5-31-1968

An Investigation of the Relationship of Three Variables to the Acquisition of Avoidant Behavior Through Imitation

Robert Paul Rost II

THREE VARIABLES TO THE ACQUISITION OF AVOIDANT BEHAVIOR - ROST

This dissertation, directed and approved by the candidate's committee, has been accepted by the Graduate Committee of The University of New Mexico in partial fulfillment of the requirements for the degree of

AN INVESTIGATION OF THE RELATIONSHIP OF THREE VARIABLES TO THE ACQUISITION OF AVOIDANT BEHAVIOR THROUGH IMITATION

Title

ROBERT PAUL ROST II

Candidate

GUIDANCE AND SPECIAL EDUCATION

Department

Brian E. O'Neil

Dean

May 31, 1968

Date

Committee

Gordon A. Zick

Chairman

Karel Kaemp

L. C. Bernardoni

Wayne Moellenberg

AN INVESTIGATION OF THE RELATIONSHIP OF THREE VARIABLES TO THE ACQUISITION OF AVOIDANT BEHAVIOR THROUGH IMITATION

BY
ROBERT PAUL ROST
B.A., University of New Mexico, 1963
M.A., University of New Mexico, 1965
Ed.D., University of New Mexico, 1968

DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Education
in the Graduate School of
The University of New Mexico
Albuquerque, New Mexico

ACKNOWLEDGEMENTS

Special thanks are due to the directors and teachers of the nursery school and kindergarten located in Manzanita Center, without whose cooperation the present study would not have been possible. Sincere gratitude must also be expressed for the assistance of the writer's graduate committee: Drs. Gordon Zick, Karl Koenig, and Wayne Moellenberg.

Sincere appreciation must also go to the writer's wife, Marilyn, for a patience that was undoubtedly difficult to maintain.

AN INVESTIGATION OF THE RELATIONSHIP OF THREE VARIABLES TO THE ACQUISITION OF AVOIDANT BEHAVIOR THROUGH IMITATION

BY
ROBERT PAUL ROST
B.A., University of New Mexico, 1963
M.A., University of New Mexico, 1965
Ed.D., University of New Mexico, 1968

ABSTRACT OF DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Education
in the Graduate School of
The University of New Mexico
Albuquerque, New Mexico

ABSTRACT

A 2 x 2 x 3 design was employed to investigate the influence of three variables on the acquisition of avoidant behavior through imitation. The three variables were sex of the model (male and female), sex of the subject (male and female), and the prestige attributed to the model (high, low, or no).

Subjects for the study were 46 members of the nursery school and kindergarten at the University of New Mexico. Models were college students who were selected for their ability and willingness to be quite demonstrative.

The experimental room consisted of a corridor 15 feet long and 4 feet wide. The corridor was divided in the middle by a curtain, which when closed, obscured from the view of the Ss the stimulus object at the opposite end of the corridor. The stimulus object was a 15 inch long, stuffed Iguana lizard.

Each S was pretested by being asked to comply with six behavior requests which ultimately brought the S into close physical contact with the stimulus object. Independent judges assessed each S's behavior by timing the S's responses to each of the behavior requests. The judges were stationed behind a one-way window facing the corridor.

Ss were then randomly assigned, by sex, to six treatment groups: Female model, high prestige; Female model, low prestige; Male model, high prestige; Male model, no prestige; Male model, low prestige; Female model, no prestige. This procedure allowed for an equal number of male and female Ss in each group. This procedure also allowed for twelve

subgroups for purposes of analyses--six treatment groups with male Ss and six treatment groups with female Ss.

The treatment procedure involved having each S observe the appropriate model, preceded by the appropriate prestige introduction. The modeled behavior was conveyed via video-tape replay. The modeled behavior was avoidant behavior in response to the same six behavior requests made of the Ss on the pretest. Each S was posttested immediately after the observation of the model. A follow-up test took place two weeks later.

An analysis of variance revealed no significant differences in posttest or follow-up test performances with regard to the three independent variables. An analysis of covariance indicated that there were no significant differences among the twelve subgroups when posttest scores were covaried with pretest scores.

An interview following the last test revealed that although Ss had been convinced that the models' behavior was truly avoidant, they were also convinced that the behavior was irrational and consequently did not imitate the behavior.

There was also an indication that Ss derived a sense of security from E's presence and as a result felt that nothing would happen to them if they approached the stimulus object even after they had observed the avoidant models.

Previous research has supported the proposal that the three variables under consideration are influential in the acquisition of behavior, especially approach behavior. The fact that avoidant behavior was modeled in the present study and the three variables were apparently

ineffective in the acquisition of the modeled behavior, indicates that these variables may be primarily effective with approach behavior only. It follows that research should be directed at determining what variables are influential in the acquisition of avoidant behavior through imitation.

TABLE OF CONTENTS

LIST OF TABLES

TABLE PAGE

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The acquisition of deviant as well as prosocial behavior has been the basis of much research among psychologists, anthropologists, sociologists, and educators for some time. Many psychologists, in their attempts to explain the acquisition of such behaviors, referred to as social learning, have relied heavily on learning theory. Popular among the learning theory approaches to social learning is the operant conditioning procedure of successive approximations (Skinner, 1953). Also, Rotter (1954) suggests the existence of a hierarchy of responses that tend to occur in different situations with varying degrees of probability. Such approaches may very well account for the demonstration of desired behaviors if the behaviors are already available in the learner's repertory but do not necessarily account for the learning of new behaviors.

The others, anthropologists, sociologists, educators, and some psychologists have relied more on what they call social learning theory with an emphasis on the acquisition of novel responses. In regard to the learning theory approach, Bandura and Walters (1963) comment that much of the information thus far concerning deviant and prosocial behavior, has been based on only a few principles of learning and has been relatively ineffective in accounting for spontaneous or novel learning. Along with this idea they felt that the importance of social agents as a source of behavior had been largely ignored despite evidence from informal observation and laboratory experimentation that the

provision of models in actual or symbolic form was an exceedingly effective procedure for transmitting and controlling behavior.

Miller and Dollard as early as 1941 stressed the importance of imitation in maintaining social conformity and discipline. Individuals, they said, must be trained in many situations, so that they will be comfortable when they are doing what others are doing and miserable when they are not. They go on to say that culture patterns of society have been achieved by many generations of trial-and-error behavior and they constitute a tested way of life which has proved its value. This desirable conformity to social patterns is achieved in part by techniques of imitation which individuals acquire during early years of life. It is important, therefore, to understand just how imitative behavior arises.

In recent years, research has centered around a large number of variables in an attempt to isolate those that might account for imitative learning. Among those variables studied are response consequences to the model, response consequences to the observer, social status attributed to the model, nurturance of the model, social power of the model, real life models versus cartoon or other film-mediated models, positive versus neutral environmental settings, sex of the model as related to sex of the observer, and the prestige attributed to the model by the observer. Somewhat less than conclusive evidence has been presented in regard to which sex-type young children imitate the most readily. In addition, very little information is available concerning the prestige attributed to the model by young children, and subsequent observational learning on the part of young children.

The acquisition, through imitation, of several types of behavior patterns has received the researchers' attention. These types include

aggressive behavior, approach behavior, decision making behavior, and information seeking behavior. The acquisition of avoidant behavior, however, is conspicuously absent from the research dealing with observational learning.

The present study has concerned itself with several aspects of observational learning for which less than conclusive evidence is available. The questions studied in this research project were:

1. Do young children tend to imitate same-sex or cross-sex models?
2. Are males more susceptible to modeling procedures than females?
3. Will the prestige attributed to a model by an observer (young child) affect the degree to which that observer will imitate that model?
4. Is it possible to transmit avoidant behavior in a particular situation to an observer who has already exhibited approach behavior in that same situation?

Statement of the Problem

The purpose of this study was to investigate three variables that may be involved in the transmission of avoidant behavior to young children through the use of film-mediated adult models. The variables studied were: 1) the sex of the model, 2) the sex of the subject (child, observer), and 3) the prestige attributed to the model by the observer prior to and during the observation period.

It was a problem of this study to measure the changes in the behavior of the subject population as a result of the main effects or interaction effects of the variables outlined above. The following null hypotheses were considered:

H_{o_1} There will be no significant difference in the behavior of subjects who observe a male model and those who observe a female model.

H_{o_2} There will be no significant difference in the behavior of male and female subjects as a result of observing models.

H_{o_3} There will be no significant difference in the behavior of subjects who observe a high prestige model and those who observe a low prestige model or a no prestige model.

H_{o_4} There will be no significant interaction effects among the sex of the model, the sex of the subject, and the prestige attributed to the model.

Definitions

Behavior. Refers to those responses made by subjects in reaction to the pretesting, the posttesting, and the follow-up testing situations.

Identification. The general acquisition of behavior patterns of a model and the performance of those patterns either in the presence or absence of the model.

Imitation. The occurrence of specific matching responses and the performance of those responses in either the presence or the absence of the model.

Judge. Those people who assessed the behavior of the observers (subjects) in the pretest, the posttest, and the follow-up test.

Novel Responses. Behavior acquired and demonstrated functionally without prior practice.

Prestige. Characteristics attributed to a model that tend to enhance or decrease an observer's desire to imitate that model.

Social Learning. The acquisition of behavior as a result of an individual's interaction with his social environment.

Vicarious Learning. The acquisition of behavior responses as

a result of another individual's experiences.

Vicarious Reinforcement. Transferring the response consequences of someone else's behavior to oneself.

CHAPTER II

REVIEW OF THE LITERATURE

A Basis for Imitation--Anthropological Studies

In many cultures the learning of appropriate adult roles is of primary significance as soon as the child is capable of responding under his own volition. The provision of appropriate models during the period of socialization, according to Bredemeier and Stephenson (1965), appears to have important implications for effective acquisition of the patterns of behavior to be learned. The effectiveness of a model seems to hinge upon the extent to which the socializee identifies with him and the position of the model in the social system. A positive cathexis for the model provides the socializee with incentive to learn status expectations and vests them with prestige and value. In addition, the model becomes a source of reward for encouraging deferment of gratification in the form of favorable approval for mastering the status. Parents usually act as models for a range of statuses such as those linked to age, sex, and occupations (Bredemeier and Stephenson, 1965).

Minturn and Hitchcock (1963) point out that among the Rajputs in India, children are thought to learn from observation and the mothers feel little need to reason with children to explain demands made of them or to spend time in instructing them. They go on to point out that all socialization techniques employed by the adults are probably less effective in the modification of the childrens' behavior than the observation and imitation through which the children gradually absorb the skills, customs, and values of their group. The preschool period

might be called the period of observation and imitation for Rajput children (Minturn and Hitchcock, 1963).

In studying children in Lesu, Powdermaker (1933) found that imitative learning is not limited to just sex-appropriate vocational and domestic duties. The children of Lesu accompany and observe adults in all walks of life from social gatherings to more intimate relationships such as sex behavior. The children are expected to, and in fact do quite readily, imitate what they see and hear.

Maretzki and Maretzki (1963) point out that in the village of Taira in Okinawa there is no complex system of training skills. Adults rely heavily on observation and imitation on the part of children--children learn by observation and experimentation. Whatever adults are doing, children are present to watch their activities and overhear their conversations. Children go to the fields with their parents and walk along the ditches watching the adults work the fields (Maretzki and Maretzki, 1963).

Here in the United States, Talcott Parsons (1949) has indicated that girls have a definite advantage in adopting the appropriate sex role as a result of many opportunities to observe the appropriate sex role model, the mothers. Boys, on the other hand, are faced with a situation that many times is void of the appropriate sex role model, the father. In much of United States' society the father is working away from the home and the son is not able to observe him and imitate the appropriate sex role responses.

The conscious use of imitation in child rearing can be found among the Navahos in Southwestern United States (Leighton and Kluckhohn,

(1947). Such training extends even to eliminative acts. The child is taken with the mother or an older sister when she herself goes to defecate and tells the child to imitate her position and her actions.

It appears, then, that in many cultures, children are not told what to do but are shown what to do (Reichard, 1938).

A Psychological Basis for Imitation

Psychologists, as early as the first part of the century, were entertaining the idea that imitative learning did take place (Lloyd Morgan, 1896; Tarde, 1903; McDougall, 1908). Jones (1924) employed the method of social imitation to extinguish children's fears.

Freud's theory of identification stressed the normal child establishing its major identification with the parent of the same sex. Clearly, he believed that a model was important for learning sex roles and so he must have believed in learning by example. Perhaps by identification, he did mean imitation (Brown, 1965).

Social Learning and Imitation (Miller and Dollard, 1941) was, however, the first systematic attempt to place imitation in a behavior theory framework (Bandura and Walters, 1963). Mowrer, first in 1950 and again in 1960, was next to formulate a systematic theory of imitation and one that was somewhat different from that of Miller and Dollard. Finally, Bandura and Walters (1963) presented their ideas concerning imitative behavior which differ from both Miller and Dollard and Mowrer in that they acknowledge and attempt to account for the acquisition of novel responses.

Theories of Imitation

According to Miller and Dollard (1941), ". . . imitation is a process by which matched or similar acts are evoked in two people and connected to appropriate cues." They go on to describe three mechanisms that seem to account for all or most imitative behavior. These mechanisms are:

1. Same behavior where two people perform the same act in response to independent stimulation by the same cue, each having learned by himself to make the response.
2. "Copying" where one person learns to model his behavior on that of another, via a sort of successive approximations, and at all times is aware of the progress he is making.
3. "Matched-dependent" behavior where the model responds to the environmental cues and his needs are satisfied while the observer responds to the cues supplied by the model's behavior and also has his needs satisfied.

Miller and Dollard go on to advocate that imitative behavior follows the laws of learning. Those aspects of learning that are present in imitation are drive, cue, response, and reward. The drive is generally the same in both the model and the imitator (thirst, fear, etc.). The cue, however, which leads to the response, is quite different. For the model, the cues are the environmental cues, while for the observer the cue is some aspect of the leader's response. The responses that follow the cues are generally identical or at least very similar. The reward is the same for both the leader and the follower, thus reinforcing both acts. In a sense, then, the observer learns to imitate, i.e., if he does what the model does, he is reinforced.

They further emphasize the application of the laws of learning to imitation by presenting evidence of discrimination and generalization of imitated behavior by both animals and children. Imitated behavior, say Miller and Dollard, appears when it is rewarded and tends not to appear when it is non-rewarded or punished.

According to Miller and Dollard, there are four classes of persons who are imitated by others: 1) superiors in age-grade hierarchy; 2) superiors in a hierarchy of social status; 3) superiors in an intelligence system; 4) superior technicians in any field.

The reason why imitation occurs in these situations is clear. Superordinated persons recognize the cue stimuli which designate the nearness or presence of important goals. The subordinated, seeking these goals, often find it easier to depend upon cues given off by the activity of a model (Miller and Dollard, 1941).

In regard to whether or not imitative ability is innate or learned, Miller and Dollard are quick to point out that the imperfections of the child's speech emphasize the point that imitation cannot be used to produce either a sound or a novel combination of sounds in a new situation unless the component cue-response matchings have already been learned.

Imitation is most useful because it can hasten the process of learning independent responses. However, Miller and Dollard feel that the following three conditions must be met before such learning can take place:

1. The cue-response connections producing the units of matched behavior must be present, if example is to be useful.
2. The model must be correct.
3. The subject must generalize from the situation in which the model's cue is present to the situation in which it is absent.

The extent to which generalization and independent learning can occur is determined by the degree to which the subject is exposed to the relevant environmental cues during the acquisition period. Thus, the more the act of imitation helps to direct the imitator's attention

toward those of the environmental cues which are relevant and so makes them distinctive while the correct response is being performed, the more likely the imitator is to become able to perform independently in the absence of the model (Miller and Dollard, 1941).

Mowrer proposes two forms of imitative learning. The first (Mowrer, 1950) involves the model demonstrating a particular behavior and at the same time rewarding the observer. Thus, the model's behavior takes on a secondary reward value for the observer and the observer attempts to reproduce the model's response at times when it is not being made by the model.

This particular approach to imitation is very similar to Holt's (1931) contiguity theory of learning in which the proximity of the stimulus and response naturally associates the two with each other and they tend to occur together the next time that stimulus is present. Mowrer is not satisfied that the process is complete, however, at the same point Holt says it is. Mowrer stresses that is is not only the temporal proximity of the stimulus and response that maintain the association, but the binding factor lies in the rewarding consequences of the response.

Mowrer (1950) uses an example of training a bird to talk to illustrate his idea of two factor analysis of imitative behavior. In the first place, the bird must learn to like the trainer. The trainer, both sight and sound, takes on secondary reward values for the bird. All of this occurs through contiguity learning. Trial-and-error or reward learning takes place next. The trainer has taken on secondary reward value and, according to Mowrer, there is every reason to suppose that if the bird could, it would reproduce the visual stimuli associated

with the trainer. This the bird cannot do. But with the sounds the trainer makes, it is different. If one of the sounds the bird happens to make resembles even slightly one of the trainer's sounds, that sound will, by the principle of generalization, have some secondary reward value; and the response involved in making it will be somewhat reinforced. In this way, the basis is laid for automatic trial-and-error learning which will bring the sound-producing response to an even higher level of perfection with no immediate or direct intervention on the part of the trainer. Maintenance of such imitative behavior is accounted for by the increase of intrinsic rewards as the reproduction of sounds similar to those made by the trainer (model) increases.

Mowrer's second type of imitative learning (Mowrer, 1960) concerns the vicarious transmission of the rewarding effects of the modeled behavior. Here, the model demonstrates the behavior and also experiences the consequences. The observer vicariously experiences both the sensory consequences as well as the concrete rewards and anticipates similar consequences when he performs the modeled behavior.

Bandura and Walters (1963) contend that previous theories of imitation have dealt with response consequences to the observer's behavior, i.e., instrumental conditioning. The observer reproduces the model's behavior during the period of acquisition and therefore is reinforced for doing so. They emphasize that there is mounting evidence that learning may occur through observation of the behavior of others even when the observer does not reproduce the model's responses during acquisition and consequently receives no reinforcement. It is thus evident, according to Bandura and Walters, that the learning

principles set out by Hull and by Skinner must be revised and extended in order to account adequately for observational learning. Moreover, they continue, these principles deal with the role of direct reinforcement. Since the eliciting and maintaining of imitative behavior are highly dependent on the response consequences to the model, an adequate social learning theory must also take account of the role of vicarious reinforcement, through which the behavior of an observer is modified as a result of the reinforcement administered to a model (Bandura and Walters, 1963, p. 4).

Like Miller and Dollard, Bandura and Walters are definitive in regard to the types of imitative behavior that may occur. They discuss three types of such behavior:

1. The observer may acquire new responses that did not previously exist in his repertory.
2. Observation of models may strengthen or weaken inhibitory responses (the response already exists in the observer's repertory).
3. Observation of a model sometimes elicits previously learned matching responses in the observer simply because the perceiving of acts of a certain kind serves as a "releaser" for responses of that same class.

An example of this eliciting effect would involve the individual who returns to his home town after an extended absence and very quickly begins to use the colloquial terminology, that for years he had no call to use. This effect of imitation, then, is different from the inhibitory or disinhibitory effect.

Thus, three rather distinct pairs of antecedent and consequential conditions seem to underlie the three approaches to understanding imitative behavior. Miller and Dollard emphasize both external cues and external rewards in explaining observational learning. Mowrer, on

the other hand, falls back on proprioceptive cues and rewards. Bandura and Walters, while appearing to be much less theoretically oriented than Miller and Dollard and Mowrer, stress antecedent and consequential social conditions as determinants of imitative behavior.

Significant Variables in Imitative Learning

The many variables in observational learning have been targets for much research recently. Response consequences to the model have received much attention (Bandura, 1965; Bandura, Ross and Ross, 1963b; Barnwell and Sechrest, 1965) and results indicate that those behaviors that are rewarded are the behaviors most likely to be imitated.

McDavid (1959) went as far as to study five factors he felt were significant in observational learning: biographical factors (age, sex of subject, sex of model); intellectual factors (Binet IQ scores); experimental variables (child rearing antecedents); conditions of family structure (ordinal position in the family); and tangential variables of social behavior which may gauge the generality of the imitative tendency over a wider area of behavior (observed dependency in play activity).

More recently, Bandura, Grusec, and Menlove (1967) investigated the extinction of avoidance responses through observation of modeled approach behavior with the observer placed in a highly positive environment. Jones (1924) attempted to extinguish children's fears through disuse, verbal appeal, negative adaptation, repression, distraction, direct conditioning, and social imitation. Only the latter two methods proved to be effective.

The use of models and subsequent reinforcement of imitated responses by the observer has been shown to be an effective agent in changing behavior (Krumboltz and Thoresen, 1964; Krumboltz, Varenhorst, and Thoresen, 1967; Thoresen, Krumboltz, and Varenhorst, 1965; Krumboltz and Schroeder, 1965; Ryan and Krumboltz, 1964; Bandura, Ross, and Ross, 1963c).

In line with the proposed intentions of the present study, the variables of the sex of the model as related to the sex of the observer has recently been a target for research as has the prestige and competence associated with the model. McDavid (1959) noted a slight (but non-significant, p between .10 and .20) tendency for all subjects to imitate the male leader more than the female leader.

In working with high school age males and females, Thoresen, Krumboltz, and Varenhorst (1965) found that the sex of the model was an important factor in subsequent imitative behavior on the part of male observers but this was less so for female observers. Males showed a marked tendency to imitate the male model and to nonimitate the female model. One factor needing investigation is the type of model effective with female observers (Krumboltz and Schroeder, 1965; Krumboltz and Thoresen, 1964).

Rosenbaum and Tucker (1962) have suggested that the experiences of most people have been such as to lead them to imitate competent models and nonimitate incompetent models. Bandura and Walters (1963) stated that another factor which may affect the effectiveness of reinforcement and modeling procedures is a function of the prestige attributed to the reinforcing source or to the model by the person

being influenced. Lefkowitz, Blake, and Mouton (1955) noted an increase in pedestrian violations following exposure to a model who violated a traffic signal, especially if the model was presented as a high status person.

In Social Learning and Imitation Miller and Dollard devote a full chapter to the prestige of the model. The prestige factor referred to in that chapter, however, involved the positive response consequences of the observer's behavior. If the observer was rewarded for imitating the model's behavior, then that model was considered a high prestige model (the model was the one who issued the rewards). The type of prestige under consideration in the present study differs from the Miller and Dollard definition of prestige. In this study prestige refers to social characteristics attributed to the model. Such characteristics as liking children, bringing children presents, etc. represent prestige in the present research.

Rationale for the Present Study

The lack of conclusive evidence concerning imitative behavior as a function of the sex of the model was one of the motivations behind the present study. Although this factor has been studied and alluded to in other studies, very little definitive information is yet available. On the less empirical side, anthropologists and sociologists have described the occurrence of the adoption of sex appropriate roles through imitation (Bredemeier and Stephenson, 1965; Minturn and Hitchcock, 1963; Maretzki and Maretzki, 1963; Nash, 1958).

In a study concerned with the sex role preference in young children, Brown (1956) noted that one of the most striking findings of

his study was the comparatively greater preference that boys show for the masculine role than girls show for the feminine role--a difference that was large and significant. Other studies (Krumboltz, Varenhorst, and Thoresen, 1967; Krumboltz and Schroeder, 1965; Krumboltz and Thoresen, 1964; Bandura, Ross, and Ross, 1963a; Bandura, Ross, and Ross, 1963b; Bandura, Ross,. and Ross, 1961; Johnson, 1951) have also noted differences in imitative learning and have attributed these differences to the interaction of the effects of the sex of the model and the sex of the observer. In some of these studies (Krumboltz and Schroeder, 1965; Krumboltz and Thoresen, 1964; Brown, 1956), however, the differences were not significant across-sex, i.e., performance of male observers was significantly influenced as a result of which sex of model they observed but this was not so for female observers who watched models of each sex.

The limited information concerning imitative behavior as a function of "prestige" attributed to the model was another motivating factor behind the present study. Miller and Dollard (1941) were concerned with the prestige of the model in affecting imitative behavior in an observer, but, as noted earlier, to them the prestige of the model was determined by whether or not the model rewarded the observer for imitating or nonimitating the model's behavior. Nonexperimental aspects of prestige, other than experimentally-produced rewards, such as personal characteristics and social power, were investigated in the present study.

From a sociological point of view the effectiveness of a model seems to hinge upon the extent to which the socializee identifies with him and the position of the model in the social system (Bredemeier and

Stephenson, 1965). Bandura, Ross, and Ross (1963c) attempted to determine whether status envy or social power was more effective in the transmission of novel responses by noting children's tendencies to imitate three sorts of models. The essential figures in this study were: one adult who controlled the rewards, one adult who received the rewards, and a child who occasionally received the rewards from one of the adults but otherwise was a noninvolved third party. The investigators suggested that if the chief determinant of imitation was status envy, the child should imitate the recipient of the rewards. If, however, the chief determinant is social power as advocated by Parsons (1955) then the child should imitate the controller of the rewards. Similarly, Mowrer (1958) argued that a child will wish to act like anyone who is associated with the gratification of his needs. Later, the adult models involved in the study performed rather demonstrative behaviors before the children and the subsequent imitative behavior by the children was noted. Children tended to imitate the controller of the rewards no matter who received the rewards.

In referring to the Bandura, Ross, and Ross (1963c) study, Brown (1965) stated that ". . . in general, parents can affect the behavior, the conduct, of children in at least two ways: by direct reward or punishment and by providing a model for imitation. It now looks as if power was the prime factor making a model attractive for imitation though such other factors as nurturance vicarious rewards may also be important" (Brown, 1965, p. 401).

Krumboltz, Varenhorst, and Thoresen (1967), although not looking specifically at prestige, stressed that it is quite plausible that the

prestige of a counselor is a major variable in his effectiveness. Also, a high-status model proved most effective for Lefkowitz, Blake, and Mouton (1955) in their study of pedestrian violations.

Finally, the acquisition of avoidant responses has received very little attention in the field of social learning. However, the extinction of avoidant responses has been studied most recently by Bandura, Grusec, and Menlove (1967). In that study, a highly positive environment and a peer model were combined to extinguish the avoidant responses young children directed toward dogs. Jones (1924) also used social imitation to extinguish fears in young children.

Barnwell and Sechrest (1965) provided some evidence that avoidant responses are learned in social situations through nonimitation. The paradigm for vicarious experience called for a model who performed and was reinforced and an observer who simply watched the procedure. A task choice situation was presented to pairs of children from first and third grades. Experimental manipulation consisted of administering to the model either positive verbal reinforcement, negative verbal reinforcement, or nonreinforcement. At the first grade level the observers responded to vicarious reinforcement as if they themselves had been directly reinforced. After watching the model perform and receive positive reinforcement, the observer was given the same task-choice situation and he invariably chose to perform the task for which the model was reinforced. On the other hand, first grade observers consistently avoided those tasks for which the model received negative reinforcement.

Other evidence of the acquisition of avoidant responses as a

result of nonimitation is provided by Bandura, Ross, and Ross (1963b) when they showed films to children in which a model behaved in a strikingly aggressive manner. In one film the model was rewarded for this aggressive behavior and in another film the model received a severe admonishing for his behavior. In a third film the aggressive behavior of the model led to no consequences. After observing the aggressive behavior, the children were mildly frustrated and the amount of imitative aggressive behavior demonstrated by the children was noted. The children who saw the model rewarded or receive no consequences for his aggressive behavior, imitated him more than those who saw him punished.

Miller (1948) provided evidence supporting the idea that avoidant behavior is a learned response and not innate. Rats were administered electric shocks in a white compartment of a shuttlebox and learned to escape the shocks by running through an open door into a black compartment. The formerly neutral cues of the white compartment rapidly acquired fear-producing properties and the animals continued to make avoidant responses long after shock stimulation had been discontinued. Escape from the conditioned aversive stimulus thus reinforce the avoidant behavior. The animals were then placed in the white compartment with the door closed but capable of being released by rotating a wheel. The wheel-turning response was rapidly learned. When conditions were changed so that wheel turning no longer released the door but the animal could escape from the fear-provoking compartment by pressing a bar, the former response was quickly extinguished while the latter became strongly established.

Solomon and Wynne (1953) also presented evidence that avoidance is a learned response when they replicated Miller's study; this time using dogs. Thus, there does seem to be evidence that avoidance is a learned response even if at this point it can be accounted for best by classical conditioning. It is a problem of this study to provide evidence concerning the acquisition of avoidant responses through social imitation.

CHAPTER III

EXPERIMENTAL DESIGN

Subject Population

Subjects for this study were taken from the nursery and kindergarten schools located in Manzanita Center on the University of New Mexico campus. The average age for the nursery school children was 48 months. The average age for the kindergarten children was 66 months. The overall average age for both groups was 57 months. Permission was sought (Appendix A) and granted from the parents of each child in the study allowing that child to participate. The actual participating subject population numbered 46 children.

Experimental Room

A corridor, four feet wide and fifteen feet in total length, was used as the experimental setting (Appendix B). The corridor was located in a much larger room. One side of the corridor was made up of a four foot high partition and the other side was the natural wall of the room and contained a five foot by three foot two-way mirror behind which judges were stationed. Dividing the corridor approximately in the middle was a five foot high curtain barrier that obscured the stimulus object from the vision of the observer. The stimulus object was on a small table approximately five feet from the curtain. The curtain was affixed so that it could be parted in the middle at the proper time allowing the subject to see the stimulus object and approach it is he so desired. The corridor was equipped with an audio system so that

judges were able to assess verbal responses as well as motoric responses.

The Stimulus Object

The stimulus object used was a fifteen foot long, stuffed Iguana lizard mounted on a log. Since avoidance responses were being studied, it was felt that a sufficiently awesome but not notably unfamiliar object should be used as a stimulus object. The stuffed Iguana seemed to fit both categories. Pilot subjects' reactions to the lizard were sufficiently varied to indicate that there was, in general, no initial avoidant response to the stimulus.

Procedure

Each S was brought to the experimental room by E and stationed at the end of the corridor opposite the stimulus object. The curtain midway in the corridor obscured the stimulus object from the view of S. S was then asked to perform a series of behaviors, which if complied with, would bring him into physical contact with the stimulus object. These behaviors involved having S walk, unaccompanied, to the curtain, then on to the table, touch the stimulus object, and finally, rub the stimulus object's chin. S was then asked to return to the opposite end of the corridor where E was waiting and was asked if he liked lizards. Ss' behavior was assessed, first of all, in terms of the time (in seconds) it took them to complete a response to each request. Timing began as soon as E completed the last word of the request and was stopped when the judge determined S's response to that request was completed (interjudge reliability is presented below). Verbal and motor behavior was also assessed.

All Ss were pretested in this manner and then randomly assigned to one of six treatment conditions. Ss who failed to comply with any of the behavior requests at all, except the last one ("Do you like lizards?") were deleted from the main study.

After approximately a two-week interval, each S experienced the appropriate treatment condition and was immediately posttested. The posttest procedure was identical to the pretest procedure. A follow-up test, identical to both pre- and posttests, took place three weeks after the posttest was completed.

Models and the Modeled Behavior

The models were adults (college students) and were chosen on the basis of their willingness and ability to be quite demonstrative. The circumstances surrounding the modeled behavior were identical to those surrounding the pretest, posttest, and follow-up test for each S. E accompanied the model into the experimental room and to the end of the corridor. From there, E made the same behavior requests of the models as were made of the Ss in the pretest. The following script describes the entire modeled sequence for both the male and female models.

Request I. E: "There's a big dead lizard down there behind the curtain. Will you go down and stand by the curtain."

M: "I don't think I want to." (worried look)

E: Repeats request after seven seconds.

Request II. E: "It's all right."

M: (again a worried look direct at E)

E: Repeats request after seven seconds.

M: "Well . . . all right." (goes to curtain)

Request III. E: (parting the curtains to bring the stimulus object into sight) "There, now go down and stand at the table."

M: (looks at the lizard, looks at E and then back at the lizard) "No!"

E: Repeats request after seven seconds.

M: "No!"

Request IV. E: "Now, touch the lizard."

M: "No!"

E: Repeats request after seven seconds.

M: "No!"

Request V. E: "Would you rub the lizard's chin."

M: "No!"

E: Repeats request after seven seconds.

M: "No!"

Request VI. E: "All right, come back here with me." (referring to rear of corridor) "Do you like lizards?"

M: "No! I hate them!" (shakes head vigorously)

The models performed, as closely as possible, the same behaviors so that no matter which model an S observed, he saw essentially the same avoidant behavior. Three identical sequences of each model's behavior were video-taped and each S was to originally observe the three consecutive sequences in order to insure that the modeled behaviors were attended to. Prior to beginning the treatment procedures, however,

it was decided that two sequences would be sufficient since holding a child's attention proved to be somewhat of a problem in a pilot study (Aiken, Beirne, and Rost, 1967).

Assessment

Independent judges assessed the behavior of each S during the pretest, the posttest, and the follow-up test. Assessment was of two types. One type dealt strictly with a time measure as described above. There were six behavior requests, but only five dealt with approaching the stimulus object so each S could have received a maximum of five response times during any one test (pretest, posttest, and follow-up). Behavior request II, "It's all right," was included to encourage Ss who would not respond to the first behavior request (of approaching the curtain). Most Ss, however, who met the criterion for remaining in the study (they exhibited approach behavior in at least one other behavior category besides VI) after the pretest, responded quite readily to request I and it was not necessary to use request II. Consequently, the small number of times request II was used prompted its deletion from the analysis of the data. The analysis of the time measure, therefore, involved the evaluation of behavior requests I, III, IV, and V.

The other type of assessment involved a descriptive measure. Judges noted verbal as well as motor behavior exhibited by each S throughout the test period.

The evaluation instrument used by the judges to evaluate Ss' performances during the pretest, posttest, and follow-up test situations

was developed through experimentation with pilot subjects. The instrument (Appendix C) called for the judges to record both verbal and motor behavior as noted above. It was constructed so that each behavior request had a checklist of possible verbal responses, e.g., "Ok," "Well . . .," or "No," as well as space in which to record responses not included in the list.

Judges were equipped with stopwatches with which they determined each S's response time on each behavior request. Since pilot Ss had been noted to respond to a request well within 15 seconds, if they responded at all, it was decided that 15 seconds would be the maximum amount of time given any S to respond to a request. Therefore, if an S had not responded to a request within 15 seconds, 15 was recorded as his time on that particular request and E went on to the next request. An S's score for any request category, then, could range from zero to 15 seconds. A space was also provided for recording motor behavior in terms other than response time. Examples of such behavior would be head shaking, face making, etc.

Treatment Conditions

Children were randomly assigned to treatment groups. Each experimental group was made up of an equal number of male and female subjects. Five of the experimental groups had four males and four females while one of the experimental groups had three males and three females. For purposes of analysis, the six groups were later divided into twelve subgroups, each of which contained only male or female Ss.

The treatment conditions involved two video-tapes; one featuring a male model and the other featuring a female model, both of whom

exhibited avoidant behavior, when asked to perform the same series of behaviors Ss were asked to comply with. Three of the treatment groups observed the male model and three of the treatment groups observed the female model. Three types of prestige introductions were used for each model: high prestige, low prestige, and no prestige. These introductions are found in Appendix D. The six treatment conditions were:

1. Group I: four male and four female subjects observed a female model perform avoidant behavior. Just prior to the observation, the model was introduced as a high prestige individual.

2. Group II: four male and four female subjects observed a female model perform avoidant behaviors. Just prior to the observation, the model was introduced as a low prestige individual.

3. Group III: four male and four female subjects observed a male model perform avoidant behaviors. Just prior to the observation, the model was introduced as a high prestige individual.

4. Group IV: four male and four female subjects observed a male model perform avoidant behaviors. This model was given no introduction prior to observation.

5. Group V: four male and four female subjects observed a male model perform avoidant behaviors. Just prior to observation, the model was introduced as a low prestige individual.

6. Group VI: three male and three female subjects observed a female model perform avoidant behaviors. This model was given no introduction prior to observation.

Subjects in groups I, II, and VI all observed the same female model. Subjects in groups III, IV, and V all observed the same male model.

Presentation of the Models

The models were presented to the subjects on video-tape played back through an Ampex Video-tape recorder and a 23-inch monitor.

Bandura, Ross, and Ross (1963a) provide evidence that film-mediated models are as effective as real-life models in transmitting deviant patterns of behavior. In addition, Himmelweit, Oppenheim, and Vince (1958) and Schramm, Lyle, and Parker (1961) point out that audio-visual mass media are at the present time extremely influential sources of social behavior patterns. For the above reasons and to enhance the consistency of the models' behavior patterns for all the subjects, the video-tape was chosen as the transmitting media.

Judges

Three judges were trained and reliability figures were obtained through the use of a series of pilot subjects. The judges were volunteers from a psychology class, and will be referred to as A, B, and C. Reliability figures were obtained through the use of the Pearson product moment correlation coefficient for small N:

$$r = \frac{N(\Sigma XY)-(\Sigma X)(\Sigma Y)}{\sqrt{[N(X^2)-(\Sigma X)^2][N(\Sigma Y^2)-(\Sigma Y)^2]}} \quad (1)$$

For judges A and B, r = .99 for eight Ss or 33 scoring opportunities. For judges B and C, r = .99 for seven Ss or 29 scoring opportunities.

Statistical Design and Analysis

A 2 x 2 x 3 factorial design was employed (Appendix E). The conditions in this design were: Sex of Model by Sex of Subject by Prestige Attributed to the Model.

A 2 x 2 x 3 analysis of variance design was employed to determine the relative effectiveness of three variables under investigation.

Analysis of covariance was then used to analyze the three main effects (variables) as well as to analyze possible differences in subgroup performances on the posttest. The data was analyzed, first of all, using the raw scores. The raw scores were then converted to t-scores and these standard scores were then analyzed in an effort to control for any differences that might be due to a few extreme scores.

An interview was conducted two weeks after the follow-up test in an attempt to better understand the Ss' interpretation of the experimental situation. The format of this interview is found in Appendix F.

CHAPTER IV

RESULTS

The analyses of the data were computed on the University of New Mexico Research Center's IBM 360 Mod 40 computer. Programs for computing the analysis of variance, analysis of covariance, general statistics, and chi square are available on Random access and labeled U6607, U6604, U6601, and &6602, respectively.

A 2 x 2 x 3 analysis of variance design was used to test the relative effectiveness of the experimental variables on the treatment groups' performances. The independent variables were male and female models, male and female subjects and three levels of prestige introductions--no prestige, low prestige and high prestige. In order to perform this analysis, and to present other results, each of the six large groups was divided into its respective male and female subject subgroups so that there were twelve subgroups to analyze. The data analyzed were in the form of mean total performance times. The analyses of variance were performed on raw data first and then on raw data transformed to T-data. The raw score mean times and their standard deviations are presented in Table 1, Appendix G, and the transformed means are reported in Table 2, Appendix G.

Analysis of Variance

The analyses of variance of all three variables and their interactions on the pretest, the posttest, and the follow-up test are reported in Tables 3, 4, and 5, Appendix G, respectively. Of the seven pretest F-ratios reported one was significant ($F=4.22$, $df=2$, $p < .05$). This F resulted from the interaction of the sex of the subject with the prestige

attributed to the model.

Since there were fifteen different interactions between sex of subjects and prestige attributed to the models, a "c" test (Cooper, 1966) was used to determine between which group(s) the significant difference(s) existed. The significant difference existed between female subjects observing no-prestige models and female subjects observing low prestige models.

None of the F-ratios were significant on the posttest but interaction of the subjects' sex with the models' prestige was again significant on the follow-up test ($F=3.39$, $df=2$, $p < .05$). A "c" test again revealed that the difference existed between female subjects observing no-prestige models and female subjects observing low prestige models.

The analysis of variance of the T-transformations yielded no significant main effects and no significant interactions. These analyses are reported in Tables 6, 7, and 8, Appendix G.

Analysis of Covariance

The posttest subgroup mean scores were then covaried with their pretest scores to test the effectiveness of the experimental variables. The adjusted means are found in Table 9, Appendix G. The F-ratios for the three experimental variables are reported in Table 10, Appendix G. None of these F's approached significance.

An analysis of covariance (Table 11, Appendix G) also indicated that there were no significant differences between the twelve subgroups when posttest scores were covaried with their respective pretest scores.

Descriptive Analysis

Reference to Table 1, Appendix G indicates a general tendency for approach behavior to increase in rapidity from pretest to posttest and again from posttest to follow-up test.

This trend is in a direction opposite of that expected when the review of literature is considered. Since avoidant behavior had been modeled, it might be expected that posttest responses would be in an avoidant direction rather than an approach direction.

Analysis of motor behavior other than approach time also indicated the tendency for approach behavior to increase rather than decrease. One example of increased approach behavior is illustrated by the number of times Ss began or even completed a response before E had an opportunity to begin or complete a request such as ". . . would you go down and stand by the curtain?" In the pretest, five responses were begun or completed before the request was completed. Thirteen responses were begun or completed before the request was completed in the posttest. The follow-up test yielded seventeen premature starts or completions.

Verbal and motor responses (other than the time approach behavior) occurred less frequently than was expected. The two most notable and frequent types of such behavior were head shaking and verbal affirmation or negation of behavior requests. Head shaking responses, listed in Table 12, were of the nature of indicating positive or negative reaction to the behavior requests.

TABLE 12

FREQUENCY OF NONVERBAL RESPONSES

TESTS	POSITIVE	NEGATIVE
PRETEST	27	15
POSTTEST	29	23
FOLLOW-UP	20	11

There were 690 opportunities for all Ss across all three testing situations to respond with a nodding response but only 125 such responses were made.

Verbalizations in response to the behavior requests were also noted and Table 13 illustrates the frequency of affirmative, negative, or indecisive verbal behavior on the part of Ss.

TABLE 13

POSITIVE, NEGATIVE, OR INDECISIVE VERBAL BEHAVIOR IN RESPONSE TO THE BEHAVIOR REQUESTS

TESTS	YES	NO	INDECISION
PRETEST	57	31	5
POSTTEST	34	19	0
FOLLOW-UP	27	13	0

Generally, no demonstrative verbal or motor behavior was exhibited by the Ss. The typical response involved mere physical compliance with the request as opposed to any symbolic compliance such as head shaking or verbalizing. This was even more so in the posttest and follow-up test than in the pretest.

It was anticipated that by assessing the verbal behavior of each S on both the pretest and the posttest, a measure of imitative verbal

behavior should be obtained. Table 14 provides data concerning the verbal responses emitted by Ss that would qualify as imitative responses in each of the three test situations. The number of imitative verbal responses that occurred by chance in the pretest (by chance because the Ss had not been exposed to the model yet) exceeded the number of such responses in both the posttest and the follow-up test.

TABLE 14

FREQUENCY OF IMITATIVE BEHAVIOR OCCURRING IN EACH TREATMENT GROUP ACROSS EACH TESTING SITUATION

GROUP	SUBJECTS PER GROUP	PRETEST	POSTTEST	FOLLOW-UP TEST
I FMHP	8	3	2	1
II FMLP	8	1	1	0
III MMHP	8	2	0	0
IV MMNP	8	6	0	0
V MMLP	8	3	4	2
VI FMNP	6	4	0	1

NOTE: Abbreviations: FM=Female Model, MM=Male Model, NP=No Prestige, LP=Low Prestige, HP=High Prestige.

A chi square was performed on the frequencies of imitative verbal behavior in the six major groups across all three testing situations and no significant difference was found in the frequency of imitative behavior among those groups.

A numerical performance score was assigned to each subgroup's approach performance. This score was determined by the number of times subgroup members failed to comply with the various behavior requests. Since, for ten of the subgroups there were sixteen opportunities to comply with behavior requests (four members times four approach behavior

requests), each of those subgroups was given a score of 16 initially and then one point was subtracted for each failure to comply with a behavior request. Two of the groups had only three Ss each so they each had an initial score of 12.

The performance score for a subgroup with four members could range from 0 (no approach at all) to 16 (total approach) or from 0 to 12 for a group with three members. These scores are quite purely approach scores without regard to verbal behavior or speed of responses and are presented in Table 15.

As Table 15 indicates, the general tendency across the three test situations was to increase approach behavior. Group approach performance scores increased from pre- to posttest, in eight of the twelve subgroups and three subgroups remained the same across these two test sessions. Only one group decreased its approach behavior from pretest to posttest. Three groups increased their approach performance score from posttest to follow-up test while seven groups remained the same across these two sessions. Again, one group decreased its performance from posttest to follow-up test.

TABLE 15

GROUP PERFORMANCE SCORES WITH REGARD TO SUBGROUPS

SUBGROUPS	MAXIMUM SCORE	PRETEST	POSTTEST	FOLLOW-UP
M_1M_2NP	16	11	12	12
M_1M_2LP	16	13	10	12
M_1M_2HP	16	13	14	16
M_1F_2NP	16	14	16	16
M_1F_2LP	16	14	15	14
M_1F_2HP	16	13	15	15
F_1M_2NP	12	8	8	10
F_1M_2LP	16	16	16	16
F_1M_2HP	16	13	14	15
F_1F_2NP	12	12	12	12
F_iF_2LP	16	11	15	15
F_1F_2HP	16	15	16	16

NOTE: Abbreviations: M_1=Male Model, M_2=Male Subject, F_1=Female Model, F_2=Female Subject, NP=No Prestige, LP=Low Prestige, HP=High Prestige.

In terms of overall approach behavior, 14 of the 46 Ss chose not to approach in response to one or more behavior requests in the posttest and eight Ss chose not to approach in response to one or more behavior requests in the follow-up.

A further breakdown of the information supplied in the preceding paragraph is presented below. The frequencies of avoidant responses in each behavior request category across all Ss regardless of treatment conditions were:

REQUEST CATEGORY	PRETEST	POSTTEST	FOLLOW-UP
I	0	3	2
III	7	3	2
IV	9	3	5
V	12	10	8

In general, then, behavior from pretest and posttest can best be described as "approach" behavior. Chapter V attempts to account for this trend.

CHAPTER V

DISCUSSION

All of the hypotheses, with the exception of H_{O4}, were accepted on the basis of the results of the analyses of variance and the analyses of covariance presented in Chapter IV.

H_{O4}, which stated that there would be no significant interaction effects between the sex of the models, the sex of the subjects, and the prestige attributed to the models, was only partially supported. The follow-up test analyses of variance, found in Table 5, Appendix G, produced a significant interaction ($F=3.39$, $df=2$, $p < .05$) between the sex of the subjects and the prestige attributed to the models. This same interaction was significant on the pretest but not on the posttest.

Male Model versus Female Model

In general, previous research evidence has contradicted the null hypotheses set out in the present study. Findings reported by Krumboltz and Schroeder (1965), Krumboltz and Thoresen (1964), Brown (1956), and McDavid (1959) all support the proposal that the observation of male models is more effective in changing behavior than the observation of female models.

The difference between the present findings and those of previous studies might be related to Brown's (1956) argument that boys show a greater preference for the masculine role than girls show for the feminine role. In the study, Brown noted a tendency for girls to also imitate masculine behavior to a greater extent than feminine behavior.

Perhaps the avoidant behavior modeled in the present study was not considered role appropriate in terms of masculine behavior and consequently was rejected by the Ss.

Male Subjects versus Female Subjects

The findings of the present study support H_{o_2} and contradict evidence provided by previous studies concerning male subject susceptibility to modeling procedures. McDavid (1959), Krumboltz and Schroeder (1965), and Krumboltz and Thoresen (1964) have all presented evidence indicating that male Ss tend to acquire behavior through imitation more readily than do female Ss.

High Prestige versus Low Prestige versus No Prestige

H_{o_3} also contradicts previous research evidence (Krumboltz, Varenhorst, and Thoresen, 1967; Bredemeier and Stephenson, 1965; Lefkowitz, Blake, and Mouton, 1955). The present study failed to produce any significant differences with regard to the prestige attributed to models under any of the treatment conditions.

Interaction Effects

The fact that H_{o_4} was only partially supported by virtue of the significant interaction on the follow-up test between sex of the Ss and prestige attributed to the models must be observed cautiously when it is considered that this same interaction was also significant on the pretest. What must be considered is that this difference disappeared on the posttest indicating that the treatment procedures may have had a leveling effect rather than a differential effect on some of the groups.

Subgroup mean performance scores on the pretest, the posttest, and the follow-up test are presented in Table 1, Appendix G. The very definite tendency for these subgroup performances to increase in rapidity from pretest to posttest and again from posttest to follow-up test indicates that variables other than those stated as central to the treatment conditions might have been at work.

Reference to Appendix H provides graphic representation of the various subgroup performances. Figure 1 illustrates the mean time performances for the six subgroups of male Ss across the three testing situations. The tendency for approach times to decrease is quite apparent. A similar tendency can be observed in Figure 2 which represents the mean time performances for female Ss across the three testing periods. For females, however, this trend levels off from posttest to follow-up test. This difference in approach behavior from posttest to follow-up test might be expected from a cultural standpoint in that males are expected to be more bold in the face of such situations than are females. In addition, information provided by Bandura, Ross, and Ross (1961) indicates that boys are more likely to imitate physical types of approach behavior, e.g., aggression, so it is quite possible that they also exhibit more of this type of behavior in nonimitative types of situations as is seen in the present study.

Figure 3 and 4, Appendix H, are T-scores for the groups of male and female Ss, respectively. Even with the effects of extreme scores controlled, the tendencies for male and female approach behavior is maintained.

Figure 5, 6, and 7, Appendix H, are graphic representations of

the effects of each of the three variables studied in the present research project. Figure 5 deals with the male and female subject groupings. Although the differences between the two groups are not great during any test period, the trends noted in the subgroups (Figures 1 and 2, Appendix H) are still present when the subgroups are combined.

Figure 6, Appendix H, deals with the male and female model groupings. Here again, differences in the two groups, across the three test periods, are consistent but not large. This supports the statistical findings that male models were not more effective than female models.

Mean time performances for the three groups, divided according to prestige, are presented in Figure 7, Appendix H. Although initial performances are similar, a greater dispersion is noted in the follow-up performances. The greatest difference from pretest to follow-up test is found in the group receiving the high prestige introductions. That group's approach time went from an average of about twenty-two seconds on the pretest to about eight seconds on the follow-up test indicating that the high prestige models were actually less effective than the low prestige or no prestige models.

The Interview

In order to determine what other variables might have influenced the Ss' performances, an interview was conducted with each child two weeks after the completion of the follow-up test. The interview was conducted, in part, for the purpose of relating the Ss' interpretations and understandings of the prestige attributes and the modeled behavior to the intended interpretation and understanding of these two aspects of the study.

Ss were first asked whether they remembered the television program about the person who went in to look at the lizard. Every S remembered doing so. The next question dealt with determining the Ss' recall of the prestige attributes of the model they observed. Seventy-two per cent of the Ss recalled, correctly, the proper prestige attributes of the model they observed.

The intention of the question concerning the interpretation of the modeled behavior was to determine whether or not the Ss thought the model was actually afraid of the stimulus object. Ninety per cent of the Ss felt that the model was afraid of the lizard.

Question 4 dealt with why Ss performed the way they did after watching the modeled behavior, i.e., did the modeled behavior influence the Ss' behavior on the posttest? Only one S directly related his performance on the posttest to the modeled behavior.

Question 5 was intended to determine what influence, if any, E's presence had on the Ss' performances. Sixteen per cent felt that they would have been afraid of the stimulus object and would not have touched it if they had been in the room alone with the lizard. Eighty-four per cent indicated they would not have been afraid had they faced the stimulus object alone.

Question 6 dealt with whether or not the fact that the lizard was dead had any influence on the Ss' performances. Thirty-three per cent said they would have been afraid of the lizard if it had been alive.

Since the majority of Ss did interpret the modeled responses as related to fear, a further examination was made of why the Ss thought the model was afraid. Eight Ss said they did not know why the model

was afraid. The most popular responses were either that the model did not know the lizard was dead (14) or that the model just did not like lizards (17). Other responses were that the model did not want to touch the lizard (3) and the lizard was too scary (3). One S said the model was not afraid of the lizard and another S felt that the model was allergic to lizards.

Reasons presented by Ss as to why they were not afraid of the stimulus object were quite varied and are found in Table 18 along with the frequencies of those responses.

TABLE 16

SUBJECTS' EXPLANATIONS CONCERNING WHY THEY WERE NOT AFRAID OF THE STIMULUS OBJECT

EXPLANATIONS	FREQUENCIES
Lizards don't bite	1
It was dead	11
Lizards won't bite	1
I like lizards	14
I played with lizards before	1
I don't know	1
I'm brave	4
'Cuz I saw him before	1
'Cuz you took me to it	1
Lizards aren't mean	2
I'm not a girl	2
'Cuz he can't crawl	1
'Cuz I didn't want to act like the man	1
I knew it was paper maiche	1
It's not real	3
I've got a lizard	1

The interview provided some insight into the performances of the Ss on the posttest and the follow-up test in relation to their pretest performances. One important factor seems to be that the children as a whole discriminated quite accurately between their own experiences and

those of the models'.

Responses to the interview indicate that the Ss were convinced of the models' fear but at the same time were also convinced that this fear was irrational. Many Ss, while viewing the modeled behavior, would continually ask "Why doesn't she want to?" or "Why is she acting that way?" What seemed to be at work here was a need on the Ss' part to see a relationship between the models' previous experience and the avoidant behavior they exhibited in the television program. Had this been done for the Ss, perhaps the incidence of imitative behavior on their part would have been greater.

Miller and Dollard (1941) state that the more the act of imitation helps to direct the imitator's attention toward those of the environmental cues which are relevant and so makes them distinctive, the more porbable it is that the act will be learned. Environmental cues, other than the stimulus object itself, were not available in the present study. The present research differs from the Bandura, Ross, and Ross (1961, 1963a) studies concerning aggression in that their subjects were frustrated, after observing an aggressive model, to the extent that they themselves exhibited aggressive behavior which in turn was imitative. Ss in the present study were not exposed to a fear-provoking environment which would have been comparable to Bandura's "frustrating" environment.

Several other aspects of the study may be related to the relative ineffectiveness of the treatment procedures across all subgroups. One important aspect appears to be the relationship between E and the Ss. Before the study commenced, E spent considerable time getting acquainted

with the Ss in an effort to reduce the amount of avoidant behavior due to a S's uncomfortableness when faced with a new situation and a new adult. It appears, however, that Ss became too secure and were not afraid because, as one S explained, ". . . you (E) were with me." Thinking, perhaps, that despite the modeled behavior, E would not allow anything to happen to them, the Ss went ahead with the approach behavior. Because of the relationship there may have also been a need to please E with compliance to the requests.

Barnwell and Sechrest (1965) report a sense of competition among the children in their task choice experiment employing imitation as the mode of transmission. They found that among one group of children there was a tendency for observers to imitate the task choice of a model who had failed at the task. Their explanation of this trend was that the observer was trying to "show up" the model. Although only one S in the present study explicitly stated that he was not afraid because ". . . I didn't want to be like him!", referring to the male model, a sense of competition may have been in play. Statements by Ss in the interview such as "I'm not a girl!" and "I'm brave!" would indicate that competitiveness might have been at work.

Another aspect that may have been a deterrent to the acquisition of avoidant behavior would be the proximity of E at all times during the testing situations. At no time was E more than ten feet from any S. At this distance Ss may still have been able to derive the security necessary for approaching the stimulus object even if they had been afraid.

Perhaps the very nature of the stimulating environments of both

the nursery school and the kindergarten was an overriding factor. These environments allow for much interaction among the children. Also these children have many experiences that other children of this age usually do not receive. The entire research environment may have been viewed as just another "experience" by the subjects. This attitude may have prevented the vicarious transfer of avoidant behavior from the models to the Ss.

In light of the positive atmosphere created by the relationship between E and the Ss, an interesting comparison can be made between the present study and the Bandura, Grusec, and Menlove study (1967) concerning the elimination of avoidant responses. Of importance in that study was the interaction of the positive environment and the modeled approach behavior which produced approach behavior on the part of initially avoidant subjects. The present study also produced approach behavior from pretest to posttest and again from posttest to follow-up test.

Although avoidant behavior was modeled in the present study, it seems quite likely that the interaction of the positive environment (E-S relationship) with the "out of context" behavior of the models' was more influential than the modeled avoidant behavior itself.

Bandura and Walters (1963) list, as one of the three effects of modeling procedures, the inhibition or disinhibition of responses already available in the observer's behavior repertory. Much of Bandura's work with young children, however, has dealt only with the disinhibition of responses as opposed to the inhibition of responses as is the case in the present study. It may be that those factors that play significant roles in disinhibitory behavior do not carry the same weight in acquisition of inhibitory behaviors. Consequently, those variables central

to the treatment conditions in this study may have been peculiar to the disinhibition of responses rather than being effective in the inhibition of responses such as avoidant behavior.

A final consideration should be given to the idea that the Ss' multiple exposures to the stimulus object may have acted as a desensitizing mechanism. Each S was exposed to the stimulus object five times--three times in person and twice on the video-tape.

CHAPTER VI

CONCLUSIONS, RECOMMENDATIONS AND SUMMARY

Conclusions

Apparently, there are factors that override those usually considered as instrumental in imitative learning. One of the most important overriding factors appears to be the reasonability of the modeled behavior in the eyes of the observer. If behavior is intended to be transmitted through imitation, the behavior as well as the circumstances surrounding that behavior must make sense to the observer.

The tendency for the avoidance gradients of the male subjects to continue in a downward direction across all three test situations as opposed to a leveling-off effect found in the female avoidance gradients from posttest to follow-up test, indicates that perhaps the females were affected differently by the treatment conditions than the males. Culturally, however, it might be expected that the males would continue, in an aggressive manner, to decrease their approach times while by the same token females would become more hesitant and less audacious.

Another overriding factor that may be related rather specifically to the acquisition of fear or avoidant responses is that of the relationship that exists between the child and a significant adult other than the model. In the present study, the relationship between E and the Ss appears to have been strong enough to override the acquisition of avoidant behavior by the Ss. The implications here may even be generalized to the parent-child relationship where the parent as a significant person in the child's life exerts enough influence through a positive relationship

to offset the acquisition of deviant behavior on the part of the child as a result of exposure to modeled deviant behavior. A negative parent-child relationship may also have a similar effect. Such a relationship may override the acquisition of modeled positive behavior.

What should also be recognized here is that those variables that have been found to be effective in the transmission of approach behavior were apparently ineffective, in the present study, in the transmission of avoidant behavior. It seems possible that the variables influential in the observational learning of avoidant responses are different from those influential in the acquisition of approach responses through imitation.

The interview following the posttest assessments provided some direction as to why the Ss as a whole failed to imitate the models' avoidant responses. Of major importance is the factor of competitiveness. One S remarked that he was not afraid because he did not want to be like that man (referring to the male model). Others said they were not afraid because they were brave. One male S, after observing the female model, commented that he was not afraid because he was not a girl.

There was also an indication, based on interview results, that Ss derived a sense of security from the presence of E in the testing situation. This seemed likely on the basis that E was never more than ten feet away from an S at any time during the testing sessions. Finally, multiple exposure to the stimulus object may very well have accounted for the increased approach behavior across the three testing periods.

Recommendations

A number of questions have been raised by the present study.

1. Can a relationship such as that established between E and Ss consistently offset the acquisition of social behaviors like avoidant responses, fear responses, etc?
2. How much of a role did E's presence play in the subsequent behavior of the Ss' in response to the behavior requests?
3. Is one sex more susceptible than the other in the acquisition of modeled behavior?
4. Is it always necessary to present a model in a "sensible" context in order for the modeled behavior to appear sensible to an observer?
5. Are male or female models more effective with young children?
6. Under what circumstances do positive and negative prestige attributes of models affect the acquisition of modeled behavior?

What sseems to be necessary, then, is to conduct research making an effort to control the extraneous variables mentioned in the above questions. In the present study question 1 might have been handled by adding a treatment group that was unfamiliar with E to determine the effect of the E-Ss relationshp on Ss' behavior in the testing situations.

Question 2 could be handled in several ways. The first might be to construct a corridor considerably longer than the one employed in the present study. In such a study E would remain at the end of the corridor opposite the stimulus object and consequently a good deal further away from the Ss than was the case in the present study. If Ss were responding as a result of the security they were deriving from E's presence, this secure feeling should begin to wane the further they get from E.

Another approach would involve removing E from the room altogether and supplying the behavior requests through an intercom system. This approach would mean that the Ss would be alone in the room with the stimulus object.

A third approach could involve removing E from the sight of the Ss by closing the partition after the Ss had approached the table. Since judges would assess the Ss' behavior it would not be necessary for E to see them respond.

The present study failed to add any conclusive evidence concerning female susceptibility to modeling procedures. Much of the research concerning this point has been conducted using adolescents rather than young children (Krumboltz and Thoresen, 1964; Krumboltz and Schroeder, 1965; Krumboltz, Varenhorst, and Thoresen, 1967). Bandura, Ross, and Ross (1961) did note a tendency for young males to imitate physical responses more readily than young females. Most of these studies (the present study included), however, have not dealt strictly with the male versus female observer paradigm. An attempt should be made to look directly at this paradigm in an effort to determine the effectiveness of modeling procedures with both sexes.

It also seems essential to study the "in context" modeled behavior. Perhaps there are circumstances under which "out of context" behavior can be transmitted through modeling. If so, the use of modeling procedures could be made more efficient by eliminating the now necessary preliminary familiarizing.

There still seems to be a question concerning the respective effectiveness of male and female models. The present study failed to support previous findings that male models were, in general, more effective than females with both sexes of subjects. It would appear that if modeling procedures are going to be used in the most effective sense this question will need to be answered.

Although there is evidence that prestige attributed to the model is a factor in imitative learning (Lefkowitz, Blake, and Mouton, 1965; Bredemeier and Stephenson, 1965), it is not clear under what circumstances and under what kinds of prestige, imitation takes place. Miller and Dollard (1941) found that a successful, prestigious model was one who rewarded an observer for imitating him. Lefkowitz, Blake, and Mouton (1965) found that a successful, prestigious model was one who was thought to have high social status. Bredemeier and Stephenson (1965) agree with Lefkowitz, et al. Krumboltz, Varenhorst, and Thoresen (1967) found that a successful, prestigious model was one who was physically attractive and attentive. This variety of characteristics makes generalization difficult. Efforts should be directed toward unifying the existing knowledge concerning prestige attributes of the model.

Answers to the above questions might very well lead to a better understanding of imitative behavior and a more systematic use of imitation in the area of social learning. In light of the possibility that different variables are central in the acquisition of different behaviors, continued research in the area of observational learning appears to be a necessity.

Summary

The purpose of the present investigation was to study the effects of three variables that appear relevant to observational learning. The three variables were sex of the model, sex of the subject, and prestige attributed to the model. These variables were studied in the context of transmitting avoidant behavior to young children.

Subjects for this study were 46 nursery school and kindergarten children with an average age of 57 months. The subjects were randomly assigned to six treatment groups: 1) Female model high prestige, 2) Female model low prestige, 3) Male model high prestige, 4) Male model no prestige, 5) Male model low prestige, and 6) Female model no prestige. There were an equal number of male and female subjects (four each) in each of the first five groups. The Female model no prestige group had three males and three females.

Subjects were pretested by being asked to comply with six behavior requests which culminated with the S coming in close contact with the stimulus object (a stuffed Iguana lizard). Ss' behavior was assessed by independent judges who timed the Ss' responses to each of the behavior requests. Verbal behaviors and motor behaviors other than speed of response were also noted.

Treatment conditions involved the observation of video-taped modeled behavior exhibited by either a male model or a female model. The modeled behavior was in response to the same six behavior requests made of the Ss on the pretest. Immediately preceding observation, each S was given an introduction to the model of a high prestige, a low prestige, or a no prestige nature. After observation of the model, Ss were posttested by being taken back to the experimental room and again asked to comply with the six behavior requests. Their behavior was again assessed by independent judges. Two weeks later a follow-up test took place.

The null hypothesis in effect stated that the three variables being investigated would not produce significant differences in avoidant

behavior between groups on the posttest assessment.

A 2 x 2 x 3 analysis of variance design was used to determine the effectiveness of the variables involved. The measurement used for analysis was group mean time (in seconds) performance scores. Verbal behavior and other motor behavior were analyzed descriptively.

The analysis of variance resulted in no significant main effects or interaction effects on the posttest, but one interaction effect (sex of subject x model's prestige) was significant on the follow-up.

The six treatment groups were then divided into their male subject and female subject subgroups and these twelve subgroup mean time performance scores were analyzed. An analysis of covariance indicated that there were no significant differences between the twelve subgroups when posttest scores were covaried with their respective pretest scores.

An interview was conducted with each S after the follow-up test to determine the relationship between the Ss' interpretation and understanding of the modeled behavior and the intended interpretation and understanding. Seventy-two per cent of the Ss recalled, correctly, the proper prestige attributes of the model they observed. Ninety per cent of the Ss felt the model was actually afraid of the lizard. Further investigation indicated, however, that the Ss in general felt that the models' behavior was irrational and consequently were not affected by the models' performances.

Several other factors appear to have been influential to the extent that they interfered with the acquisition of the modeled avoidant behavior. One of these factors was the relationship established between

E and the Ss. Apparently Ss derived security from E's presence. One S commented that she was not afraid because E ". . . was with me!"

Competitiveness was another factor that seemed to override the acquisition of avoidant behavior. Ss indicated that they did not want to be like the model.

A third important factor was multiple exposure to the stimulus object. Each S was exposed to the stimulus object five times. It appears that this many contacts had a desensitizing effect on the Ss' behavior.

Although previous research has supported the ideas that male models are more effective than females, that male subjects are more susceptible to modeling procedures than female subjects, and that high prestige models are more effective than low prestige or no prestige models, the present study failed to provide evidence supporting any of these ideas. It should be mentioned that the variables under investigation in the present study were employed in an attempt to transmit avoidant behavior. Previous research, employing these same variables, has attempted successfully to transmit approach behavior. It may be that a different set of variables must be stressed in order for avoidant behavior to be acquired vicariously.

Limitations of the Study

The time intervals between the pretest, posttest and follow-up test may have been too long. There appeared to be two consequences as a result of these extended intervals: 1) the intervals allowed a great deal of interaction between the Ss which may have led to desensitization despite exposure to avoidant model; 2) the intervals also allowed time

for interaction with parents who might have alleviated some of the Ss' hesitancy in approaching the stimulus object.

Another limiting factor may have been the small number in each of the subgroups. A larger n selected from a more representative population would have contributed data with more generalizability than the present data.

The lack of information concerning model characteristics may also have been a limiting factor. Does the model need to be a person well known to the observer in order to be effective? Also, are peer models more effective than models of another age or grade rank?

The number of exposures to the model may have been another limiting factor. There seems to be very little information with regard to the optimal number of exposures to a model necessary for imitative behavior to occur.

In addition, a no-treatment control group, equal in size to the entire experimental group, would have provided a basis from which the generalization could stem.

BIBLIOGRAPHY

BIBLIOGRAPHY

Aiken, T.W., C. Beirne, and P. Rost. "Vicarious Acquisition of Fear Responses." Unpublished study, University of New Mexico, 1967.

Bandura, A. "Influence of Models' Reinforcement Contingencies on the Acquisition of Imitative Responses," Journal of Personality and Social Psychology, 1965, 1(6), 589-595.

_____. "Social Learning Through Imitation," Nebraska Symposium on Motivation. Lincoln: University of Nebraska Press, 1962, pp. 211-269.

_____, Joan Grusec, and Frances L. Menlove. "Vicarious Extinction of Avoidance Behavior," Journal of Personality and Social Psychology, 1967, 5(4), 449-455.

_____, Dorothea Ross, and Sheila A. Ross. "A Comparative Test of the Status Envy, Social Power, and the Secondary Reinforcement Theories of Identificatory Learning," Journal of Abnormal Social Psychology, 1963, 67(6), 527-534 (c).

_____, Dorothea Ross, and Sheila A. Ross. "Imitation of Film-Mediated Aggressive Models," Journal of Abnormal Social Psychology, 1963, 66, 3-11 (a).

_____, Dorothea Ross, and Sheila A. Ross. "Transmission of Aggression Through Imitation of Aggressive Models," Journal of Abnormal Social Psychology, 1961, 63, 575-582.

_____, Dorothea Ross, and Sheila A. Ross. "Vicarious Reinforcement and Imitation," Journal of Abnormal Social Psychology, 1963, 67, 601-607 (b).

_____, and R. H. Walters. Adolescent Aggression. New York: Ronald, 1959.

_____, and R.H. Walters. Social Learning and Personality Development. New York: Holt, Rinehart, and Winston, Inc., 1963.

Barnwell, Adrienne, and Lee Sechrest. "Vicarious Reinforcement in Children at Two Age Levels," Journal of Educational Psychology, 1965, 56(2), 100-106.

Boneau, C.A. "The Effects of Violations of Assumptions Underlying the t-test," Psychological Bulletin, 1960, 57, 49-64.

Bredemeier, Harry C., and Richard M. Stephenson. The Analysis of Social Systems. New York: Holt, Rinehart, and Winston, Inc., 1965.

Brown, D.G. "Sex Role Preference in Young Children," Psychological Monographs, 1956, 70(14), 1-19.

Brown, Roger. Social Psychology. New York: The Free Press, 1965.

Cooper, J.G. Basic Statistical Analyses for Educational Research. Revised, 1966, University of New Mexico.

Edwards, A.L. Statistical Methods for the Behavioral Sciences. New York: Holt, Rinehart, and Winston, Inc., 1954, pp. 472-474.

Heilizer, Fred. "A Note on Variance Heterogeneity in the Analysis of Variance," Psychological Reports, 1964, 14(2), 532-534.

Himmelweit, Hilde T., A.N. Oppenheim, and Pamela Vince. Television and the Child: An Empirical Study of the Effect of Television on the Young. New York: Oxford University Press, 1958.

Holt, E.B. Animal Drive and the Learning Process. Vol. I. New York: Holt, 1931.

Johnson, Elizabeth Z. "Attitudes of Children Toward Authority as Projected in the Doll Play at Two Age Levels." Unpublished Doctoral Disseration, Harvard University, 1951. In A. Bandura and R. H. Walters. Social Learning and Personality Development. New York: Holt, Rinehart, and Winston, Inc., 1963, p. 105.

Jones, Mary C. "The Elimination of Children's Fears," Journal of Experimental Psychology, 1924, 7, 383-390.

Krumboltz, J.D., and W.W. Schroeder. "Promoting Career Planning Through Reinforcement and Models," Personnel and Guidance Journal, 1965, 44, 19-26.

_____, and C.E. Thoresen. "The Effect of Behavioral Counseling in Group and Individual Settings on Information Seeking Behavior," Journal of Counseling Psychology, 1964, 11, 324-333.

_____, Barbara B. Varenhorst, and C.E. Thoresen. "Nonverbal Factors in the Effectiveness of Models in Counseling," Journal of Counseling Psychology, 1967, 14(5), 412-418.

Lefkowitz, M.M., R.R. Blake, and Jane S. Mouton. "Status Factors in Pedestrian Violations of Traffic Signals," Journal of Abnormal Social Psychology, 1955, 51, 704-706.

Leighton, Dorothy, and C. Kluckhohn. Children of the People. Cambridge, Mass.: Harvard University Press, 1947.

Lloyd, Morgan C. Habit and Instinct. London: Arnold, 1896.

APPENDICES

APPENDIX A

LETTER OF PERMISSION

Dear _____:

We would like to request your permission to allow your child, _____ _____, to participate in a study concerned with learning through imitation. Perhaps your child participated in a similar project last spring. The child will observe an adult perform in a particular situation and be then placed in a situation identical to the one in which the adult performed. Assessment will involve the degree to which the child imitates the adult's behavior. The study will be conducted in the Manzanita Center and will take about 10 minutes of the child's time.

Dr. Loughlin's permission has been secured for the study. The project is under the supervision of Dr. Karl Koenig, Assistant Professor of Psychology.

Please sign the appropriate line below and return to Mrs. Howell at your earliest convenience.

Thank you.

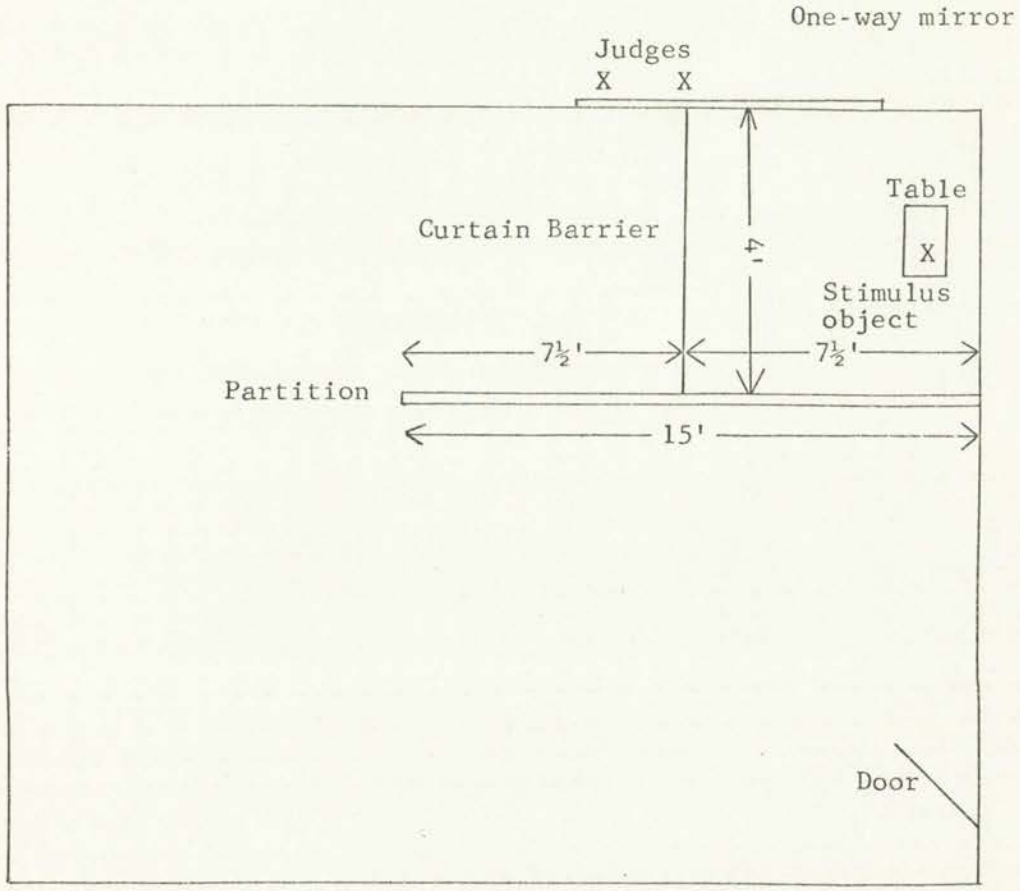
Paul Rost, Graduate Assistant
Manzanita Center
College of Education

_____ _____
YES, MY CHILD MAY PARTICIPATE (SIGNATURE) (DATE)

_____ _____
NO, I PREFER MY CHILD NOT PARTICIPATE (SIGNATURE) (DATE)

APPENDIX B

EXPERIMENTAL ROOM



APPENDIX C

EVALUATION INSTRUMENT

	Behavior Sequence	Verbal Responses		Motor Responses	Other Comments
I.	There's a big dead lizard down there behind the curtain. Would you go stand at the curtain.	OK I don't think I want to Do I have to No	___ ___ ___ ___	Time _____	Verbal _____ Motor
II.	It's all right.	OK Well...OK No	___ ___ ___	Time _____	Verbal _____ Motor
III.	There... now go down and stand by the table.	OK Well...OK No	___ ___ ___	Time _____	Verbal _____ Motor
IV.	Now touch the lizard.	OK Well...OK No	___ ___ ___	Time _____	Verbal _____ Motor
V.	Would you rub the lizard's chin.	OK Well...OK No	___ ___ ___	Time _____	Verbal _____ Motor

VI.	All right, come back here with me. Do you like lizards?	Yes Well...I don't know No No! I hate them!	___ ___ ___ ___	Time _____	Verbal _____ Motor

APPENDIX D

PRESTIGE INTRODUCTIONS

Positive or High Prestige Introduction

We made some special television programs just for you. The man in this program has a family a lot like yours. He has a little boy (girl) about your age as well as having _____ other boys and girls in the family. He likes to take them to the park and the zoo. He also likes to play all sorts of games with the children. Best of all, he brings them presents all the time. This man came to Manzanita Center and went in to look at the lizard just like you did the other day. Let's watch him now and see how he acted when he saw the lizard.

Negative or Low Prestige Introduction

We made some special television programs just for you. The man in these programs is a man who doesn't have any children like yourself--in fact, he doesn't even like children very well. He never does anything with children and whenever he's around them, he's real grouchy. He won't play games with them when they ask him to and he never gives them presents. This man came to Manzanita Center and went in to look at the lizard just like you did the other day. Let's watch him now and see how he acted when he saw the lizard.

No Prestige Introduction

We made some special television programs just for you. The man in these programs came to Manzanita Center and went in to look at the lizard like you did the other day. Let's watch him and see how he acted when he saw the lizard.

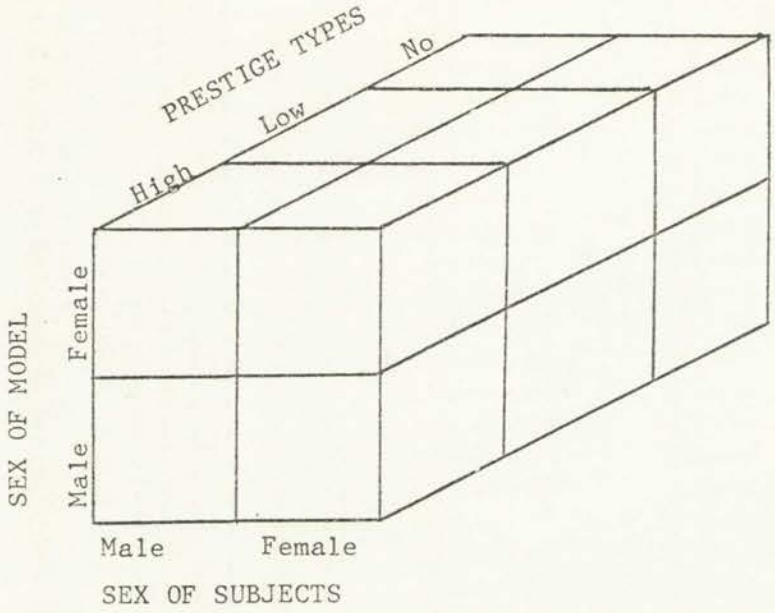


Figure 2 x 2 x 3 Design of Experimental Conditions

APPENDIX E

APPENDIX F

QUESTIONNAIRE

I. Do you remember watching the television program about the man (woman) who went into look at the lizard?

II. What kind of man (woman) wat it? What was he (she) like? Was he (she) a nice person (did he/she like children like yourself)?

III. How did the man (woman) act when he (she) saw the lizard? Was he (she) afraid? Why was he (she) afraid?

IV. After you watched the television program you went back into see the lizard and you weren't afraid--why weren't you afraid after you watched the man (woman) who was afraid?

V. Would you have been afraid if you had been in the room alone with the lizard?

VI. Would you have been afraid if the lizard had been alive?

APPENDIX G

TABLE 1

MEANS AND STANDARD DEVIATIONS FOR SUBGROUP PERFORMANCE TIMES ON PRETEST, POSTTEST AND FOLLOW-UP TEST: RAW DATA

SUBGROUP	PRETEST MEAN	PRETEST SD	POSTTEST MEAN	POSTTEST SD	FOLLOW-UP MEAN	FOLLOW-UP SD
M_1M_2NP	27.7	19.1	21.5	25.7	20.5	26.4
M_1M_2LP	19.0	6.0	14.5	13.8	5.2	1.7
M_1M_2HP	27.7	15.2	14.5	6.4	6.2	1.2
M_1F_2NP	15.0	12.1	7.0	2.2	8.2	2.6
M_1F_2LP	32.5	20.1	27.0	23.2	27.2	25.9
M_1F_2HP	20.5	19.7	12.5	8.3	11.2	6.6
F_1M_2NP	31.0	9.8	24.3	20.9	17.3	20.5
F_1M_2LP	14.0	4.2	11.2	6.6	6.5	.5
F_1M_2HP	23.2	2.5	14.2	8.2	12.0	7.1
F_1F_2NP	14.0	3.6	9.7	3.0	10.3	2.3
F_1F_2LP	28.0	17.4	13.5	11.7	12.2	7.2
F_1F_2HP	18.2	15.1	9.2	3.0	6.5	2.1
Total	22.6	6.7	14.9	6.2	11.1	6.7

NOTE: Abbreviations: M_1 = Male model, M_2 = Male subject, F_1 = Female model, F_2 = Female subject, NP = No prestige, LP = Low prestige, HP = High prestige.

APPENDIX G

TABLE 2

MEANS FOR SUBGROUP PERFORMANCES ON PRETEST, POSTTEST, AND FOLLOW-UP TEST: T-SCORES

SUBGROUP	PRETEST	POSTTEST	FOLLOW-UP
M_1M_2NP	53.8	54.8	56.8
M_1M_2LP	47.3	49.7	44.7
M_1M_2HP	53.8	50.0	45.5
M_1F_2NP	56.2	56.7	54.2
M_1F_2LP	43.9	48.0	45.7
M_1F_2HP	50.5	49.4	49.9
F_1M_2NP	44.4	44.4	47.2
F_1M_2LP	57.4	58.7	62.2
F_1M_2HP	48.6	48.2	49.6
F_1F_2NP	43.5	46.1	48.6
F_1F_2LP	49.1	44.9	49.6
F_1F_2HP	46.7	46.0	45.8

NOTE: Abbreviations: M_1 = Male model, M_2 = Male subject, F_1 = Female model, F_2 = Female subject, NP = No prestige, LP = Low prestige, HP = High prestige.

APPENDIX G

TABLE 3

ANALYSIS OF VARIANCE FOR 2 x 2 x 3 FACTORIAL DESIGN PRETEST RAW DATA

SOURCE	df	SS	MS	F
Sex of Model (A)	1	73.39	73.39	.37738
Sex of Subject (B)	1	36.03	36.03	.18530
Prestige (C)	2	19.09	9.54	.04908
A x B	1	74.36	74.36	.38240
A x C	2	71.44	35.72	.18368
B x C	2	1642.10	821.00	4.22000*
A x B x C	2	53.68	26.84	.13803
Within	34	6611.80	194.46	
Total	45	8474.50		

*Significant at .05 level.

APPENDIX G

TABLE 4

ANALYSIS OF VARIANCE FOR 2 x 2 x 3 FACTORIAL DESIGN POSTTEST RAW DATA

SOURCE	df	SS	MS	F
Sex of Model (A)	1	91.31	91.31	.42675
Sex of Subject (B)	1	109.89	109.89	.51358
Prestige (C)	2	127.79	63.90	.29862
A x B	1	125.81	125.81	.58799
A x C	2	210.07	105.04	.49090
B x C	2	899.06	449.53	2.10090
A x B x C	2	13.88	6.94	.03244
Within	34	7275.00	213.97	
Total	45	8825.00		

APPENDIX G

TABLE 5

ANALYSIS OF VARIANCE FOR 2 x 2 x 3 FACTORIAL DESIGN FOLLOW-UP RAW DATA

SOURCE	df	SS	MS	F
Sex of Model (A)	1	80.68	80.68	.50300
Sex of Subject (B)	1	38.00	38.00	.23688
Prestige (C)	2	220.05	110.02	.68591
A x B	1	211.10	211.10	1.31600
A x C	2	106.70	53.35	.33260
B x C	2	1088.40	544.21	3.39270*
A x B x C	2	182.93	91.46	.57020
Within	34	5453.70	160.40	
Total	45	7381.60		

*Significant at .05 level.

APPENDIX G

TABLE 6

ANALYSIS OF VARIANCE FOR 2 x 2 x 3 FACTORIAL DESIGN PRETEST T-SCORES

SOURCE	df	SS	MS	F
Sex of Model (A)	1	69.37	69.37	.67449
Sex of Subject (B)	1	71.25	71.25	.69272
Prestige (C)	2	2.37	1.19	.01154
A x B	1	83.69	83.69	.81364
A x C	2	75.50	37.75	.36702
B x C	2	643.13	321.56	3.12640
A x B x C	2	51.81	25.91	.25187
Within	32	3291.40	102.86	
Total	43	4184.90		

APPENDIX G

TABLE 7

ANALYSIS OF VARIANCE FOR 2 x 2 x 3 FACTORIAL DESIGN POSTTEST T-SCORES

SOURCE	df	SS	MS	F
Sex of Model (A)	1	69.81	69.81	.62270
Sex of Subject (B)	1	102.31	102.31	.91258
Prestige (C)	2	51.19	25.59	.22828
A x B	1	123.50	123.50	1.10160
A x C	2	153.38	76.69	.68402
B x C	2	360.81	180.41	1.60910
A x B x C	2	6.44	3.22	.02871
Within	32	3587.60	112.11	
Total	43	4455.10		

APPENDIX G

TABLE 8

ANALYSIS OF VARIANCE FOR 2 x 2 x 3 FACTORIAL DESIGN FOLLOW-UP T-SCORES

SOURCE	df	SS	MS	F
Sex of Model (A)	1	49.75	49.75	.46762
Sex of Subject (B)	1	15.94	15.94	.14980
Prestige (C)	2	141.50	70.75	.66501
A x B	1	152.31	152.31	1.43170
A x C	2	66.87	33.44	.31430
B x C	2	674.63	337.31	3.17060
A x B x C	2	86.44	43.22	.40623
Within	32	3404.40	106.39	
Total	43	4591.90		

APPENDIX G

TABLE 9

ADJUSTED POSTTEST MEANS FOR THE ANALYSIS OF COVARIANCE FOR SUBGROUP MEAN PERFORMANCES

SUBGROUP	SUBJECTS PER GROUP	ADJUSTED MEANS
M_1M_2NP	4	18.01
M_1M_2LP	4	16.92
M_1M_2HP	4	11.01
M_1F_2NP	4	12.13
M_1F_2LP	4	20.30
M_1F_2HP	4	13.91
F_1M_2NP	3	18.65
F_1M_2LP	4	17.05
F_1M_2HP	4	13.80
F_1F_2NP	3	15.47
F_1F_2LP	4	9.84
F_1F_2HP	4	12.18

NOTE: Abbreviations: M_1 = Male model, M_2 = Male subject, F_1 = Female model, F_2 = Female subject, NP = No prestige, LP = Low prestige, HP = High prestige.

APPENDIX G

TABLE 10

ANALYSIS OF COVARIANCE FOR THE THREE INDEPENDENT VARIABLES

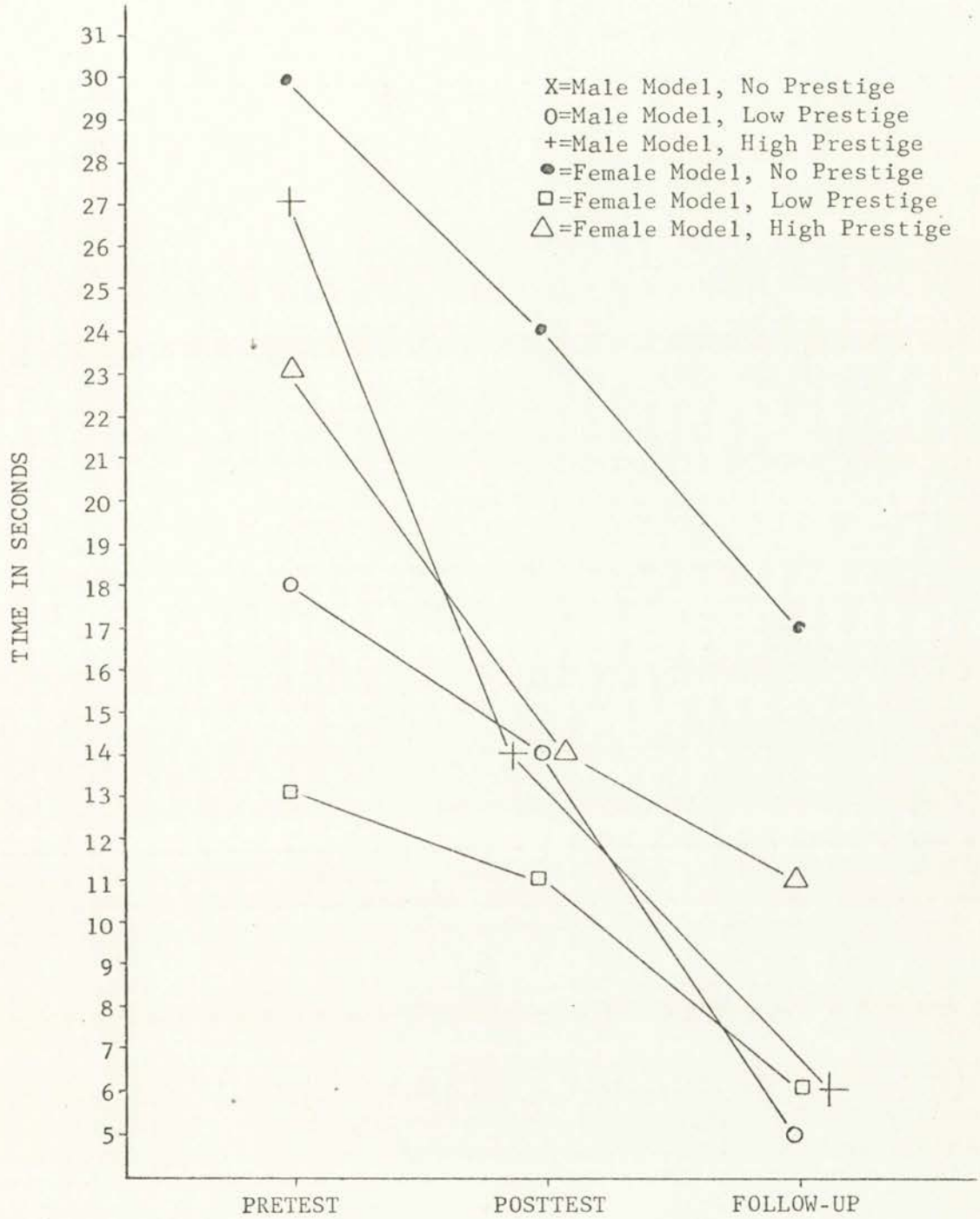
SOURCE	df	SS	MS	F
Sex of Model	1	12.90	12.90	.1195
Within	43	4642.00	108.00	
Total	44	4655.00		
Sex of Subjects	1	39.09	39.09	.3641
Within	43	4616.00	107.30	
Total	44	4655.00		
Prestige	2	110.10	55.06	.5089
Within	42	4545.00	108.20	
Total	44	4655.00		

APPENDIX G

TABLE 11

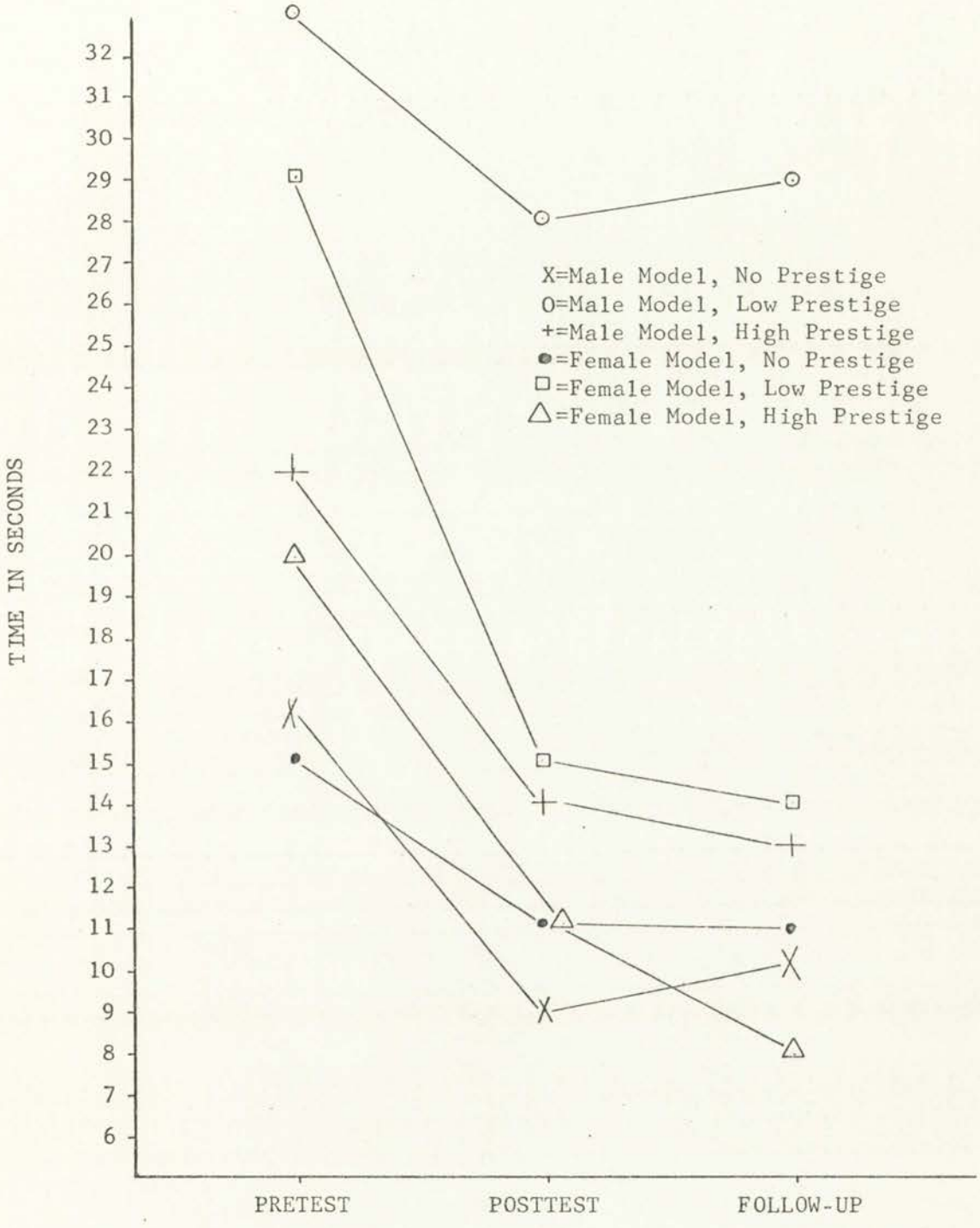
ANALYSIS OF COVARIANCE FOR THE SUBGROUP MEAN PERFORMANCE SCORES: RAW DATA

SOURCE	df	SS	MS	F
Treatments	11	460.40	41.85	.3292
Within	33	4195.00	127.10	
Total	44	4655.00		



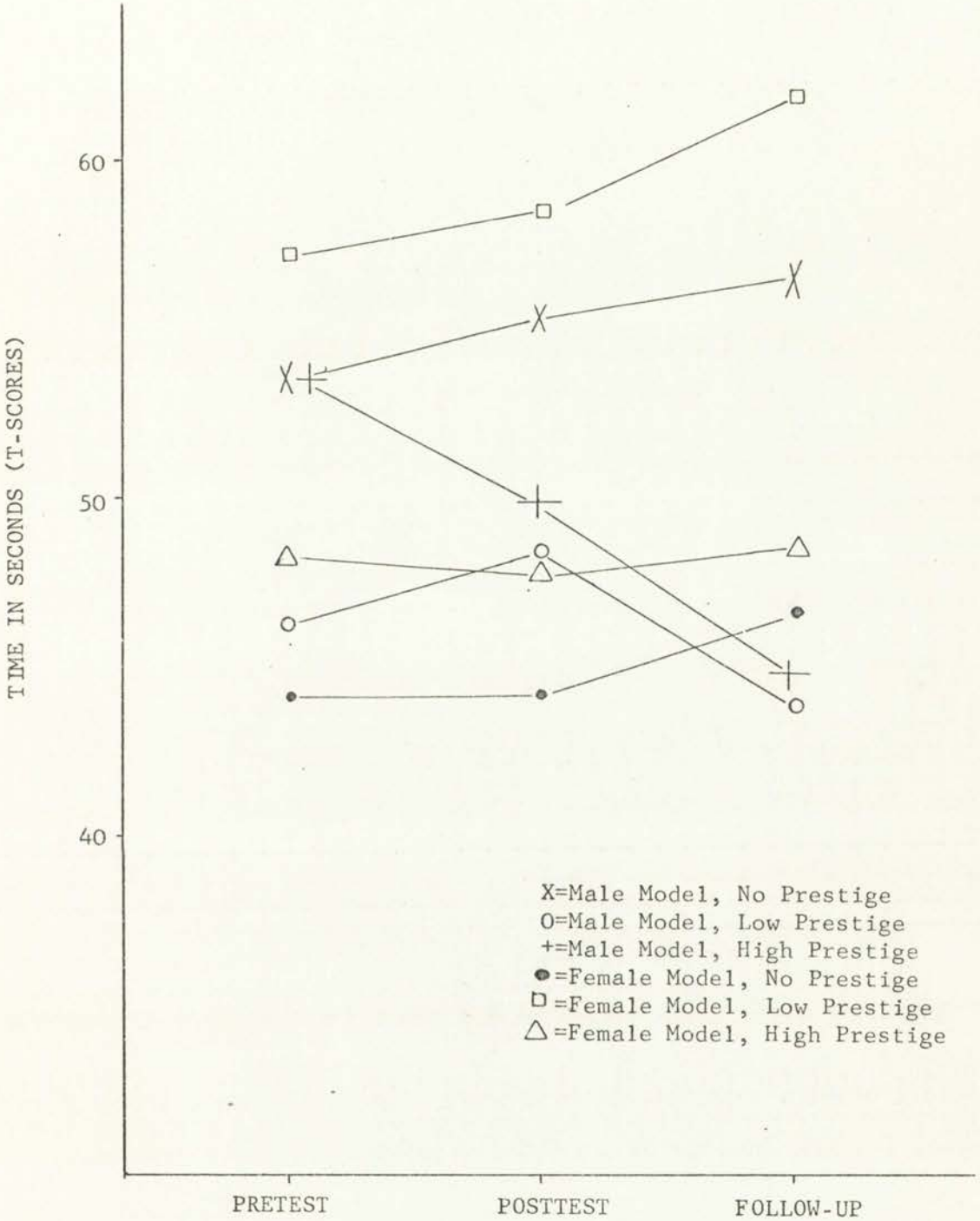
APPENDIX H

Figure 1. Subgroup Mean Time Performance Scores for Males Raw Scores.



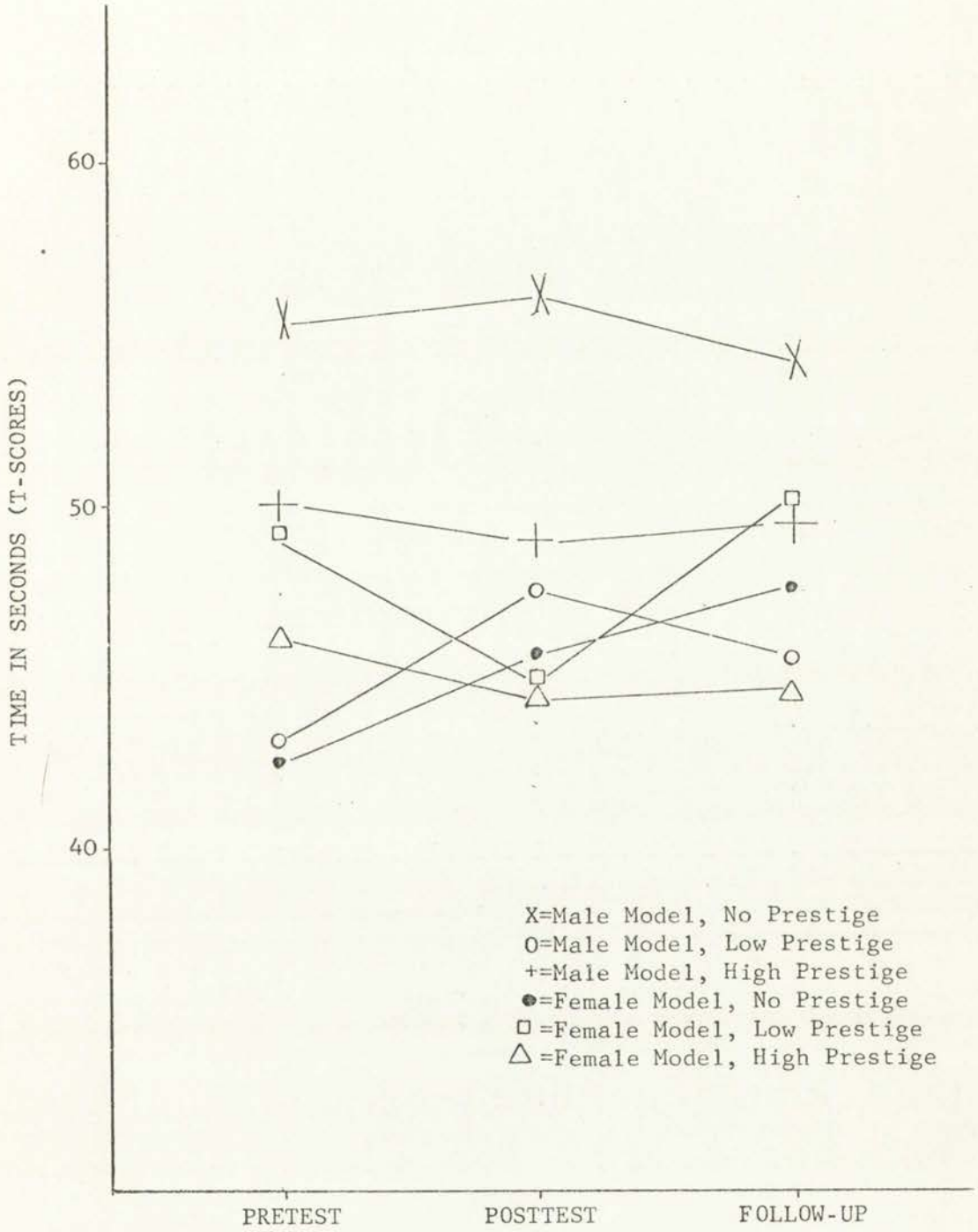
APPENDIX H

Figure 2. Subgroup Mean Time Performance Scores for Females Raw Scores.



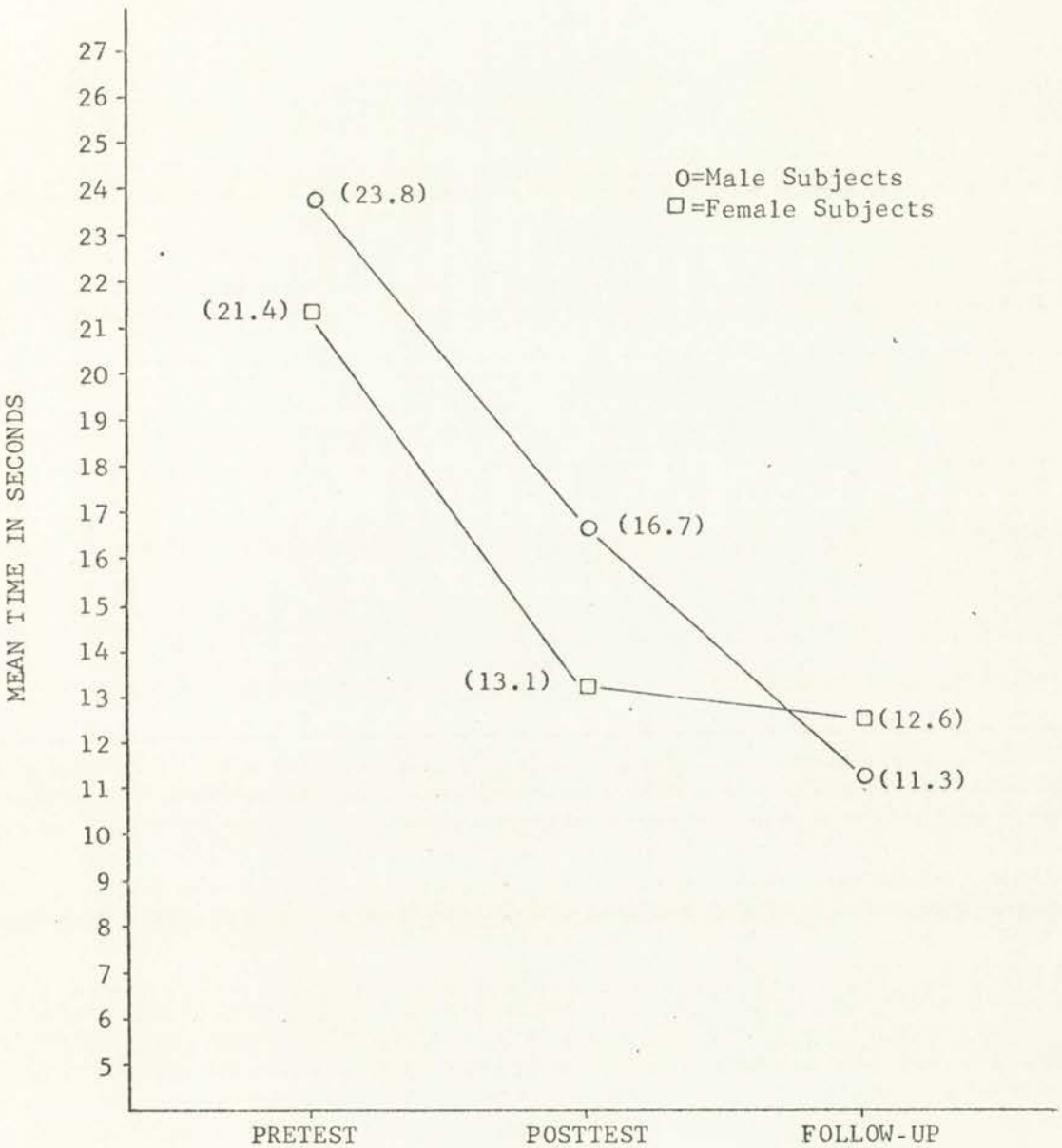
APPENDIX H

Figure 3. Subgroup Mean Performance Scores for Males T-Scores.



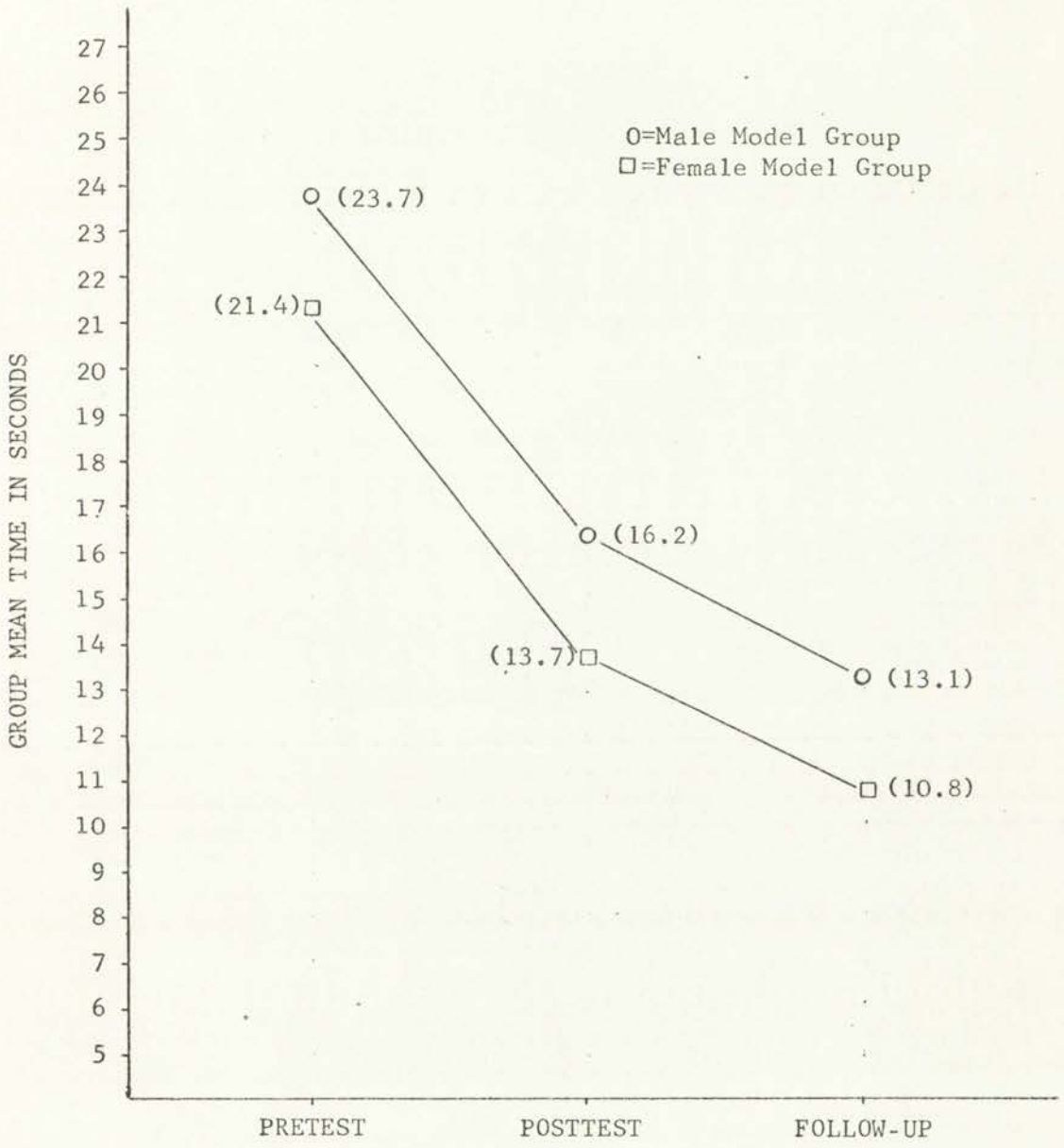
APPENDIX H

Figure 4. Subgroup Mean Performance Scores for Females T-Scores.



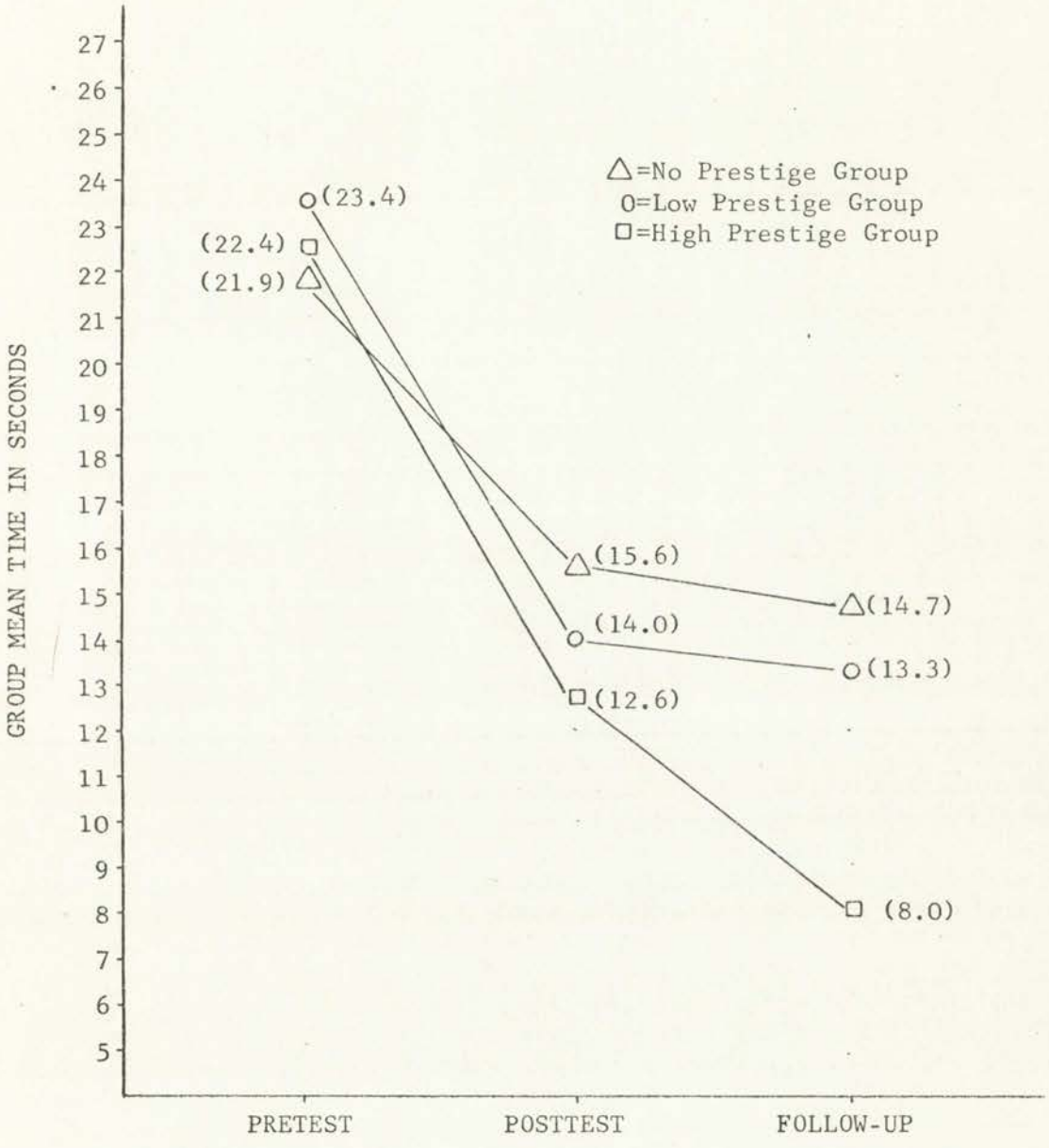
APPENDIX H

Figure 5. Mean Time Performances for Male and Female Subject Groupings Concerning Initial Differences.



APPENDIX H

Figure 6. Mean Time Performances for the Male and Female Model Groupings.



APPENDIX H

Figure 7. Mean Time Performances for the Three Prestige Groupings.

VITAE

Robert Paul Rost was born in Fort Dodge, Iowa in 1939. He attended elementary and secondary schools in Hampton, Iowa, graduating from Hampton High School in 1958. He received his B.A. from the University of New Mexico in 1963, majoring in psychology and minoring in mathematics. He taught mathematics at the junior high school level in Albuquerque during the 1963-64 school year. He completed his M.A. at the University of New Mexico in 1964, majoring in counseling and guidance. He served as a guidance counselor at the junior high school level in 1964-65 and accepted an NDEA fellowship for advanced study in guidance at San Diego State College during the summer of 1965. He accepted a position as a guidance consultant for the Albuquerque Public Schools during the 1965-66 school year. From 1966 to the present he has been employed as a graduate assistant for the Department of Guidance and Special Education, University of New Mexico.

He holds membership in the American Personnel and Guidance Association.