feedback givers. This prediction is based on the assumption that experienced feedback givers have already established patterns of interacting with other and may be less likely to learn from watching their mistakes. In order to test these predictions two hierarchical moderated regression analyses were performed. In the first equation performance on the post training role play was regressed on: (1) pre-training role play performance, (2) videotaped modeling, (3) feedback experience and (4) the



interaction between videotaped modeling and feedback experience. In the second equation performance on the post training role play was regressed on: (1) pre-training role play performance, (2) videotaped feedback, (3) negative feedback experience (NFBE), and (4) the interaction between videotaped feedback and feedback experience (VFNFBE). The results of these analyses are shown in Table 21 and Table 22.

Table 21
Regression Results for the Interaction Between Videotaped Modeling and Feedback Experience

Step	Variable	R	R ²	Δ R ²
1.	Pre-training Role Play Performance	.267	.071	.071***
2.	Videotaped Modeling	.422	.178	.107***
3.	Feedback Experience	.426	.181	.003
4.	Videotaped Modeling x Feedback Experience	.433	.187	.006

* $p < .05$.
 ** $p < .01$.
 *** $p < .001$.

Table 22
Regression Results for the Interaction Between Videotaped Feedback and Feedback Experience

Step	Variable	R	R ²	Δ R ²
1.	Pre-training Role Play Performance	.267	.071	.071***
2.	Videotaped Feedback	.269	.072	.001*
3.	Feedback Experience	.272	.074	.002
4.	Videotaped Feedback x Feedback Experience	.327	.107	.033*

* $p < .05$.
 *** $p < .001$.



A significant interaction between videotaped feedback and negative feedback experience was found such that videotaped feedback had a positive impact on the performance of individuals with little or no feedback experience and a negative impact on the performance of individuals with greater negative feedback experience. Videotaped modeling also had a greater impact on inexperienced individuals, although this difference was not significant ($p > .10$). See Figure 20.

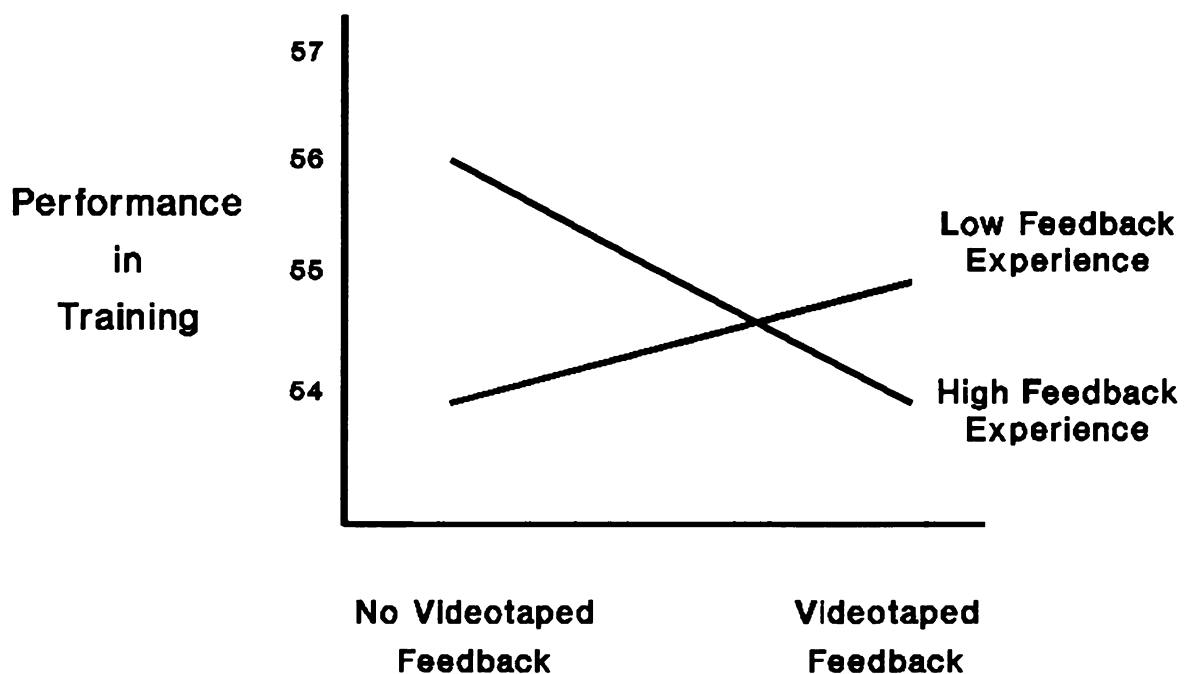


Figure 19. Interaction between videotaped feedback and negative feedback experience. (Regression equation: $\hat{Y} = .29 (\text{PRE-TR PERF}) + 1.26 (\text{VF}) + .10 (\text{NFBE}) - .16 (\text{VFNFBE}) + 41.87$.)

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