# THE EFFECT OF STATE AND TRAIT ANXIETY, AND PRESTIGE OF MODEL ON IMITATION

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# CHAPTER I

## INTRODUCTION

Anxiety has been described as the most pervasive psychological phenomenon of our time (Hoch & Zubin, 1950). These authors go on further to state that if anxiety could be controlled by biological or social means, fundamental alternations in the organization of our civilization would ensue, and the probability of individual happiness would be greatly enhanced.

Anxiety and fear have long been recognized as fundamental human emotions. The concept of fear, according to Cohen (1969), is clearly reflected in ancient Egyptian hieroglyphics. James Kritzeck, of the Department of Oriental Studies at Princeton, noted a central concern with anxiety in the work of medieval Arab philosopher, Ala Ibn Hazm, of Cordova. In a treatise called "A Philosophy of Character and Conduct," written in the eleventh century, Ibn Hazm unequivocally asserts the universality of anxiety as a basic condition of human existence (cited by Spielberger, 1972).

Spielberger (1966) states that the conceptual status of anxiety contains a certain degree of ambiguity. This ambiguity arises from the more or less indiscriminate use of the term to refer to two very different types of concepts. Anxiety, in an empirical sense, is most often used to denote a complex reaction or response--a transitory <u>state</u> or condition of the organism fluctuating in strength and time. However,

the term anxiety is also used to refer to a personality trait--to individual differences in the extent to which different people are characterized by anxiety states and by prominent defenses against such states (Spielberger, 1966).

Anxiety is an important construct in theories of behavior, ranging from psychoanalysis to learning theory, and most authors tend to use a theoretically derived definition, although some use empirically derived definitions. The comparability of findings from different studies is not only complicated by difference in theoretical definitions, but also by differences in operational criteria from study to study within the same theoretical framework (Ruebush, 1963). For purposes of the study the writer has chosen Spielberger's (1972, p. 10) definition of anxiety as a "transitory emotional state consisting of feelings of apprehension, tension, and autonomic nervous system arousal (A-state) or as a relatively consistent elevated individual level of anxiety proneness (A-trait)."

The definition of modeling chosen by the writer is one proposed by Flanders (1968):

> An observer is said to imitate a model when observation of the behavior of the model, or of expressions attributing certain behavior to the model, affects the observer so that the observer's subsequent behavior becomes more similar to the observed, or alleged, behavior of the model (p. 316).

For purposes of this study the term modeling will be considered synonymous with imitation, identification, social, and observational learning.

One of the fundamental means by which new modes of behavior are acquired and existing patterns are modified entails modeling and vicarious processes (Bandura, 1969). Research conducted within the framework

of social-learning theory demonstrates that virtually all learning phenomena resulting from direct experiences can occur on a vicarious basis through observation of another person's behavior and its consequences for them (Bandura, 1965a; Bandura & Walters, 1963). Thus, one can acquire intricate response patterns merely by observing the performances of appropriate models; emotional responses can be conditioned observationally by witnessing the affective reactions of others undergoing painful or pleasurable experiences; fearful and avoidant behavior can be extinguished vicariously through observation of modeled approach behavior toward feared objects without any adverse consequences accruing to the performer; inhibitions can be induced by witnessing the behavior of others punished; and, finally, the expression of well learned responses can be enhanced and socially regulated through the actions of influential models. Modeling procedures are therefore ideally suited for affecting diverse outcomes, including elimination of behavioral deficits, reduction of excessive fears and inhibitions, and social facilitation of behavioral patterns on a group-side scale (Bandura, 1969).

## Anxiety and Modeling

Recent research on modeling has been provocative because it has suggested the important role which the observation of others plays in influencing social behavior (Bandura, 1965). There has been a plethora of research on modeling, with many different variables being studied--sex (Bandura, Ross, & Ross, 1963a), age (Hicks, 1965), and social power of the model (Mischel & Grusec, 1966) are some examples of the various characteristics that have been studied to determine their effects on

modelings. It has been found, for example, that the social power or prestige of the model is a very important determinant in whether or not the observer will imitate the model's behavior. Numerous studies have found that models of high prestige are imitated to a greater degree than low prestige models (Harvey & Rutherford, 1969; Lefkowitz, Blake & Mouton, 1953; Bandura & Kuper, 1963). Characteristics of the observer, such as dependency (Ross, 1966), self-esteem (Gelfand, 1962), and racial status (Beyer & May, 1968) have been studied. Yet another characteristic of the observer that has been studied in terms of its effects on the modeling situation is anxiety. There is evidence that emotional arousal, whether induced by stressful external conditions or by use of drugs, can increase the probability and degree of changes in social behavior, and that the direction which such changes take may often be specified by the cues provided by a model (Schacter & Wheeler, 1962; Walters, Marshall & Shooter, 1960; Bauer, 1978).

Imitation behavior has been studied in terms of how it is affected by characteristics of the observer. The literature, however, contains little information concerning the effects of varying characteristics of the model and the observer simultaneously. The purpose of the present study is to do precisely that. This study will attempt to determine the effects that various levels of state and trait anxiety in the observer have on the imitation of models with varying levels of prestige. Knowledge concerning this relationship could have implications in various fields. In the field of education, for example, the modeling of certain behaviors or tasks by the instructor may constitute a very important means of aiding students. Knowledge of this relationship could also be important in therapy. Since most clients are somewhat anxious, the

possibility of the therapist serving as a model for certain behaviors should be entertained. The anxiety/prestige of model relationship may be important in deciding just how one can most affect the client, i.e., how important is "power" or prestige of the therapist in the client/therapist dyad.

One must realize, however, that the findings of one study concerning the anxiety/modeling relationship cannot suggest anything definite about this relationship, nor about its application. Further studies would be needed to develop information that would be likely to generalize to school and therapy settings.

# CHAPTER II

## SELECTED LITERATURE REVIEW

What follows is a selected review of the literature in the areas of anxiety and modeling. The articles/studies selected pertain either directly or indirectly to this study.

### Definitions of Anxiety

Anxiety is one of the terms in most frequent current use by researchers in psychology. It is also a term whose definition varies considerably among authors. Frued (1924) described anxiety as an unpleasant affective state. This state, as he observed it in patients who suffered with anxiety neuroses, was characterized by all that is covered by the word "nervous." According to May (1950), anxiety is the apprehension cued off by a threat to some value which the individual holds essential to his or her existence as a personality. Spielberger (1966) felt that anxiety could either denote a transitory state (state anxiety) or ongoing, consistent personality trait of the organism (trait anxiety). For purposes of this study, Spielberger's definitions have been accepted.

### The Trait-State Theory of Anxiety

The trait-state theory of anxiety gives anxiety a two-part conceptual status. This includes what is referred to as "trait," "neurotic,"

or "chronic" anxiety, and what is called "state," "objective," or "situational" anxiety. Trait anxiety is dispositional in nature, is construed or "situational" anxiety. Trait anxiety is dispositional in nature, is construed to be a proneness to be anxious, and has an internalized locus. State anxiety is situational in nature, is directly a function of stressful conditions, and has a contemporary locus (Spielberger, 1972). Research has confirmed expectations that trait anxiety is relatively stable over time and that state anxiety is less stable (King, Heinrich, Stephenson & Speilberger, 1976).

The methodological distinction between trait and state forms of anxiety was first made by Zuckerman (1960) when he devised the Affect Adjective Check List (AACL). Zuckerman and Lubin (1965) added scales for depression and hostility to the AACL, and the resultant trait-state test was called the Multiple Affect Adjective Check List (MAACL). Speilberger (1966) developed a trait-state theory of anxiety. The trait and state forms of the MAACL were used by Spielberger to test predictions from the theory. Later Speilberger, Gorsuch and Luskene (1970) developed their own State Trait Anxiety Index (STAI) for this type of study.

Until recently, personality psychology has been preoccupied with the measurement of trait anxiety. The traditional anxiety test, whether objective or projective, typically yields a general trait assessment which ignores the specificities of individual response and situations. What has been neglected is the measurement of transitory states and change as the situation is modified (Zuckerman & Spielberger, 1976).

In general, it would be expected that those who are high in trait anxiety (A-Trait) will exhibit state anxiety (A-State) elevations more

frequently than low A-Trait individual because they tend to react to a wider range of situations as dangerous or threatening. The experimental literature on anxiety is consistent with the hypothesis that situations which pose direct or implied threats to self-esteem produce differential levels of A-State in persons who differ in A-Trait. Differences in the performance of high and low A-Trait individuals on learning tasks, for example, are most often found under conditions that involve failure experiences or "ego-involving" instructions (Spence & Spence, 1966). Furthermore, circumstances that involve the risk of failure, such as academic achievement situations (Mandler & Sarason, 1952), or in which an individual's personal adequacy is evaluated, e.g., taking an intelligence test, appear to be especially threatening to persons with high A-Trait (Denny, 1966; Spielberger & Smith, 1966). The correlation between the state and trait anxiety depends upon the type and the amount of stress that characterize the conditions under which the A-State scale is given. Correlations between the scales varied between .44 and .55 when the STAI was given to four different samples of female undergraduates; the correlation between the scales for males in these samples varied between .51 and .67 (Spielberger, Gorsuch & Lushene, 1970).

With regard to the origin and etiology of individual differences in A-Trait, it is assumed that residues of past experience dispose high A-Trait persons to appraise situations that involve some form of personal evaluation as more threatening than do individuals who are low in A-Trait. Spielberger (1972) speculated that childhood experiences influence the development of individual differences in A-Trait. Especailly important in this regard are parent-child relationships centering around punishment.

Existing studies of anxiety literally defy summary as a unit (Sarason, 1960). It is possible, however, to discern trends in various areas pertinent to this study. What follows is a review of the relationship between anxiety and certain selected behavior correlates.

## The Effects of Anxiety on Self-Concept and Self-Confidence

Several studies have obtained significant relationships between anxiety and measures which reflect a negative conception of the self or a tendency towards self-disparagement (Doris, 1959; Lipsitt, 1959; Walsh, 1956). Clark and Arkowitz (1975) found that high-anxious subjects were more likely to underestimate positive aspects of their performance and overestimate the negative aspects of their behavior. In a review of the literature on paper-and-pencil anxiety scales, Sarason (1960) cited a number of studies (Bendig, 1958; Trapp & Kausler, 1958; Wolf, 1955) that provide evidence that high-anxious subjects are more self-deprecatory, more self-preoccupied, and generally less content with themselves than subjects lower in the distribution of anxiety.

Numerous studies have shown that the anxious person tends to have a poor self-concept and lacks self-acceptance. It would seem to follow that another characteristic of the anxious subject would be lack of confidence in oneself. Studies by Gaudry and Poole (1973) and Meunier and Rule (1967) have indeed found that level of confidence is inversely related to anxiety. In summary, it appears that an anxious subject has low self-esteem and lacks confidence in his or her ability.

## The Effects of Anxiety on Dependency and Suggestibility

There is ample evidence of a positive relationship between anxiety and dependency (Heathers, 1954; Walters, Marshall & Shooter, 1960; Walters & Ray, 1960). Sarason, Davidson, Lighthall, Waite, and Ruebush (1960) and Hill and Sarason (1966) suggest that a high test-anxious child has strong dependency needs and that these needs partially mediate the interfering effect of test anxiety for such children.

In an earlier experiment it was shown that high-anxious children were more suggestible than were low-anxious children (Jakubczak & Walters, 1959). Walters et al. (1960) have shown that subjects who have been exposed to an anxiety-producing situation are more suggestible than subjects not exposed to such a situation. An analysis of experimental procedures used in studies of suggestibility supports an interpretation of suggestibility as a form of dependency behavior (Asch, 1940; Sherif, 1935). Similarly, Jakubcazk and Walters (1959), in exposing groups of high- and low-dependent children to the autokinetic effect, found that high-dependent subjects were significantly more suggestible than low-dependent subjects. In general, studies seem to indicate a very strong relationship between level of anxiety and the traits of dependency and suggestibility.

## The Effects of Anxiety on Susceptibility to Persuasion and Social Influence

Janis (1955) hypothesized that persons who are exceptionally lacking in a sense of personal adequacy are excessively fearful of social

disapproval and, therefore, are strongly motivated to conform with demands and suggestions of others. Under the assumption that a high degree of anxiety entails feelings of shyness, fear of being criticized, and low self-confidence in relationships with other people, Janis (1955 studied the relationship between anxiety and susceptibility to persuasion. The results of the study showed that people high in anxiety were more predisposed to be influenced by persuasive communication. Fine (1957) found that opinion change in subjects high in inferred anxiety was greater than those low in anxiety. Anxiety has been found to be positively related to suggestibility in an autokinetic situation Walters et al., 1960) and to susceptibility to propaganda (Janis & Feshback, 1953).

A number of studies have reported that under anxiety arousing conditions subjects tend both to seek out the company of others and to become increasingly susceptible to social influence (Schacter, 1959; Walters & Karal, 1960). Gerard (1963) suggests that evaluational uncertainty regarding some aspect of the self produces a desire to compare oneself with others. Along a similar vein, Walters, Bowen, and Parke (1964) reported that emotionally aroused subjects are especially likely to rely on the behavior of others for indications as to how they should respond.

In summary, research seems to indicate that arousal or anxiety leads to: (1) an increased susceptibility to social influence and (2) a desire to affiliate.

## Theoretical Viewpoints on Modeling

The earliest formulations, dating back to Morgan (1896), Tarde (1903) and McDougall (1908), regarded modeling as an innate propensity.

These instinctual interpretations discouraged empirical investigations of the conditions under which modeling occurs. As the instinct doctrine fell into disrepute, a number of psychologists, notably Humprey (1921), Allport (1924), and Holt (1931), accounted for modeling behavior in terms of associative principles.

With the advent of reinforcement principles, theoretical explanations of learning shifted the emphasis from classical conditioning to instrumental response acquisition based on reinforcing outcomes. Theories of modeling phenomena similarly assumed that the occurrence of observational learning is contingent upon reinforcement of imitative behavior. This point of view was most clearly expounded by Miller and Dollard (1941). Miller and Dollard's pioneering effort virtually founded the empirical study of imitation. Flanders (1968), however, states that while Miller and Dollard's emphasis on direct reinforcement was justified, their claim that imitation presupposes direct reinforcement was false.

When a person observes a model's behavior, but otherwise performs no overt response, he or she can acquire the modeled response while they are occurring only in cognitive, representational forms. Any learning under these conditions occurs purely on an observational or covert basis. Several theoretical analyses of observational learning assign a prominent role to representational mediators that are assumed to be acquired on the basis of a continguity learning process (Bandura, 1969, 1965a; Sheffield, 1961).

## A General Overview of Modeling Research

The behaviors of models often serve as discriminative cues for

observers in facilitating the expression of previously learned responses. Laboratory and field studies have shown that the probability of occurrence of a wide variety of neutral and socially approved behavior can be substantially increased as a function of witnessing the action of real-life or symbolic models. Some behaviors that have been thus faciltiated include volunteering one's services (Rosenbaum, 1956; Schacter & Hall, 1952), performing altruistic acts (Blake, Rosenbaum & Duryea, 1955; Bryan & Test, 1967; Harris, 1968), pledging oneself to a course of social action (Blake, Mouton & Hain, 1956; Helson, Blake, Mouton, & Olmstead, 1956), assisting persons in distress (Bryan & Test, 1967), seeking relevant information (Krumboltz & Thoresen, 1964), and selecting certain types of foods (Duncker, 1938), activities (Madsen, 1968), or articles (Bandura, Ross & Ross, 1963b).

In the case of humans, a wide variety of response patterns differing considerably in content, novelty, and complexity have been transmitted through modeling procedures under laboratory conditions. Among the diverse classes of behavior that have been developed are stylistic response patterns (Bandura, Grusec & Menlove, 1966; Bandura, Ross & Ross, 1963b), distinctive modes of aggressive behavior (Bandura, Ross & Ross, 1963a), dramatic play patterns (Marshall & Hahn, 1967), prosocial frustration reactions (Chittendon, 1942), and teaching styles (Feshback, 1967). At an even higher level of complexity, it has been shown that through exposure to the behavior of models a person can acquire standards for self-reinforcement and self-evaluative responses (Bandura & Kupers, 1964), conceptual behavior (Reed, 1960), moral judgmental orientations (Bandura & McDonald, 1963), self-imposed delay-of-gratification patterns

(Bandura & Mischel, 1965), linguistic structures (Lovaas, 1966a), and distinctive phonetic variations in verbal behavior (Hanlon, 1964).

## The Effects of Modeling of Reinforcement to the Observer (Direct Reinforcement)

A number of studies have investigated the effect of reinforcement of the observer contingent upon the observer's imitating the model (Clark, 1965; Field, 1952; Hicks, 1965). The results of these studies strongly support the proposition that such reward increases imitation (Clark, 1965; Field, 1952; Hicks, 1965). Caution, however, should be taken in generalizing the above results beyond similar experimental situations. Studies have shown that when reward is made contingent upon the observer's task-success independent of imitation, the tendency for the observer to imitate the model is decreased (Grusec, 1966; Kelly & Lamb, 1957; Kelman, 1950).

## The Effects of Modeling of Reinforcement to the Model (Vicarious Reinforcement)

It is becoming increasingly apparent that social learning cannot be adequately explained in terms of direct reinforcement principles. A number of studies strongly support the hypothesis that vicarious reward will increase imitation of the model by the observer (Bisese, 1966; Clark, 1965; Marston, 1966; Willis, 1963). It has been further shown that vicarious reward effects are most likely to occur when the subject believes she or he will have to perform the task, and when the task has definable properties permitting a clear association between relevant

task stimuli, critical modeled behavior, and vicarious reward (Thelen & Rennie, 1972).

Modeling effects can be enhanced by the addition of reinforcement to the model (vicarious reinforcement) or to the observer (direct reinforcement). It has been argued that vicarious reinforcement has an effect primarily on the observer's performance of the imitative response, and that it does not represent a necessary condition for the acquisition of this behavior (Marlott, Jacobson, Johnson & Morrice, 1970). Bandura (1965a) suggests that the acquisition of matching responses results primarily from stimulus contiquity and associated symbolic responses, whereas the performance of observationally learned responses will depend to a great extent upon the nature of the reinforcing consequences to the model or the observer. Liebert and Fernandez (1970), however, state that vicarious consequences should affect both the performance and acquisition of modeled behavior. A study by Peed and Forehand (1973) further confirms this position. Thus, while most studies suggest that vicarious consequences affect performance, its effect on acquisition seems to be a source of dispute among researchers.

## The Effects of Antecedent Characteristics of the Model on the Behavior of the Observer

Since repeated contigious stimulation alone does not always result in response acquisition, it is evident that additional conditions are required for the occurrence of observational learning (Bandura, 1969). A number of attention-controlling variables, some related to incentive conditions, others to observer characteristics, and still others to the properties of the modeling cues themselves, seem to be influential in

determining which modeling stimuli will be observer and which will be ignored. Selectivity of modeling stimuli may be partly a function of their inherent physical properties--for example, intensity, size, vividness, and novelty (Bandura, 1969). Of much greater importance for social learning, however, is the acquired distinctiveness of model attributes (Miller & Dollard, 1941).

Studies concerning the effects of nurturance and sex of model have been contradictory and inconclusive (Flanders, 1968). Heatherington and Frankie (1967) found that nurturant models of either sex are imitated more, regardless of the sex of the observer. Rosenbaum (1956), however, found that nurturant models are imitated more by female observers. Other experiments failed to find any nurturance effects (Aronfreed, 1964; Rosenhan & White, 1967).

Concerning sex of model, Bandura, Ross, and Ross (1963) suggest that males imitate males and females imitate females only when the behavior is perceived by the observer as sex-appropriate. Still other investigators (May, 1966; O'Connell, 1965) have found the sex of the model to have no effect, while others (Heatherington & Frankie, 1967; Hicks, 1965) have found the sex of the model to have an interaction effect.

## The Effects of Characteristics of the Observer on Modeling

An adequate theory of vicarious learning must explain why, under essentially identical conditions of modeling stimulation, some persons display higher levels of response acquisition than others. There is suggestive evidence that characteristics of observers, deriving from

their previous social learning experiences, may be associated with different observational patterns (Bandura, 1969).

In general, research seems to suggest an inverse relationship between self-esteem of observer and imitation. De Charms and Rosenbaum (1960) and Gelfand (1962) have shown that subjects with high self-esteem display less matching behavior than subjects with low self-esteem. These studies tie in very nicely with the research in the area of self-esteem and conformity. Janis (1954), Berkowitz and Lundy (1957), Lesser and Ableson (1959), and Linton and Graham (1959) have all found that persons low in self-esteem are more persuasible than those whose self-regard is more substantial. In summary, research seems to suggest an inverse relationship between self-esteem and imitation (conformity).

The relationship between dependency and imitation has been the subject of many studies. Bandura and Huston (1961) reported that high-dependent children showed more imitative behavior than did low-dependent children. In the two studies of Bandura, Ross, and Ross (1961, 1963), high-dependent children showed more imitation of aggression than did low-dependent children. Ross' (1962) study of the imitation of deviant behaviors also provides evidence for a positive relationship between the two variables. Indirect support for this relationship is also provided in studies by Cairns (1959), Endsley and Hartup (1960), and Jakubczak and Walters (1959). In general, research seems to suggest a direct relationship between dependency and modeling.

## Conclusions from Modeling Research

What follows are some conclusions concerning the selected review of the literature on modeling. The earliest formulations regarded modeling

as an innate propensity. As the instinct doctrine fell into disrepute, modeling was accounted for in terms of associative principles. With the advent of reinforcement principles, theoretical explanations of learning shifted the emphasis from classical to instrumental response acquisition based on reinforcing outcome. Theories of modeling assumed that the occurrence of observational learning is contingent upon reinforcement of imitative behavior. Perhaps the most popular exponents of this view were Miller and Dollard.

A general review of the imitation research was then made. It was noted that the behaviors of models often serve as discriminate cues for observers in facilitating the expression of previously learned responses. Studies have shown that the occurrence of a wide variety of neutral and socially approved behavior can be increased as a function of witnessing the action of real-life or symbolic models. It was also noted that a wide variety of response patterns differing considerably in content, novelty, and complexity have been transmitted through modeling procedures.

The modeling literature was also reviewed in terms of selected variables. Results concerning the effects upon imitation of presumed reward to the observer contingent upon the observer's imitation of the model strongly support the basic proposition that such reward increases imitation. Studies presented strongly support the hypothesis that vicarious reward will increase imitation of the model by the observer. It was shown, however, that vicarious reward effects are most likely to occur when the subject believes he or she will have to perform the modeled task, and when the task has definable properties permitting a clear association between relevant task stimuli, critical modeled

behavior, and vicarious reward. The differential effects of vicarious reinforcement on performance and learning were then discussed. Studies suggest that vicarious reinforcement definitely effects performance of behavior. It's effect on learning, however, is inconclusive. The effects of various antecedent characteristics of the model were also researched. Studies of the effects of nurturance and sex of model were contradictory and inconclusive.

Studies were then reviewed concerning the effects of states and traits within the observer on imitation behavior. The relationship between imitation and self-esteem was also discussed. In general research seems to suggest an inverse relationship between self-esteem and imitation. Finally, studies were discussed that generally supported a linear relationship between dependency and imitation.

## Modeling and Prestige of Model

Increased imitation of models who are older, more skillful, or who possess high social status was predicted by Miller and Dollard (1941) and Bandura and Walters (1963). Predictions about social status have been supported by demonstrating increased imitation of models with higher social status (Harvey & Rutherford, 1960; Lefkowitz, Blake & Mouton, 1955) and decreased imitation of models whose social status was removed Shafer, 1965).

Gelfand (1962) and Mausner (1954) found increased imitation of models who demonstrated attributes and skills thought to be successful in earning material rewards and social approval. Increased imitation was also found of models who occupied a prestigious place in a seniority or occupational hierarchy (Bandura & Kupers, 1963; Jakubczak & Walters,

1959). Blake and Mouton (1955), in a study determining the rate of violation of a given law, found that the power of others to increase or decrease the strength of a prohibition is a function of "who the others are." When high status people were known to accept a certain law it had the effect of making the law more acceptable than if only low status people are known to conform. Communication from a high prestige source was found to result in more opinion change in subjects than communication from low prestige sources (Kelman & Houland, 1953). Both empirical and experimental bases exist for the prediction of greater influence on other members by the leader and other high ranking members of the informal group or gang (Thrasher, 1927; Whyte, 1943). It has also been found that when the agent of reward is a high-prestige person reinforcement procedures are more effective than when the reinforcers are dispensed by a person of low prestige (Prince, 1962).

In short, support has been found for the prediction that observers more readily imitate models of higher status.

## Anxiety and Modeling

Research cited earlier in this review shows that high-anxiety subjects tend to be less content with themselves and to have lower self-esteem than low-anxious subjects. Other studies have suggested that high-anxiety subjects are more dependent than low-anxiety subjects. Subjects high in dependency and low in self-esteem have been found to be highly suggestible. It has indeed been found that anxious subjects, who tend to have both these characteristics, are more suggestible and more susceptible to persuasion than low-anxiety subjects. Following

this line of though are studies showing that high-anxiety subjects are more susceptible to the influence of social models.

One may ask the question: why should anxiety affect modeling behavior? To answer this question, one can examine a modeling situation through the eyes of an anxious person. An anxious person tends to have lower self-esteem and higher dependency needs than a low-anxious person. Studies, incidentally, have shown that both these characteristics lead to an increase in imitation. The high-anxiety person, viewing a situation in which he or she must respond, has two choices: to respond independently or look to one's environment for help. It seems reasonable that highly anxious persons would strive especially hard to uncover environmental cues which might assist them in problem solving. This would tend to stem from their lack of confidence in their own abilities, their lack of sureness concerning themselves, and their general tendency to be dependent on other people. What better cue as to how to behave than the behavior of another? It would follow that high-anxiety subjects would tend to model more than low-anxiety subjects.

## Studies on Anxiety and Modeling

A small number of studies have looked at the relationship between anxiety and modeling. Schacter and Singer (1962) employed a technique to produce a state of physiological arousal by the injection of a sympathomimetic amine, epinephrine. With slight exceptions, this agent provokes a pattern of physiological activation which is a virtual replica of the state produced by active discharge of the sympathetic nervous system. In experimental situations designed to make subjects euphoric, those subjects who received injections of epinephrine were,

on a variety of indices, somewhat more euphoric than subjects who received a placebo injection. Similarly, in situations designed to make subjects angry and irritated, those who received epinephrine were somewhat angrier than subjects who received placebo. Schacter and Singer (1962) suggested that, given a state of physiological arousal for which an individual has no immediate explanation, one will label this state and describe one's feelings in terms of the cognitions available. Another way of explaining the results of this study could be as follows: a high degree of experimentally induced arousal led subjects to imitate the emotional reactions of stooges more than less aroused (placebo) subjects. Schacter and Singer (1962) suggest highly aroused subjects imitate more than subjects who are less aroused.

The results of this study, however, have been questioned (Schacter & Wheeler, 1962). In both sets of conditions, the differences between epinephrine and placebo subjects were significant, at best, at borderline levels of statistical significance. Assuming, for the moment, that physiological arousal is a necessary component of emotional states, one of the factors that might account for this failure to find larger differences between epinephrine and placebo subjects can be explained in the following manner. It is highly possible that the placebo subjects also experienced some unspecified degree of physiological arousal during the experiment. The injection of placebo does not prevent self-arousal of the sympathetic system, and indeed there is considerable evidence that the arousal of an emotional state is accompanied by general excitation of the sympathetic nervous system (Woodworth & Schosberg, 1958). Thus, the failure to find larger differences between the epinephrine and

placebo subjects could be a direct result of a smaller difference in arousal levels than was expected.

A test of the proposition at stake, then, would require comparison of subjects who have received injections of epinephrine with subjects who, to some extent, are rendered incapable of self-activation of the sympathetic nervous system. Thanks to a class of drugs known generally as autonomic blocking agents, such blockage is, to some degree, possible. If the proposition that a state of sympathetic discharge is a necessary component of an emotional experience is correct, it should be anticipated that whatever emotional state is experimentally manipulated, it should be most intensely experienced by subjects who have received epinephrine, next by placebo subjects, and least of all by subjects who have received injections of an autonomic blocking agent. A study of this type was done by Schacter and Wheeler (1962). Schacter and Wheeler (1962) extended the range of manipulated sympathetic activation by employing three experimental groups: epinephrine, placebo, and a group injected with the sympatholytic agent, chlorpromazine. Laughter at a slap-stick movie was the dependent variable and the evidence was convincing that amusement was a direct function of manipulated sympathetic activation. In other words, epinephrine subjects were more aroused than were placebo subjects, who in turn were more aroused than chlorpromazine subjects. Taken together, these studies suggest that an increase in arousal will lead to an increase in the imitation of an emotional state.

Bandura and Rosenthal (1966) investigated the effects of emotional arousal, manipulated both psychologically and physiologically, on vicarious classical conditioning processes. Five groups of observers underwent procedures designed to induce differential degrees of arousal.

Observers then participated in a vicarious aversive conditioning paradigm in which a model exhibited pain cues in conjunction with an auditory stimulus. The acquisition and extinction of observers' emotional responses to the conditioned stimulus were studied. The results disclosed that conditioned emotional responses can be transmitted vicariously. In addition, the overall findings revealed that the observers' emotional arousal was a significant determinant of vicarious conditioning. This was shown by the fact that frequency of conditioned responses was a positive function of the degree of psychological stress. In other words, as the degree of arousal induced by a psychologically stressing situation increased, subjects became increasingly susceptible to the influence of models. In this case what the subjects imitated was a classically conditioned response.

Sarason, Pederson, and Nyman (1968) observed the effects of high, middle, and low test-anxiety on a verbal learning experiment. The subjects were female undergraduates. Prior to, and independent of, the experiment the subjects were administered a 37 item Test Anxiety Scale (TAS). The score distribution was divided into thirds, defined as high, middle, and low test-anxious groups. There were seven experimental conditions, four of which required the use of models. In two of these observational conditions, observation condition (O) and reverse observation condition (RO), the subject was instructed to observe the model. In the remaining two observational conditions no such instructions were given to the subject. Evidence was gathered which suggested that higher test-anxiety scores were more associated with a beneficial observation effect than were lower ones. From this it may be possible to make the

statement that high test-anxious subjects tend to model more than less test-anxious subjects.

However, a few problems exist here. It was shown that in the modeling conditions where the subject was directly told to watch the model (O and RO conditions), high TAS imitated more than low TAS. In the conditions, however, where modeling/observation was possible but not directed, the difference between high TAS and low TAS was actually non-existent. It seems quite possible that differences in performance between high and low TAS in the O and RO conditions were due, not to the effect of anxiety on modeling, but to the demand characteristics of the experimental situations. It is possible that what was measured was not so much the influence of anxiety on modeling behavior as the tendency of the highly anxious individual to be more conforming and appeasing than the low-anxious individual. Clearly a more rigorous test of this relationship is needed.

Bauer (1978) designed a study to clarify the effects of the demand condition on the anxiety/modeling relationship. Eighty female undergraduate subjects were used. Forty subjects underwent relaxation procedures and were, in terms of Spielberger's State Anxiety Inventory (STAI), more relaxed than the average undergraduate female. Forty subjects underwent anxiety induction procedures and were, in terms of STAI scores, more anxious than average. The subjects were then exposed to either a fast model or a slow model negotiating a maze. One-half of these subjects were directly instructed to observe the model (Demand condition), whereas the remainder of the subjects were merely seated in the experimental room and told to wait their turn (Non-demand condition). A visual fixation measure was taken to determine the amount of time

subjects actually spent observing the model. After observing the model, subjects were required to perform the maze. A post-experimental STAI was given to determine any changes in anxiety level. The time needed to complete the first four choicepoints of the maze, the total time needed to complete the maze, and change in anxiety level (post-test minus pre-test) were used as measures of performance.

No significant correlation was found between the time spent observing the model and the time taken to complete the maze. This suggests that the length of time a subject observes the model has little or no effect on the extent of modeled behavior that occurs. Anxious subjects tended to imitate the model more than relaxed subjects when observing a slow model, but no significant differences were found when subjects observed a fast model. Failure to obtain a difference between anxious and relaxed subjects in the fast model condition can perhaps be explained by methodological difficulties leading to a restriction of range effect. Anxious subjects tended to imitate more than relaxed subjects in the slow model, demand condition for both the speed-related dependent variables. In the slow model, non-demand condition, however, anxious subjects tended to imitate more than relaxed subjects only when the dependent variable was total time to complete the maze.

The effect of the demand condition still seems to be uncertain. There is a tendency for the demand condition to enhance imitation tendencies; however, there was no significant difference between the demand and non-demand condition in terms of imitation. Overall, however, this study does offer partial support for the hypothesis that anxiety leads to increased modeling behavior.

## Anxiety and Prestige of Model

Numerous studies have found increased imitation of models with higher social status (Harvey & Rutherford, 1960; Lefkowitz, Blake & Mouton, 1955). Increased imitation has also been found, of models demonstrating skills thought to be successful in earning rewards and social approval (Gelfand, 1962). A similar result has also been found for models occupying a prestigious place in an occupational hierarchy (Bandura & Kupers, 1963). Clearly the literature suggests that the prestige or status of the model has a strong effect on the observers' imitation tendencies.

Characteristics of the model (e.g., prestige) may affect the imitation tendencies of an observer. Imitation by the observer may also be affected by certain characteristics of the observer. One such characteristic is anxiety. There have been a number of studies that have studied the relationship between anxiety and modeling. It has been found that highly aroused subjects tend to imitate an emotional state more so than less aroused subjects (Schacter & Wheeler, 1962). It has also been found that a high degree of arousal leads to a greater degree of imitation of classically conditioned responses (Bandura & Rosenthal, 1966). The literature has little to say about the effect of anxiety on imitation that is cognitively complex. Sarason et al. (1968), using a serial learning task, found that high test-anxious subjects imitated more than low test-anxious subjects.

Anxious observers seem to imitate a model more than non-anxious observers. One may wonder as to the effect of various characteristics of the model on the anxiety/modeling relationship. More specifically,

what is the effect of prestige of the model on this relationship? A review of the literature has yielded no research pertaining to this question.

# CHAPTER III

## STATEMENT OF THE PROBLEM

Selected reviews of the areas of anxiety and modeling have been presented. The characteristics of an anxious individual (e.g., lack of confidence, dependency, suggestibility) would seem to predispose the anxious individual to pay close attention to the behavior of others in an attempt to best behave in his or her world. There has been a number of studies that have looked at anxiety and modeling. Schacter and Wheeler (1962) and Schacter and Singer (1962) found the highly aroused, more agitated subjects tend to imitate a pattern of behavior more so than less aroused subjects. Bandura and Rosenthal (1966) found a high degree of arousal due to psychological stress led to a greater degree of imitation of classical conditioned responses. Sarason et al. (1968) found that high test-anxious subjects imitated more than low test-anxious subjects. Bauer (1978) found increased imitation tendencies in anxious subjects. The anxious observer seems more prone to imitate a model than a non-anxious observer. However, the literature has very little to say concerning the effects of antecedent characteristics of the model on an anxious observer. It has been found that the prestige of the model is a very important determinant in the observer's imitation behavior.

In an uncertain situation, the suggestibility and dependency needs of the anxious individual would seem to lead such an individual to seek out a powerful, successful other upon whom to base one's own behavior.

The propsed study attempted to study the effects of prestige of model on the anxious observer. The two-part conceptual status of anxiety suggests that a more complete investigation of anxiety would consider both state and trait anxiety. Subjects were thus divided into four groups according to their levels of state and trait anxiety: (1) high level of state and trait anxiety, (2) low level of state and trait anxiety, (3) high state/low trait anxiety, (4) low state/high trait anxiety. Subjects were then given the opportunity to observe a high prestige model, a low prestige model, or no model. The model negotiated a pencil maze in a relatively slow time of 70 seconds. The subjects were then required to run the maze. Data was analyzed in terms of a 3 x 2 x 2 factorial design. The three factors were: prestige level, state anxiety level, and trait anxiety level.

It was hypothesized that:

1. Subjects exposed to the model would complete the maze slower than subjects not exposed to a model. Studies have shown that stylistic response patterns have been transmitted through modeling procedures (Bandura, Grusec & Menlove, 1966).
2. Subjects exposed to the high prestige model would complete the maze slower than subjects exposed to the low prestige model. Research has shown increased imitation of models with higher social status (Harvey & Rutherford, 1960).
3. The mean time needed to perform the maze would be greater for subjects with high levels of state and trait anxiety than for subjects with low levels of state and trait anxiety. Previous research has found that high-anxious subjects tend to imitate

more than low-anxious subjects (Sarason et al., 1968; Bauer, 1978).

4. Subjects high in state and/or trait anxiety would complete the maze slower than subjects low in state and/or trait anxiety when exposed to a high prestige model.

No hypothesis concerning the varying effects of state vs. trait anxiety on imitation behavior has been made due to a lack of research on this specific question.

# CHAPTER IV

# METHOD

## Subjects

One hundred and twenty female college students enrolled in Introductory Psychology classes at Oklahoma State University participated in this experiment for extra credit. These students were of freshman or sophomore status and between the ages of 18 and 22 years.

## Materials

The State Anxiety Scale (A-State) and the Trait Anxiety Scale (A-Trait) of the State-Trait Anxiety Inventory developed by Spielberger (1967) were used in this study. The State Anxiety Scale consists of 20 statements that require subjects to indicate how they feel at a particular moment in time, in this case the present (see Appendix A for STAI-A State Scale). State Anxiety is conceptualized as a transistory emotional state--a condition of the human organism that is characterized by subjective, consciously perceived feelings of tension and apprehension and heightened autonomic nervous system activity. A-State may vary in intensity and fluctuate over time.

The Trait Anxiety Scale is similar to the state scale with the exception that subjects are required to state how they generally feel. Trait Anxiety refers to relatively stable individual differences in

anxiety proneness, that is, to differentiate between people in the tendency to respond to situations perceived as threatening with elevations in A-State intensity (see Appendix B for STAI-A Trait Scale). The conceptions of trait and state anxiety that guided this construction of the STAI are considered in greater detail by Spielberger (1966).

The range of possible scores on the STAI varies from a minimum score of 20 to a maximum score of 80 on both the A-State and A-Trait subscales. The mean score for undergraduate females similar to those used in this study has been found to be 35.12 on the A-State Scale and 38.25 on the A-Trait Scale (Spielberger, 1970). The mean score for a female undergraduate on the State-Trait Anxiety Inventory is based on a sample of 231 female undergraduates at Florida State University.

Evidence of the concurrent validity of the STAI A-Trait Scale was obtained by correlating it with the IPAT Anxiety Scale (Cattel and Schier, 1963) and the Taylor Manifest Anxiety Scale (TMAS) (Taylor, 1953). The correlations between the STAI, the IPAT, and the TMAS are moderately high for both college students and clinical patients. These correlations range from .75 to .83.

Evidence bearing on the construct validity of the A-State scale is available for a sample of 977 undergraduate college students at Florida State University. These students were first administered the A-State scale with the standard instructions (Norm condition). They were then asked to respond how they believed they would feel "just prior to the final examination in an important course" (Exam condition). The mean score for the A-State scale was considerably higher in the Exam condition than in the Norm condition for both males and females. Furthermore, all but one of the items significantly discriminated between these conditions

for the males, and all of the items were significantly higher in Exam condition for females. Further evidence concerning STAI validity is provided by Spielberger et al. (1970).

Test-retest reliability data on the STAI was obtained from subgroups of subjects who were included in the normative sample of undergraduate college students. The test-retest correlations for the A-Trait scale were reasonably high, ranging from .73 to .86. Given the transitory nature of anxiety states, measures of internal consistency such as the alpha coefficient would seem to provide a more meaningful index of reliability of A-State scales than test-retest correlations. Alpha coefficients for the STAI scales were computed by Formula K-R 20 as modified by Cronbach (1951) for the normative samples. These reliability coefficients ranged from .83 to .92 (Spielberger et al., 1970).

A cassette tape recording of a relaxation technique developed by Andre Weitzenhoffer (unpublished manuscript) was used to induce relaxation in the subjects (see Appendix C for relaxation procedure). This tape was seven minutes long. To induce anxiety, a cassette tape recording was used (see Appendix D for anxiety induction procedure) containing instructions and a difficult philosophical passage from a book entitled Psychoanalysis and Daseinanalysis by Menard Boss (1963). The tape was three minutes in length. A cassette recorder was used to play these tapes.

A BRS Foringer pencil maze was used in the second (modeling) phase of the study. This maze was basically a flat sheet of metal 10.2 cm wide, 25.4 cm long, and 3.2 mm thick. A total of 10 horizontal slots ran parallel to the edge of the maze nearest the subject. Vertical slots were attached to each end of the horizontal slots, one ending in a cul,

the other connecting to the center of the next horizontal slot. Thus, there was a total of 10 right-left decision points. The slots were cut completely through the metal and were large enough to allow entry of a sharpened pencil. A sharpened number two pencil was provided for both model and subject. Medium bond paper 8 1/2" x 11" was placed beneath the maze to record errors in maze running. In the modeling phase of the study a pair of goggles was used to blindfold the subject when the subject was running the maze. The goggles were shaped like a mask, completely enclosing both eyes. These goggles cut off any vision when worn by the subject. A Time Study 7451 stopwatch was used to obtain the subject's response time in running this maze. A stopwatch of a similar model was used by experimental assistants (located behind a one-way mirror) in a second experimental room to record the actual amount of time the subject observed the model. A pilot study was run to insure the interjudge reliability of this procedure.

Both phases of the experiment used experimental rooms. In the first phase of the study an experimental room was used that contained a table measuring 2.4 x .65 m and two wooden chairs. These chairs were used by experimenter I and the subject. Both subject and experimenter were seated at the table. The second phase of the study was conducted in an experimental room 10 m down the hall. This room contained a table measuring 3 x .8 m, two wooden chairs, and a one-way mirror. Experimental room number two also contained a podium measuring 2.5 m high x 1 m wide x .5 m long. The podium was used by experimenter II to store materials. One chair was placed at the table. This chair was used by the model when she ran the pencil maze. Across the table and approximately 3.5 m

away the second chair was placed. This chair was used by the subject. The location of the chair was such that the subject could not see the maze itself.

A rating scale, developed for the purpose of recording prestige ratings of the models by the subjects, was also used in this study (see Appendix F for prestige rating scale).

## Procedure

### Phase I

The first part of the study dealt with a determination of the trait anxiety level of the subject and a manipulation of the subject's state anxiety level. The subjects were met by Experimenter I in a location designated as the waiting room. Experimenter I was a male college student 22 years of age majoring in psychology. Experimenter I introduced himself to the subject and directed the subject to experimental room number one. The experimenter then seated the subject and administered the STAI (Trait Scale) to the subject. The STAI was scored by the experimenter and the subject then underwent anxiety reduction or relaxation procedures.

Subjects scoring above the mean for an undergraduate female on the trait scale were considered trait-anxious whereas those scoring below the mean were considered non-trait anxious. After anxiety induction or relaxation procedures were completed, subjects were given the STAI (State Scale) to determine if they were sufficiently anxious or non-anxious to be used in phase two of the study. Of the subjects who underwent anxiety induction, those scoring above the mean for a female undergraduate were considered state anxious and asked to continue in

the second phase of the study. The others were dismissed. The subjects exposed to the relaxation procedures who scored less than the mean on the state scale were considered non-state anxious and also asked to continue in the second phase. The subjects scoring above the mean were dismissed. The procedures were continued until 120 subjects were gathered with the following combinations of state and trait anxiety: (1) 30 subjects high in both trait and state anxiety, (2) 30 subjects high in trait and low in state anxiety, (3) 30 subjects low in trait and high in state anxiety, (4) 30 subjects low in both trait and state anxiety. The STAI (A-Trait) score for subjects in the high trait/high state group ranged from 39 to 66 with the mean score being 47.2, while the STAI (A-State) scores in this group ranged from 42 to 70 with the mean score being 51.4. The STAI (A-Trait) scores for subjects in the high trait/low state group ranged from 39 to 51 with the mean being 42.2, while the STAI (A-State) scores in this group ranged from 20 to 34 with the mean being 27.2. The STAI (A-Trait) scores for subjects in the low trait/high state group ranged from 22 to 38 with the mean score being 33.9, while the STAI (A-State) scores in this group ranged from 39 to 63 with the mean score being 46.9. The STAI (A-Trait) score for subjects in the low trait/low state group ranged from 22 to 37 with the mean score being 29.8, while the STAI (A-State) scores in this group ranged from 20 to 34 with the mean score being 24.9.

In the anxiety induction procedure, Experimenter I explained to the subject that the remaining part of Phase I of this study might be rather anxiety-provoking and that it would begin by listening to a tape recording. The subject was told to listen carefully and follow the directions that it contained. The tape recording was then played (see Appendix D

for the instructions and anxiety-induction procedure). Briefly, the subject was told that she would be required to listen to a passage, comprehend its meaning and communicate this to a group of judges who would analyze her communication style. The passage was a rather complicated essay by Menard Boss (1963) on The Psychoanalytic Conception of a Idea. After the tape was finished the experimenter again reminded the subject that she would be evaluated on this material later. The state scale of the STAI was then administered to the subject. Administration of this inventory was alluded to in the tape. The final instructions on the tape mentioned that as an aid to the judges in evaluating your communication style a personality inventory would be given. In a series of pilot studies it was found that this tape recording would consistently increase the level of state anxiety in undergraduate females. As an added precaution to insure that subjects are state-anxious, any subject scoring below the mean (35.12) for undergraduate females was dismissed. Subjects scoring above the mean were told by Experimenter I that the second part of the study would deal with their ability to learn how to run a pencil maze. The subject was also told that further directions would be given to her by the experimenter running that part of the experiment. Experimenter I then ushered the subject to the open door of experimental room number two. Upon doing this, Experimenter I returned to his room to prepare for the next subject.

In the relaxation procedure it was explained to the subject that this part of the study dealt with a relaxation exercise. The subject was then told to listen to the tape and follow the direcions it contained. This relaxation procedure was adapted from a hypnotic induction

technique developed by Andre Weitzenhoffer (unpublished manuscript). Briefly, the tape consisted of suggestions to relax, to pay attention to the speaker's voice, and to relax more deeply. A series of pilot studies showed that this procedure consistently reduced the level of state anxiety in undergraduate female subjects. The purpose of the relaxation procedure was to produce non-state anxious subjects. As an added precaution to insure that these subjects were in a non-anxious state, the state scale of the STAI was administered immediately after listening to the tape. Any subject scoring above the mean for undergraduate females was dismissed. The remainder of the relaxation procedure is identical to that of the anxiety induction procedure.

Phase II

The second phase of the study dealt with the modeling procedure. There were essentially three different conditions in this part of the study. Two of these conditions required the use of a model. The two observational conditions were the high prestige model and low prestige model.

High Prestige Model. Under this condition the subject was ushered to the door of experimental room number two by Experimenter I. Experimenter II then introduced himself to the subject. The model in this condition was a very attractive 23 year old college student with a poised, self-confident demeanor. The model was wearing an expensive dress with a white laboratory coat over the dress. Experimenter II introduced the model as his technical advisor on this research project. He further explained that she was an expert in the field of perceptual-motor learning, having earned her doctorate in experimental psychology.

The experimenter then told the subject that she would perform the maze as soon as his advisor (the model) had a chance to perform it to make sure that all the "bugs were out of it." The experimenter then directed the subject to seat herself in a chair placed approximately 3.5 m from the model's. The experimenter then assisted the model in preparing to run the maze by helping her with the goggles and placing her pencil in the starting point of the maze. When the model was ready to run the maze she told the experimenter that she would like him to time her. With the remark, "Ready, begin," the experimenter clicked on his stopwatch. The model traced through the maze in approximately 70 seconds. (The average time, as determined by a pilot study, required to negotiate this maze without practice was 45 seconds).

After the model had performed the maze, the experimenter removed the paper beneath the maze, examined it for approximately 15 seconds, and told the model that he would like her to do it again. The model again performed the maze in 70 seconds, after which the experimenter examined the tracing and remarked that it was done well. The model then removed her goggles, remarked that everything seemed in order, and left the experimental room. In all, this part of the procedure took approximately 3.5 minutes.

In experimental room number two a one-way mirror was located directly behind the model allowing an excellent view of the subject seated across the room. While the model was running the maze, an experimental assistant located behind the one-way mirror kept track with a stopwatch of the amount of time the subject spent observing the model. The time the subject spent visually fixated on the model was calculated as an aid to later interpretation of the modeling data (for example,

failure to model could be perhaps explained by failure to observe rather than failure to imitate what was observed).

After the model left the room, the experimenter seated the subject in the chair the model had vacated and placed the blindfold on her. Instructions were then read by the experimenter (see Appendix E for instructions). These instructions briefly explained the maze-solving task to the subject. If the subject had no questions, the task was begun. The experimenter recorded the total time needed by the subject to complete the maze. After the task was completed, the subject was told to remove her blindfold. The subject was again asked to complete the state scale of the STAI. The subject was then asked to rate the person who performed the maze before her in terms of prestige. It was then explained that the experiment was over. The experimenter then debriefed the subject. The purpose of the arousal or relaxation procedures was discussed and questions welcomed. After exploring with the subject her present feeling state and determining her not to be upset or stressed, the experimenter excused her.

Low Prestige Model. Under this condition the subject was again ushered to the door of experimental room number two by Experimenter I. Experimenter II introduced himself to the subject and accompanied her into the experimental room where he pointed out the model to the subject. The model in this condition was a female college student who behaved and dressed as to appear somewhat immature and adolescent-like. She was dressed in old blue jeans and a t-shirt with a heavy and inappropriate use of make-up. The model's hair was arranged in pig-tails and she was chewing a huge wad of gum. The experimenter, in discussing the model,

told the subject that she was a friend of his younger sister who wanted to find out what it was like to be a subject in an experiment. The experimenter further stated that as soon as this girl (the model) was done, then she (the subject) would perform the maze. The remaining part of this condition is the same as in the High Prestige Condition.

No Model Condition. Under this condition the subject was met at the door of experimental room number two by Experimenter II. To equate time across groups, the experimenter spent approximately 3.5 minutes rearranging equipment. The subject was then escorted to the table, seated and blindfolded. Instructions were then read by the experimenter (see Appendix E for instructions). These instructions briefly explained the maze-solving task to the subject. If the subject had no questions, the task was begun. After the maze was completed, the subject was told to remove her blindfold and complete the state scale of the STAI. Debriefing procedures were then ensued.

# CHAPTER V

## RESULTS

A Pearson product-moment correlation coefficient was calculated between the time needed to complete the maze and the amount of time the subject observed the model (visual fixation). It was found that subjects who spent more time observing the model performed the maze slower than subjects who observed less ($r$ = .24, $p$ < .05). Interjudge reliability of the visual fixation measure was checked by means of a pilot study ($r$ = .99) involving 20 subjects.

Since the subject's visual fixation had an effect on subsequent maze performance, the dependent variable, total time to complete the maze, was analyzed in terms of an analysis of covariance. Means for each cell of the design appear in Table I. The results of the analysis of covariance indicated a significant main effect of prestige ($F$ = 23.79, $df$ = 1, 71, $p$ < .001), and a significant prestige by trait anxiety interaction ($F$ = 7.13, $df$ = 1, 71, $p$ < .01) (see Appendix G for summary table). In Table II, mean times to complete the maze for subjects high and low in trait anxiety exposed to high prestige, low prestige, and no model conditions are presented. The prestige by trait anxiety interaction was investigated by means of a test of simple effects (see Appendix H). When high and low trait anxious subjects were compared at the three levels of the prestige condition, it was found that high trait anxious subjects performed the maze slower than low trait anxious

TABLE I

MEAN TIMES TO COMPLETE THE MAZE FOR EACH CELL OF THE DESIGN

| | Group | High Prestige | Low Prestige | No Model |
|---|---|---|---|---|
| High State Anxious | High Trait Anxious | 98.3 | 42.1 | 52.2 |
| | Low Trait Anxious | 73.2 | 65.0 | 45.5 |
| Low State Anxious | High Trait Anxious | 105.4 | 54.5 | 36.7 |
| | Low Trait Anxious | 77.8 | 48.1 | 53.0 |

Variable = total time to complete maze (seconds).

TABLE II

MEAN TIMES TO COMPLETE THE MAZE FOR HIGH AND LOW TRAIT ANXIOUS SUBJECTS EXPOSED TO HIGH PRESTIGE, LOW PRESTIGE, AND NO MODEL CONDITIONS

| Group | High Trait Anxious | Low Trait Anxious |
|---|---|---|
| High Prestige Model | 101.85 seconds | 75.5 seconds |
| Low Prestige Model | 48.3 seconds | 56.55 seconds |
| No Model | 44.45 seconds | 49.25 seconds |

subjects when exposed to a high prestige model ($F$ = 8.28, $df$ = 1, 71, $p < .01$). No other differences were found. When subjects exposed to a high prestige, low prestige, or a no model condition were compared at the two levels of trait anxiety, significant differences between means were found at both levels of trait anxiety. The Newman-Keuls test was then used to determine which means differed significantly from one another (see Appendixes I and J). It was found that both high and low trait anxious subjects exposed to a high prestige model performed the maze significantly slower than subjects in the low prestige and no model condition. No differences were found between subjects in the low prestige and no model condition at either level of trait anxiety.

The second dependent variable investigated was change in subjects' STAI (A-State) score. Pre-test scores were taken after anxiety induction or relaxation procedures. Post-test scores were taken before debriefing procedures at the end of the experiment. In Table III, the means for pre-test and post-test STAI scores are presented for high and low state anxious subjects. These data were analyzed in terms of a multifactor analysis of variance with repeated measures on one factor (see Appendix K for summary table). A significant main effect for state ($F$ = 118.53, $df$ = 1, 118, $p < .001$), and a significant state by trial interaction ($F$ = 67.48, $df$ = 1, 118, $p < .001$) were found. The significant state by trial interaction was examined by means of a test of simple effects (see Appendix L for summary table). High and low state-anxious subjects were found to differ significantly in terms of STAI scores on the pre-test measure ($F$ = 185.0, $df$ = 1, 236, $p < .001$). When pre-test measures were compared to post-test measures it was found that high state-anxious subjects underwent a significant decrease in anxiety

level ($F$ = 22.0, $df$ = 1, 118, $p$ < .001). Low state-anxious subjects, however, underwent a significant increase in anxiety level ($F$ = 48.03, $df$ = 1, 118, $p$ < .001). Comparison of post-test measures indicated that a significant difference in anxiety level, in terms of STAI scores, still existed between high and low state-anxious subjects ($F$ = 10.8, $df$ = 1, 236, $p$ < .01).

TABLE III

MEANS FOR PRE-TEST AND POST-TEST STAI (A-STATE) SCORES FOR HIGH AND LOW STATE-ANXIOUS SUBJECTS

| Group | Pre-Test | Post-Test |
|---|---|---|
| High State Anxious | 49.25 | 42.46 |
| Low State Anxious | 26.40 | 36.73 |

Hypotheses one and two were investigated by means of planned orthogonal comparisons. It was found that subjects observing a model performed the maze slower than subjects who had not observed a model ($F$ = 5.2, $df$ = 1, 117, $p$ < .05). This finding, however, is mainly the result of the greater imitation of the high prestige model. No differences were found between the low prestige and no model condition. Additionally, it was found that subjects observing a high prestige model performed the maze slower than subjects observing a low prestige model ($F$ = 5.59, $df$ = 1, 78, $p$ < .05). A $t$-test was used to examine hypothesis

three. Subjects high in state and trait anxiety were found not to differ significantly from subjects low in state and trait anxiety in their maze performance.

Hypothesis four is a three-part hypothesis. A t-test was used to examine whether or not subjects high in state and trait anxiety differed from subjects low in state and trait anxiety when compared to a high prestige model. The results indicated no difference in maze speed between these two groups. The question of whether or not subjects high in state anxiety differ from subjects low in state anxiety was also examined by means of a t-test. No significant difference in maze speed was found between these two groups. The final part of hypothesis four has been reported earlier in this section. To review this finding, subjects high in trait anxiety were found to perform the maze slower than subjects low in trait anxiety when exposed to a high prestige model.

At the completion of the experiment, subjects rated the model they observed in terms of prestige. Analysis of mean ratings given to the high prestige and low prestige model indicated that subjects saw the high prestige model as having more prestige than the low prestige model ($t = 6.6$, $df = 78$, $p < .001$).

# CHAPTER VI

## DISCUSSION AND CONCLUSIONS

The first hypothesis of this study dealt with the effect of observation of a model on the subject's maze performance. It was hypothesized that subjects observing a model would complete the maze slower than subjects not observing a model. Subjects observing a high prestige model performed the maze slower than subjects in the no model condition though no differences were found between the low prestige and no model condition. The modeling procedure was, thus, shown to be at least partially effective. The finding is in agreement with previous studies that have found that style of response can be transmitted through modeling procedures (Bandura, Ross & Ross, 1963b).

The second hypothesis of this study dealt with the effect of prestige of the model on the subject's subsequent tendency to imitate. It was hypothesized that subjects exposed to the high prestige model would imitate to a greater degree than subjects exposed to a low prestige model. Support for this hypothesis was found. Subjects exposed to the high prestige model completed the maze slower than subjects exposed to the low prestige model. This finding supports prior research that has indicated increased imitation of models with higher social status (Harvey & Rutherford, 1960; Lefkowitz, Blake & Mouton, 1955).

Hypothesis three dealt with the relationship between anxiety and imitation behavior. It was hypothesized that subjects with high levels

of state and trait anxiety would imitate to a greater degree than subjects low in state and trait anxiety. Previous research has found that high-anxious subjects tend to imitate more than low-anxious subjects (Sarason et al., 1968). Support for this hypothesis was not found. Subjects high in state and trait anxiety did not perform the maze slower than subjects low in state and trait anxiety. These results are perhaps partly explained by the fact that prestige of model had a very strong effect on imitation behavior, and, therefore, on the subject's maze speeds. The analysis of differences between anxiety levels required a collapse of the prestige dimension. The collapse of the prestige dimension would have the effect of covering up differences due to anxiety level. A further discussion as to why the predicted differences were not found between subjects high in both state and trait anxiety and subjects low in both state and trait anxiety is pursued later in relation to hypothesis four.

Examination of data pertinent to hypothesis four yields partial conformation of this hypothesis. It was hypothesized that subjects high in trait anxiety would imitate to a greater degree than subjects low in trait anxiety when exposed to a prestige model. Support for this hypothesis was found. Subjects high in trait anxiety completed the maze slower than subjects low in trait anxiety. It may be noted that the mean time for low trait-anxious subjects to complete the maze (75.5 seconds) is closer to the high prestige model's time (70 seconds) than is the mean time for high trait-anxious subjects to complete the maze (101.85 seconds). The data, however, still suggest that high trait-anxious subjects imitated the model's style of running the maze more than low trait-anxious subjects. The model negotiated the maze in 70 seconds after

memorizing the correct choicepoints. A subject imitating the slow response style, but unfamiliar with the maze, would take considerably longer than the model to complete the maze. The finding that high trait anxious subjects imitate a high prestige model more than low trait anxious subjects suggests that the relationship between prestige of model and imitation is not as straight-forward as previously thought. The prestige level of the model seems to affect imitative behavior to a greater degree with subjects who have a relatively consistent elevated level of anxiety proneness than with subjects less chronically anxious.

No difference in imitation was found between high and low trait-anxious subjects when exposed to a low prestige model. The low prestige model was, perhaps, not viewed by subjects at either level of trait anxiety as having the qualities that would merit imitation. This is supported by the finding of no differences in maze performance between subjects in the low prestige and no model condition for both high and low trait anxious subjects. The high prestige model, however, seemed to be viewed by subjects at both levels of trait anxiety as having qualities worthy of imitation. Subjects at both levels of trait anxiety completed the maze slower when observing a high prestige model than did subjects exposed to a low prestige or no model condition. However, as stated above, high trait-anxious subjects imitated more than low-trait anxious subjects.

It was further hypothesized that subjects high in state-anxiety would imitate a high prestige model more than subjects low in state anxiety. This was not supported by the data. It would appear that trait anxiety is more important than state anxiety in determining subsequent imitation. The inclination to model seems to be more determined

by what one habitually does rather than by a transitory emotional state. Modeling is perhaps more dependent on personality than situational variables. In the past, most research concerning the relationship of anxiety to other variables (e.g., dependency, suggestibility) has used a trait measure of anxiety. It would be informative to see if the results of these studies could be replicated using a state measure of anxiety.

It was also hypothesized that subjects high in both state and trait anxiety would imitate more than subjects low in both state and trait anxiety when exposed to a high prestige model. Though a definite trend towards significance was found, on the whole the data do not support this hypothesis. Failure to find support for this hypothesis can perhaps best be explained in terms of the Yerke-Dodson law (Vernon, 1974). This law states that for every task there is an optimum imtermediate level of arousal. It is maintained that the actual optimum spot on the arousal scale decreases as task complexity increases. It is possible that increasing the anxiety level of a chronically anxious subject resulted in a "paralyzing effect." This high degree of arousal could have had a detrimental effect on the subject's subsequent ability to pay attention to, or at least to benefit from, the model's activity. Research has shown anxious individuals faced with a high degree of threat show a loss in flexibility of intellectual function and a disorientation of visual-motor coordination (Beier, 1951). It is also possible that further relaxation for a generally relaxed subject may also move that subject further away from his or her optimum performance level. In sum, increased anxiety for high trait-anxious subjects and increased relaxation for low trait-anxious subjects may have resulted in a slight

decrement in their ability to benefit from observing a model and also in their subsequent performance of the maze.

A second dependent variable investigated was change in the subject's STAI (A-State) scores. Pre-test measures were taken to insure that the anxiety induction or relaxation procedures were effective. Post-test measures were taken to determine whether or not a change in the subject's level of anxiety had occurred during the experiment. Subjects in the anxiety induction condition were significantly more anxious on the pre-test scores than subjects in the relaxation condition because of the experimental manipulation.

As the experiment progressed, anxious subjects underwent a significant decrease in anxiety level, whereas relaxed subjects underwent a significant increase in anxiety. This can perhaps best be explained by the phenomenon of regression to the mean. In spite of the decrease in anxiety level of the anxious subjects, and the increase in anxiety level of relaxed subjects, the post-test scores of the anxious subjects were significantly higher than those of the relaxed subjects. Thus, the changes in STAI scores should not have adversely affected the results of the experiment.

The visual fixation measure was taken on each subject as a possible aid to later interpretation of the modeling data. It was found that the time spent observing the model and the time taken to complete the maze were significantly correlated. Thus, differences found between subjects in this study were apparently related to the amount of time spent observing the model. Bandura (1969), in discussing the concept of imitation, stated that the probability of occurrence of a behavior is substantially increased as a function of witnessing the action of a model. It would

seem then that modeling has two components: first, the observation of the behavior and second, the subsequent performance of the behavior. Is the determination as to whether or not modeling has occurred solely dependent upon the subsequent performance of the observed behavior; or should the first component, the actual observation of the model, also be considered? If the observational component of modeling is important in the study of imitation, it would seem important to design modeling studies in which this aspect of modeling could be examined. The present study attempted to take into account the observational component of modeling. The differences found between subjects in this study are independent of the positive correlation between observation and maze performance. Imitative behavior was found even with the effect of the subjects' varying lengths of observation time controlled for.

In terms of improvement of this present study, the researcher would do two things. Extreme STAI scores (i.e., three standard deviations from the mean) would be thrown out in an attempt to decrease any adverse effects due to extreme arousal or relaxation. Another aspect of the study that could be changed is the particular behavior to be modeled. Tracing the pencil maze is a complex task, performance on which is probably determined by numerous variables in addition to the desire to imitate a model (e.g., intelligence, coordination, special abilities).

In terms of future research it would seem important to again study the observational aspects of imitation by taking a visual fixation measure. Future research could also add new variables to the anxiety-prestige of model relationship. It may be informative to study the effects of sex of model and sex of subject on this relationship. The finding that trait anxiety seems more important than state anxiety in

determining subsequent imitative behavior may perhaps be generalized to the relationship between anxiety and other variables (e.g., dependency). Research on the relative effects of trait and state anxiety in relationship to other variables would thus seem worthwhile.

# CHAPTER VII

## SUMMARY

The purpose of the present study was to examine the effects of prestige of model on anxious observers. Anxious observers have been shown to imitate a model more than non-anxious subjects (Sarason et al., 1968). One may wonder as to the effect of various characteristics of the model on the anxiety-modeling relationship. More specifically, what is the effect on prestige of the model on this relationship? In an uncertain situation, the suggestibility and dependency needs of the anxious individual would seem to lead such an individual to seek out a powerful, successful other upon whom to base one's own behavior. A review of the literature has yielded no research pertaining to this question. To further clarify the anxiety-prestige of model relationship, measures of both state and trait anxiety were obtained from the subjects.

The present study used 120 female subjects. The subjects were divided into four groups according to their levels of state and trait anxiety: (1) high level of state and trait anxiety, (2) low level of state and trait anxiety, (3) high state/low trait anxiety, and (4) low state/high trait anxiety. The level of state anxiety was experimentally manipulated by means of anxiety induction or relaxation procedures. Subjects were considered high or low in anxiety level depending on whether they were, in terms of STAI scores, more relaxed or anxious than the average undergraduate female on whom the STAI was standardized.

These subjects were then given the opportunity to observe a high-prestige model, a low-prestige model, or no model. The model negotiated a pencil maze in approximately 70 seconds. The subjects were then required to run the maze. A measure of the amount of time the subject was visually fixated on the model was also taken. It was hypothesized that: (1) subjects exposed to a model would complete the maze slower than subjects not exposed to a model, (2) subjects exposed to a high prestige model would complete the maze slower than subjects exposed to a low prestige model, (3) subjects with high levels of state and trait anxiety would complete the maze slower than subjects with low levels of state and trait anxiety, and (4) subjects with high levels of state and/or trait anxiety would complete the maze slower than subjects with low levels of state and/or trait anxiety, when exposed to a high prestige model.

The results of this study suggest that subjects with the opportunity to observe a model tended to imitate the model's style of response when the model was perceived as having high prestige. It was also found that the high prestige model was imitated to a greater degree than the low prestige model. Subjects high in state and trait anxiety did not differ from subjects with low levels of state and trait anxiety in their maze performance. The lack of difference between these two groups can perhaps be explained by the collapse of the prestige dimension and the adverse effect on performance of extremely high and extremely low levels of state anxiety.

The data further revealed that subjects high in trait anxiety imitated a high prestige model more than subjects with a low level of trait anxiety. This finding suggests that the relationship between prestige of model and subsequent imitation of that model is, in part, determined by

the observer's proneness to anxiety. Subjects high in state anxiety did not differ in their maze performance from subjects low in state anxiety when exposed to a high prestige model. This suggests that modeling is more dependent on personality than transitory situational variables. Subjects high in state and trait anxiety did not differ in their maze performance from subjects low in state and trait anxiety. The lack of difference between these two groups can perhaps be explained by the adverse effect on performance of extremely high and extremely low levels of state anxiety.

High state-anxious subjects were found to decrease in their STAI scores from pre-test to post-test. Low state-anxious subjects were found to increase in their STAI scores from pre-test to post-test. However, since there was a significant difference between high and low state-anxious subjects on their post-test measure, it is unlikely that these changes had an effect on the study.

The results of this study also suggest that the amount of time subjects spent observing the model is positively correlated with subsequent imitative behavior. In the present study imitative behavior was found, independent of the positive correlation between observation and maze performance, and it is suggested that future studies on imitation take into account both the observation and performance components of modeling.

Future research should be designed to study the relative effects of state and trait anxiety in relationship to variables that have been correlated with anxiety (e.g., dependency).

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# APPENDIXES

# APPENDIX A

## SELF-EVALUATION QUESTIONNAIRE

## (STATE SCALE)

Self-Evaluation Questionnaire

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI Form X-1

Name_____ Date_____

| Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best. | Almost Never | Sometimes | Often | Almost Always |
|---|---|---|---|---|
| 1. I feel calm | 1 | 2 | 3 | 4 |
| 2. I feel secure | 1 | 2 | 3 | 4 |
| 3. I am tense | 1 | 2 | 3 | 4 |
| 4. I am regretful | 1 | 2 | 3 | 4 |
| 5. I feel at ease | 1 | 2 | 3 | 4 |
| 6. I feel upset | 1 | 2 | 3 | 4 |
| 7. I am presently worrying over possible misfortunes | 11 | 2 | 3 | 4 |
| 8. I feel reated | 1 | 2 | 3 | 4 |
| 9. I feel anxious | 1 | 2 | 3 | 4 |
| 10. I feel comfortable | 1 | 2 | 3 | 4 |
| 11. I feel self-confident | 1 | 2 | 3 | 4 |
| 12. I feel nervous | 1 | 2 | 3 | 4 |
| 13. I am jittery | 1 | 2 | 3 | 4 |
| 14. I feel "high strung" | 1 | 2 | 3 | 4 |
| 15. I am relaxed | 1 | 2 | 3 | 4 |
| 16. I feel content | 1 | 2 | 3 | 4 |
| 17. I am worried | 1 | 2 | 3 | 4 |

| | | Almost Never | Sometimes | Often | Almost Always |
|---|---|---|---|---|---|
| 18. | I feel over-excited and "rattled" . . . . . | 1 | 2 | 3 | 4 |
| 19. | I feel joyful . . . . . | 1 | 2 | 3 | 4 |
| 20. | I feel pleasant . . . . . | 1 | 2 | 3 | 4 |

# APPENDIX B

## SELF-EVALUATION QUESTIONNAIRE

## (TRAIT SCALE)

Self-Evaluation Questionnaire

STAI Form X-2

Name_____ Date_____

| Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel. | Almost Never | Sometimes | Often | Almost Always |
|---|---|---|---|---|
| 21. I feel pleasant | 1 | 2 | 3 | 4 |
| 22. I tire quickly | 1 | 2 | 3 | 4 |
| 23. I feel like crying | 1 | 2 | 3 | 4 |
| 24. I wish I could be as happy as others seem to be | 1 | 2 | 3 | 4 |
| 25. I am losing out on things because I can't make up my mind soon enough | 1 | 2 | 3 | 4 |
| 26. I feel rested | 1 | 2 | 3 | 4 |
| 27. I am "calm, cool, and collected" | 1 | 2 | 3 | 4 |
| 28. I feel that difficulties are piling up so that I cannot overcome them | 1 | 2 | 3 | 4 |
| 29. I worry too much over something that really doesn't matter | 1 | 2 | 3 | 4 |
| 30. I am happy | 1 | 2 | 3 | 4 |
| 31. I am inclined to take things bad | 1 | 2 | 3 | 4 |
| 32. I lack self-confidence | 1 | 2 | 3 | 4 |
| 33. I feel secure | 1 | 2 | 3 | 4 |
| 34. I try to avoid facing a crisis or difficulty | 1 | 2 | 3 | 4 |
| 35. I feel blue | 1 | 2 | 3 | 4 |
| 36. I feel content | 1 | 2 | 3 | 4 |
| 37. Some unimportant thought runs through my mind and bothers me | 1 | 2 | 3 | 4 |

| | | Almost Never | Sometimes | Often | Almost Always |
|---|---|---|---|---|---|
| 38. | I take disappointments so keenly that I can't put them out of my mind . . . . . | 1 | 2 | 3 | 4 |
| 39. | I am a steady person . . . . . | 1 | 2 | 3 | 4 |
| 40. | I get in a state of tension or turmoil as I think over my recent concerns and interests . . . | 1 | 2 | 3 | 4 |

# APPENDIX C

## RELAXATION PROCEDURE

Please make yourself comfortable in your chair. I would like you to relax. Pay close attention to my voice. Try to pay attention to it as much as you can. Should your attention wander away from it, that will be all right, just bring your attention back to it. After a while you may find that my voice seems to become faint or to recede from you or again changes in quality. That is all right. Should you get sleepier, that will be fine, too. Whatever happens, let it happen and just keep listening to my voice while you become more and more relaxed. More and more relaxed. Just listen and relax. Whatever you feel is happening, just let it happen.

Relax completely. Relax every muscle of your body. Relax the muscles of your legs. Relax the muscles of your feet. Relax the muscles of your hands, of your fingers. Relax the muscles of your neck, of your chest. Relax all the muscles of your body. Let yourself be limp, limp, limp. Relax more and more, more and more. Relax completely. Relax completely. Relax completely.

As you relax more and more, a feeling of heaviness comes over your body. A feeling of heaviness is coming into your legs and your arms, into your feet and your hands, into your whole body. Your legs feel heavy and limp, heavy and limp. Your arms are heavy, heavy. Your whole body feels heavy, heavier and heavier. Like lead. You are beginning to feel drowsy, drowsy, and sleepy. Your breathing is becoming slow and regular. You are getting drowsy and sleepy, more and more drowsy and sleepy while your entire body becomes more and more relaxed, more and more relaxed.

You are relaxed, quite relaxed. But you can relax even more if you allow yourself to do so. You will soon attain a state of deep, of

complete relaxation. You are becoming increasingly drowsy and sleepy. There is a pleasant feeling of warmth and heaviness throughout your body. You are losing interest in everything else but my voice. Soon there will be nothing else to attend to but my voice. All the while you keep becoming more and more deeply relaxed.

You are relaxed, very relaxed. There is a pleasant feeling of warmth and heaviness, of lethargy, all through your body. You are tired and drowsy. You want only to listen to my voice. Pay attention to nothing else but my voice. You have no cares, no worries now. You are pleasantly, deeply relaxed, getting more deeply relaxed all the time. Everything else but my voice is becoming remote, quite remote. Nothing else but my voice seems important, nothing else is important. Nothing else but my voice and what I have to say to you now seems of interest. And even my voice may come to you as in a dream as you relax more and more, as you sink deeper into this lethargy, this deep state of relaxation. Relax, relax, deeply relaxed. Deeper and deeper all the time.

In a few moments you will be notified. You will feel pleasant and refreshed.

# APPENDIX D

## ANXIETY INDUCTION PROCEDURE AND INSTRUCTIONS

The research you are about to take part in is concerned with the analysis of interpersonal communication. Today's study deals with your ability to listen to a reading, comprehend its meaning and communicate this to a group of judges. A passage will be read to you. This passage contains eight ideas of major importance. Your task will be to listen to the passage and pick out these ideas. You will then be required to communicate these ideas to a group of judges. The judges will then evaluate you on your ability to communicate the essential themes of the reading. In order to test your ability to retain these ideas as well as communicate them, you will be required to participate in another task before you talk to the group. It may be of some interest to you to know that the ability to understand and communicate ideas in this manner has been shown to have a strong relationship to general intelligence and basic personality adjustment. You will hear the passage read only once, so you must listen carefully and try to understand the ideas presented. I will now begin the passage. The passage is entitled, "The Conception of an Idea."

The psychological conception of an "idea" is the starting point of contemporary psychology in general and of the psychoanalytic theory in particular. The psychoanalytic theory of neuroses asserts, for instance, that in hysteria unacceptable "ideas" are repressed. In obsessional neuroses, "ideas" are supposed to become detached from their accompanying affect.

Freud, then, too seems to take it for granted that we do have, somewhere within our consciousness or within our unconscious, ideas or mental images or psychic object-representations of all the objects of the external world which we have perceived. Almost all of us would at least

agree that such ideas, mental images, or intrapsychic object representations take place within ourselves, whether in the head or in the psyche or elsewhere. Among many of us there even seems to be more or less unanimous agreement that the physiological equivalents or "substrata" of these mental images in the brain would constitute their ultimate reality. At any rate, everybody will understand me if I state that I have formed an idea or a mental representation within me of the contents of a book which I have read recently, or of a chemical experiment which I have just carried out, of a football game I have been watching this afternoon, or of a picture which I see at this very moment on the opposite wall.

On closer examination, however, our mutual understanding about our "ideas" of what we have seen or heard, about these mental images somewhere in our psyche, dwindles down to our being in agreement only on the same obscurities. In fact, not one of the constituents of our common phrase, "I have an idea," is clarified in the least. Actually, we do not know at all what we mean when we talk like that. We have "no idea" what the actual nature of an "I" is, nor have we any idea of the "substance" or the "essence" of a mental image of a psychic object-representation within ourselves; we are even less able to picture the possessive relationship between "I" and such an "idea" of something.

For centuries, philosophers have questioned whether ideas correspond to a reality extranious to our mind or soul, a reality which ideas supposedly represent. Some philosophers say that they do, others say they do not; still others claim that the question cannot be decided. If philosophers are unable to agree on this question, it is best to refrain from philosophical speculation, and to investigate the immediately

perceptible phenomena themselves to which the conception of "idea" seeks to point. To do this is one of the many tasks of psychology.

The passage is now complete. In order to aid the judges in analyzing your style of communication, a questionnaire will be given to you by the experimenter. Please fill it out.

# APPENDIX E

## INSTRUCTIONS TO SUBJECT IN MODELING PHASE

In this part of your participation in this study, we are going to test your maze-solving ability. Trace with this pencil (pencil is placed in subject's hand and directed to the starting point) through the grooves and openings to the other end of the maze, always keeping the pencil tip touching the paper underneath. You will be required to keep trying until you correctly complete the maze. Do you have any questions?

# APPENDIX F

## PRESTIGE RATING SCALE

Please rate the person who performed the pencil maze before you did in terms of prestige. Circle the appropriate number.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| No prestige | Very little prestige | Low prestige | Average prestige (just another college student) | Prestigious | High prestige | Very high prestige |

# APPENDIX G

## SUMMARY TABLE FOR ANALYSIS OF COVARIANCE OF TOTAL TIME TO COMPLETE THE MAZE

TABLE IV

SUMMARY TABLE FOR ANALYSIS OF COVARIANCE OF TOTAL TIME TO COMPLETE THE MAZE

| Source | ss | df | ms | F |
|---|---|---|---|---|
| Within Cells | 59546.040 | 71 | 838.676 | |
| State Anxiety (S) | 149.636 | 1 | 149.636 | 0.18 |
| Trait Anxiety (T) | 2233.409 | 1 | 2233.409 | 2.66 |
| Prestige (P) | 19951.187 | 1 | 19951.187 | 23.79*** |
| S X T | 1445.196 | 1 | 1445.196 | 1.72 |
| S X P | 351.254 | 1 | 351.778 | 0.42 |
| T X P | 5983.778 | 1 | 5983.778 | 7.13** |
| S X T X P | 821.058 | 1 | 821.058 | 0.98 |

**$p < .01$

***$p < .001$

# APPENDIX H

## SIMPLE EFFECTS TEST FOR TOTAL TIME TO COMPLETE THE MAZE: PRESTIGE BY TRAIT ANXIETY INTERACTION

TABLE V

SIMPLE EFFECTS TEST FOR TOTAL TIME TO COMPLETE THE TASK: PRESTIGE BY TRAIT ANXIETY INTERACTION

| Source | ss | df | ms | F |
|---|---|---|---|---|
| T at $p_1$ | 6943.50 | 1 | 6943.50 | 8.28** |
| T at $p_2$ | 680.85 | 1 | 680.85 | 0.81 |
| T at $p_3$ | 230.30 | 1 | 230.30 | 0.27 |
| Within Cell | 59546.04 | 71 | 838.68 | |
| P at $t_1$ | 41181.30 | 2 | 20590.65 | 24.55*** |
| P at $t_2$ | 7343.00 | 2 | 3671.50 | 4.38* |
| Within Cell | 59546.04 | 71 | 838.68 | |

$t_1$ = high trait anxious, $t_2$ = low trait anxious, $p_1$ = high prestige, $p_2$ = low prestige, $p_3$ = no model.

*$p < .05$

**$p < .01$

***$p < .001$

# APPENDIX I

## NEWMAN-KEULS TEST ON ALL ORDERED PAIRS OF MEANS FOR HIGH TRAIT ANXIOUS SUBJECTS EXPOSED TO HIGH PRESTIGE, LOW PRESTIGE, OR NO MODEL

TABLE VI

NEWMAN-KEULS TEST ON ALL ORDERED PAIRS OF MEANS: HIGH TRAIT ANXIOUS SUBJECTS

| Prestige | | No Model | Low Prestige | High Prestige |
|---|---|---|---|---|
| | Treatment Total | 889 | 966 | 2037 |
| No Model | 889 | | 77 | 1148** |
| Low Prestige | 966 | | | 1071** |
| High Prestige | 2037 | | | |
| | | | r=2 | r=3 |
| | | Critical Difference | 485 | 552 |

**$p < .01$

# APPENDIX J

## NEWMAN-KEULS TEST ON ALL ORDERED PAIRS OF MEANS FOR LOW TRAIT ANXIOUS SUBJECTS EXPOSED TO HIGH PRESTIGE, LOW PRESTIGE, OR NO MODEL

TABLE VII

NEWMAN-KEULS TEST ON ALL ORDERED PAIRS OF MEANS: LOW TRAIT ANXIOUS SUBJECTS

| Prestige | | No Model | Low Prestige | High Prestige |
|---|---|---|---|---|
| | Treatment Total | 985 | 1131 | 1510 |
| No Model | 985 | | 146 | 525* |
| Low Prestige | 1131 | | | 379* |
| High Prestige | 1510 | | | |
| | | | r=2 | r=3 |
| | | Critical Difference | 364.14 | 437.75 |

$p < .05$

# APPENDIX K

## ANALYSIS OF VARIANCE OF PRE-TEST AND POST-TEST STAI (A-STATE) SCORES

TABLE VIII

ANALYSIS OF VARIANCE OF PRE-TEST AND POST-TEST
STAI (A-STATE) SCORES

| Source | df | MS | F |
|---|---|---|---|
| Between Subjects | | | |
| State (S) | 1 | 12084.204 | 118.53*** |
| Subjects Within Groups | 118 | 101.948 | |
| Within Subjects | | | |
| Trial (T) | 1 | 168.337 | 2.53 |
| S X T | 1 | 4498.004 | 67.48*** |
| Trial X Subjects Within Groups | 118 | 66.650 | |

***$p < .001$

# APPENDIX L

## SIMPLE EFFECTS TEST FOR CHANGE IN SUBJECTS STAI SCORES: STATE BY TRIAL INTERACTION

TABLE IX

SIMPLE EFFECTS TEST FOR CHANGE IN SUBJECTS STAI SCORES: STATE BY TRIAL INTERACTION

| Source | SS | df | MS | F |
|---|---|---|---|---|
| High vs. Low Anxious for Pre-Test | 15663.68 | 1 | 15663.68 | 185.00*** |
| High vs. Low Anxious for Post-Test | 917.00 | 1 | 917.00 | 10.80** |
| Within Cells | 90545.93 | 236 | 84.30 | |
| Pre-Test vs. Post-Test for High Anxious | 1465.80 | 1 | 1465.80 | 22.00*** |
| Pre-Test vs. Post-Test for Low Anxious | 3201.30 | 1 | 3201.30 | 48.03*** |
| Trial X Subject Within Groups | 7865.13 | 118 | 66.65 | |

**$p < .01$

***$p < .001$

VITA

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