Self-perception: The effects of self-observation on state-trait anxiety scores

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SELF-PERCEPTION: THE EFFECTS OF SELF-OBSERVATION ON STATE-TRAIT ANXIETY SCORES

By

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A.B., San Francisco State University, 1971

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CHAPTER I

INTRODUCTION

Attribution theory, broadly conceived, has evolved over the years from the theoretical writings of Fritz Heider (1946, 1958). Heider's work was primarily concerned with how an outside observer perceives the causes of another person's behavior; that is, how does an individual come to know and comprehend the dispositions of other people? Heider's work was largely theoretical, but in recent years there has been renewed interest, both theoretical and empirical, in Heider's analysis. This new interest has come to be called "attribution theory" (Kelley, 1967). Attribution theory is concerned with a person's appraisal of the causality relationships in various situations and the part this appraisal plays in subsequent behavior (Kelley, 1967, 1973).

Heider's basic concern of how an outside observer perceives the causes of another's behavior has been recently extended to the question of "how does a person come to know and understand himself?" Traditionally, the question of self-knowledge has been in the realm of philosophy and has been approached phenomenologically rather than empirically. Recently this question has been addressed by Bem (1965, 1967,
within a theoretical structure he calls self-perception theory, which is, for the most part, synonymous with attribution theory (Kelley, 1973). Bem postulated that a person comes to understand himself in much the same way that a person learns of the attitudes, beliefs and dispositions of other people; that is, we learn of our own attitudes and dispositions, at least in part, from self-observation and from these observations we infer what we are like.

Bem (1965, 1972) presented two basic postulates that form the heart of his self-perception theory: individuals infer their beliefs, attitudes and dispositions, in some degree, from their behavior and from the situation in which their behavior occurs and, secondly, "... to the extent that internal cues are weak, ambiguous, or uninterpretable, the individual is functionally in the same position as an outside observer, an observer who must necessarily rely upon those same external cues to infer the individual's inner states (1972, p. 2)." Bem maintained, then, that we observe our behavior towards some entity and from watching our behavior we infer what our attitudes and beliefs must be towards that entity.

Bem's theoretical formulations rest firmly upon the functional verbal analysis of the so called "radical behaviorists" (Bem, 1965; Skinner, 1953, 1957). This functional approach attempts to specify the discriminative stimuli that control a person's self-descriptive statements. Following Skinner (1957),
Bem maintained that a functional verbal analysis is central to any conceptualization of personal epistemology (Bem, 1965). In fact, Bem felt that "It was Skinner's analysis which inspired 'self-perception theory' . . . (1972, p. 2)."

Skinner's (1957) analysis of verbal behavior essentially concluded that an individual's training to respond differentially to internal states must necessarily be a product of social interaction. Verbal statements of self-description must be originally learned and based upon public stimuli. Bem (1965) argued that one of the implications of Skinner's work is " . . . that many of the self-descriptive statements that appear to be exclusively under the discriminative control of private stimulation may, in fact, remain under the control of the same public events which members of the community themselves must use in 'inferring' the individual's inner states (1965, p. 199)." Bem, therefore, regarded the individual as an observer of his own behavior as well as the controlling variables involved in his behavior and it is, at least in part, from these observations that a person comes to "know" his attitudes, beliefs and dispositions.

Empirical support for self-perception theory comes from a number of experimental sources. Bem (1965, 1967, 1972) has reviewed the studies corroborating cognitive dissonance theory and has been able to account for the major findings within his self-perception model.
Cognitive Dissonance

Festinger's (1957) theory of cognitive dissonance postulates that if an individual holds two cognitions that are inconsistent with one another, he will experience the pressure of an aversive state called cognitive dissonance. The organism will seek to reduce this aversive drive state either by changing his attitudes, beliefs or his behavior. Dissonance theory, then, accounts for observed differences between stimulus conditions and responses by postulating an internal hypothetical drive state. Bem's alternative explanation "... eschews any reference to hypothetical internal processes and seeks, rather, to account for observed functional relations between stimuli and responses in terms of the individual's past training history (Bem, 1967, p. 184)." Bem's reinterpretation of dissonance theory is from an information-processing standpoint where, "The dependent variable is viewed simply as a self-attribution based on the available evidence, which includes the overt behavior of the communication and the apparent controlling variables of the behavior (Bem, 1972, p. 17)."

A widely investigated paradigm of cognitive dissonance theory is known as the forced compliance or insufficient justification studies. In the typical forced compliance study (Festinger and Carlsmith, 1959) subjects are induced to perform some behavior under circumstances that do not justify the behavior. Furthermore, the behavior engaged in would imply the
subject's endorsement of some attitude or belief counter to his own. For example, in a now classic study, Festinger and Carlsmith (1959) asked subjects to tell a fellow subject that a boring, repetitive task was enjoyable and interesting. For doing this, subjects were paid either $1 or $20. A prediction in line with dissonance theory would be that the subjects paid $1 would find the contingencies insufficient to justify their behavior and would, therefore, seek to alter their attitudes about how interesting the task was. Subjects in the $20 condition would find justification enough and would not alter their attitudes about how enjoyable and interesting the task was. Results of the Festinger and Carlsmith study and others using the forced compliance paradigm (e.g., Brehm and Cohen, 1962) supported these predictions. That is, in terms of cognitive dissonance theory, subjects in the $1 condition, not having been paid well enough to excuse lying, would have to eliminate the dissonance created by the lie by changing their attitude to fit the statement.

In terms of self-perception theory the subject in the Festinger and Carlsmith study is an observer of his own behavior and he implicitly asks himself, "What must my attitude be if I behave in such a fashion?" The subject who receives the $20 inducement sees that his behavior is adequately accounted for by the large inducement; that is, "I am doing this because I am being paid $20." The $1 subject cannot regard
the inducement as adequate justification for his behavior. Asking the question of "what must my attitude be?", he infers that his behavior must reflect his actual attitude and, therefore, evaluates the task as enjoyable. Thus, self-perception theory is able to arrive at the same conclusions without postulating an internal motivational state (Bem, 1965).

Bem, in three extensive articles (1965, 1967, 1972), has reviewed the literature of cognitive dissonance and has argued that the dissonance results are "... consistent with the present (self-perception) analysis (Bem, 1965, p. 209)." Predictably, the re-evaluation of such a widely investigated theory has generated a controversy of arguments, counter arguments and the hope of a "crucial" experiment that would unequivocally differentiate the two positions. There have been a number of "crucial" experiments (e.g., Bem and McConnell, 1970) but the results are equivocal. The two positions seem to be at an empirical and logical impasse. Bem has stated "... it seems unlikely that a 'crucial' experiment for discriminating between (dissonance theory and self-perception theory) will ever be executed ... (Bem and McConnell, 1970, p. 30)." The re-evaluation of cognitive dissonance theory, then, provides indirect support for Bem's notions but does not unequivocally support either theory. Importantly, self-perception theory is a more parsimonious explanation in that it does not postulate an internal drive state.
Cognition and Emotional States

Ancillary support for self-perception is found in the work of Schachter and his colleagues (Schachter, 1964) on emotional states. Although these studies were not specifically designed to provide empirical data for Bem's self-perception theory, they can be profitably viewed as support for his basic assumptions.

In a now classic series of studies, Schachter and his colleagues demonstrated that emotional states are not determined by physiological responses alone, but involve cognitive appraisal and the evaluation of the external stimulus environment. Schachter (1964) proposed three basic propositions that followed from his fundamental supposition that "... emotional states are a function of the interaction of ... cognitive factors with a state of physiological arousal (1964, p. 53)." First, given a state of physiological arousal for which an individual has no immediate explanation available, he will "label" this state and describe his feelings in terms of the cognitions available to him; secondly, if an individual has a completely appropriate explanation for a physiological state he will not look to external cues to evaluate it; and, thirdly, that an individual will "label" his feelings as emotions only to the extent that he experiences an aroused state (Schachter, 1964).

Schachter and Singer (1962) designed an experiment to test the above assumptions. Subjects were led to believe that
they were involved in a study of the effects of vitamin compounds on vision. They agreed to receive an injection of a vitamin called "Suproxin." Depending upon the condition subjects actually received either epinephrine (adrenaline) which has the effect of increasing blood pressure, heart rate, respiration rate and muscle and cerebral blood flow, or they received an injection of a placebo (saline solution).

Subjects were divided into four groups and presented with various explanations of the effects of the drug "Suproxin."
The first group, Epinephrine Informed, was told that Suproxin side-effects were increased heart rate, shaking of the hands, and possibly their face might become warm and flushed; essentially, the effects of an injection of epinephrine. The second group, Epinephrine Ignorant, was not told of any side effects. The third group, Epinephrine Misinformed, was told symptoms which are not consequences of an injection of epinephrine and thus provided the subjects with an inappropriate explanation of their feelings. Subjects in the above three conditions were all injected with the drug epinephrine. In a fourth group, subjects were injected with a placebo (saline solution) and were given the instructions as the Epinephrine Ignorant group.

The next step was the manipulation of an emotional-inducing cognition. The two states were Euphoria and Anger; two very different emotional states. In the Euphoria condition, a stooge (an experimenter confidant) introduced himself, made a few
introductory comments, and then began a sequence of whimsical activities (e.g., throwing paper as a game of basketball, hoola hooping, etc.). Subjects were gathered in the room to wait for the drug to take effect. In the Anger condition, during the filling out of a questionnaire the stooge made a series of standardized comments, starting innocently, then becoming increasingly querulous and ended in rage, ripping up his questionnaire and stomping out of the room.

Through the above manipulation, Schachter and Singer were able to demonstrate that when subjects were not provided with an appropriate explanation for their arousal (Drug Ignorant group), they would erroneously attribute it to an external source. Furthermore, the same emotional state (epinephrine produced), could lead to various emotional labels as disparate as euphoria and anger. This study, then, demonstrated that one could manipulate an individual's self-attributions concerning his emotional state by manipulating external stimulus cues.

It has been known for some time that pain perception is only partially a function of the pain producing stimulus (Barber, 1959; Melzack, 1961). Certainly the pain producing stimulus itself provides information for an individual's judgment of pain. Attribution theorists have examined the extent to which the attribution process contributes to the judgment of pain.
Nisbett and Schachter (1966), extending the earlier findings on emotional arousal, examined whether subjects could misattribute shock-produced arousal to an external source. Subjects were given a placebo prior to taking a series of increasing electric shocks. They were asked to report when the shocks became painful and when they became too painful to tolerate. One group of subjects was told that the effects of the pill would be general autonomic arousal while another group was told that symptoms would not be those generally associated with fear arousal. They hypothesized, and found, that subjects who assumed that their arousal was produced by the drug would tolerate a greater intensity of shock than subjects who attributed their arousal to the shock alone. In sum, they demonstrated that subjects could be led to attribute stimulus-produced arousal to an external source.

The general finding that subjects can misattribute their emotional arousal to an emotionally irrelevant source has been demonstrated in a number of research reports (Dienstbier and Munter, 1971; Beaman, Diener, Tefft, and Fraser, 1972). Zimbardo, Cohen, Weisenberg, Dworkin, and Firestone (1966) found that subjects who were forced to receive experimental electric shock reported the same intensity of electrical shock as more painful and were also more physiologically responsive (GSR) than subjects who volunteered to participate.
In a study similar to the misattribution manipulation of Nisbett and Schachter (1966), Ross, Rodin, and Zimbardo (1969) attempted to have subjects misattribute arousal accompanying the fear of anticipated electric shock to noise heard over a set of headphones. Subjects were given the choice of working on either of two insolvable puzzles while listening to the noise. Subjects were told that solving one puzzle would gain them money, solving the other would allow them to avoid a threatened shock. Half of the subjects were told that the noise had side effects that correspond to fear arousal (e.g., rapid breathing, visceral upset, etc.), and half were told side effects that do not correspond to fear arousal (e.g., ringing in the ears, headache, etc.). The dependent variable was the amount of time spent on the insolvable puzzles. The amount of time a subject would spend working on the shock puzzle, in contrast to the reward puzzle, could be used as an indicator of the subject's fear of shock. Subjects that were given the opportunity to attribute their arousal symptoms to the noise spent significantly more time working on the reward puzzle than did subjects who could only attribute their arousal to the fear of shock.

Ross, et al. titled their article "Toward an attribution therapy," and argued that their results had strong implications for the therapeutic situation. Following this line of reasoning, Storms and Nisbett (1970) extended the findings to
the experimental treatment of insomnia. Subjects were asked to take a pill before bedtime. Subjects were led to believe that the pill, actually a placebo, would, for one group of subjects, increase arousal and alertness (generally symptoms that subjects had previously reported as characteristic of a night of insomnia). The second group was told that the pill would decrease arousal and alertness. Storms and Nisbett hypothesized that the subjects who were told that the pill would produce alertness would attribute their alertness to the drug rather than their emotionality, and therefore, fall asleep more quickly than other groups. It was found that subjects who were in the drug arousal group did report getting to sleep faster on the nights when they took the pill. In sum, the findings suggested that individuals are able to reattribute arousal reactions to external or circumstantial causes.

In an insightful extension of attribution theory, Beaman, Diener, Tefft, and Fraser (1972) investigated the misattribution process in the treatment of test anxiety. In a paradigm similar to Storms and Nisbett (1970), test anxious subjects were led to believe that a placebo had the side effects of general emotional arousal (e.g., tremors, palpitations, rapid breathing, etc.). Subjects were then placed in a testing situation in which they could misattribute their emotional arousal to an irrelevant source: the pill. Subjects in this condition significantly decreased their scores on the Test Anxiety Scale
assessed about one week later. That is, after being given the opportunity to reattribute their emotional arousal to a nonemotional source, subjects subsequently reported a lowered perception of their level of test anxiety.

In a study specifically designed to examine self-perception theory, Bandler, Madaras and Bem (1968) investigated whether an individual's perception of a stimulus as uncomfortable or painful is partially an inference from his observation of his response to that stimulus. Male college students were used in three experimental conditions: escape condition, no escape condition, and reaction time condition. Prior to the experimental conditions, subjects rated varying intensities of shock on a one to seven scale. After the series of shocks, each subject was told that he would receive a shock and .5 second later a colored light would come on signaling one of the three experimental conditions. In the escape condition (red light) the subject was told that he could escape the shock by pressing a button. In the no escape condition (green light) the subject was told that he should not turn off the shock unless the shock was too uncomfortable. In the reaction time condition (yellow light) the subject was asked to press the button so that the experimenter could measure his reaction time. Pressing the button in this condition might or might not terminate the shock. Also, a demand characteristics control group condition was run to rule out experimental bias.
artifacts. Following each shock the subjects were asked to rate the shock on a rating scale. Results indicated that rated discomfort in the escape condition was significantly higher than in the no escape condition. Results further revealed that the "button press must be seen as a self-determined 'escape response' if it is to serve as the basis of inference for the individuals' discomfort judgment (Bandler, et al., 1968)." That is, the reaction time condition was significantly lower than the escape condition and not significantly different from the no escape condition. In sum, an individual's perception of a stimulus as uncomfortable or painful is, to some extent, an inference from his own observation of his response to that stimulus.

The previous study lent strong support to Bem's postulate that people infer their attitudes from the observation of their own behavior. Furthermore, the possibility that subjects in the escape condition might be more physiologically aroused than in the other conditions received analysis through the use of GSR. Results indicated that there was no significant difference between the experimental conditions as measured by GSR. The authors concluded that "the obtained rating differences can be attributed to subjects' inferences from observation of their own response to the electrical shock (Bandler, et al., 1968)."
autonomic activity as a source of cognitive information

within schachter's (1964) cognitive-physiological theory of emotion, physiological activity acts as a cue indicating the intensity of the emotion and the cognitive evaluation of external discriminative stimuli determines the quality of the emotion. valins (1966) examined the role of physiological activity as a source of cognitive information. valins attempted to ascertain whether an individual's self-attrition could be influenced by autonomic feedback. the work of valins and his colleagues along these lines (e.g., valins and ray, 1967) clearly supported bem's self-perception theory.

valins (1966) led subjects to believe that they were hearing their own heart rate feedback while they viewed ten slides of semi-nude females. the heartbeats the subjects heard were pre-programmed so as to appear that their heart rate increased on viewing some of the slides. subjects rated a slide as more attractive when it was associated with a heart rate change. they also found that, when the subjects were given the chance to take home some of the slides, the ones that were associated with a heart rate change were more frequently chosen.

in a follow-up study, valins (1972) examined the effect of debriefing on subjects' rating of the nudes. after telling the subjects that the heart rate feedback was bogus, he found that their ratings of attractiveness remained substantially
unchanged. Valins (1972) explained this interesting result from a hypothesis generating standpoint. When subjects heard the altered heart rate, they generated a hypothesis that the girl must be unusually attractive. "Closer inspection simply showed them what their 'subconscious' knew all the time (Valins, 1972, p. 407)." Then a searching process would begin, seeking confirmation of the hypothesis. In terms of self-perception theory, this hypothesis-confirmation notion could add new insight into the process by which one forms attitudes and dispositions and will undoubtedly be of research interest in the future.

Valins and Ray (1966) extended the findings of Valins (1966) into the area of psychotherapy, specifically systematic desensitization. In systematic desensitization a person is gradually exposed to a feared object when he is assumed to be in a state of muscle relaxation. Following their work on misattribution of autonomic feedback they hypothesized that systematic desensitization is as effective when individuals believe they are relaxed as when they actually are relaxed. Snake phobic subjects were told that the study involved physiological reactions to frightening stimuli (snakes and shocks). As in other studies, bogus heart rate feedback was used. Subjects viewed slides, half had a picture of a snake and half were printed with the work "SHOCK" -- the latter slides were accompanied by a mild shock. Only on the SHOCK slides did
the programmed heart rate increase. The authors assumed "... that subjects might infer from this arousal information that, while they were afraid of shocks, they were not afraid of snakes (Nisbett and Valins, 1972, p. 73)." The dependent variable was how close the subjects could approach a snake. Subjects who believed the heart feedback was their own were able to approach the snake closer than control subjects.

Results in the area of autonomic feedback seems to lend support to the notion that we infer our feelings about stimuli from information about the degree and source of autonomic arousal even when it is false. There is evidence (Valins and Nisbett, 1972) to suggest, however, that such inferences are not necessarily passive or immediately accepted. Instead, "... subjects may actively attempt to validate their inferences before encoding them as truth (Nisbett and Valins, 1972, p. 74)."

Mands and Tacts

Bem, as noted earlier, based a large part of his self-perception model upon the functional approach of the "radical behaviorist," mainly Skinner's (1959) analysis of verbal behavior. Again, Bem attempted to specify the discriminative stimuli that control a person's self-descriptive statements. Following Skinner, Bem argued that a person may discriminate the verbalizations of others and himself as "mands" and "tacts."
"A descriptive statement, a verbal response that is under the control of some portion of the environment, is classified as a 'tact' (Bem, 1965, p. 200)." Tacts, then, are descriptive statements about the environment and the speaker receives generalized reinforcements for these statements. Attitude and belief statements are often tacts, for example, "I am thirsty"; tacts can describe behavior, for example, "I am gregarious."

"Mands" are "... verbal responses that are under the control of specific reinforcing contingencies ... (Bem, 1965, p. 200)." A person who emits a mand (comMAND; deMAND) is requesting, asking for or demanding a specific reinforcer, and it is only this specific property that will serve to reinforce the response. "Please get me my coat," is a mand; mands need not be verbal, often gestures have mand characteristics. Bem (1965) pointed out that mands are often disguised as tacts: "... the television announcer who praises a product he is selling; his verbal behavior is a mand for the salary he receives and may not at all be under the actual discriminative control of the features of the product he appears to be tacting (Bem, 1965, p. 201)."

In summary, tacts can be seen as descriptive statements about a stimulus that are elicited by an individual's intrinsic feelings about a stimulus. Mands, on the other hand, are statements about a stimulus that are elicited by a person in
order to gain a particular reinforcement from the environment; statements under the control of circumstances other than the individual's intrinsic feelings about the stimulus.

Any particular verbal statement may have both mand and tact characteristics. The television announcer, for example, might indeed find the product he is selling useful, and to that extent he is tacting as well as manding. The listener must often discriminate the mand-tact characteristic of a communication in order to infer a speaker's "true" beliefs and attitudes. "A communicator is credible to the extent that his communication is discriminated as a set of tacts, his credibility is vitiated to the extent that he appears to be manding in the form of disguised tacts (Bem, 1965, p. 201)."

In a number of methodological approaches, Bem (1965, 1966) has attempted to empirically demonstrate the mand-tact characteristic of belief and attitude inferences. Within an experimental methodology called "interpersonal simulation," Bem (1965) replicated the Festinger and Carlsmith (1959) study mentioned earlier. It will be recalled that subjects paid $1 or $20 for telling a stooge that a series of tasks were interesting when in fact they were boring and uninteresting. Subjects in the $1 condition subsequently rated the task as more enjoyable. The subjects in this study were asked to listen to a tape recording of a person who had participated in an experiment involving two motor tasks. Subjects in the
experimental group were told that the person on the recording had accepted an offer of either $1 or $20 to go into the waiting room and tell the next subject that the boring tasks were fun and enjoyable. Subjects listened to the tape recorded statements made about how enjoyable the tasks were. Then they were asked to estimate the subjects' attitude towards the tasks. Observers of the subjects estimated the person's attitude to be significantly more favorable than did observers of either the $20 group or the control group.

Bem reasoned that "... when asked to reason the true attitude of the communicator, an outside observer would almost certainly judge the $20 communication to be a mand ... (1965, p. 202)," and the $1 communication would more likely be judged a tact. Bem felt that the findings of this and other interpersonal simulation studies (e.g., Bem, 1965) support self-perception. That is, "If one places our hypothetical outside observer (and the observer in the above study) and the communicator in the same skin, the findings obtained by Festinger and Carlsmith are the result (Bem, 1965, p. 202)."

**Lie Light Studies**

In the interpersonal simulation studies the stimulus operations have had other functional properties. In the study reviewed, for example, money, due to an individual's past training history, has a number of function reinforcing properties.
In an attempt to provide more direct support, Bem (1965, 1966) designed a methodology in which the stimulus operations would have no other functional properties than those imputed in the laboratory.

The first study utilizing this methodology was concerned with attitude change. In this study (1965) the experimental session was disguised as a tape-recording session to prepare experimental materials for a future experiment that would try to determine if individuals could, from voice recordings, detect an incorrect statement. Subjects first filled out a 50-item questionnaire on personal information. Then each subject underwent a training procedure in which he answered questions about himself in the presence of a distinctively colored light. The questions came from the personal information questionnaire, and after each question was asked, a tape recorder was turned on, automatically illuminating one of two colored lights. The subject was instructed to answer truthfully whenever the light was amber. Whenever the light was green he was instructed to answer falsely and say it convincingly into the tape recorder. For half of the subjects the presentations of the lights were reversed, that is, the green light became the "truth" light and the amber light became the "lie" light.

The subject learned, in this way, that whenever he spoke in the presence of the amber light (truth light) he could believe himself and could not believe himself in the presence of
the green light (lie light). After the training session, subjects were shown a series of cartoons which they had previously rated as neutral. For each cartoon, the subject was instructed to say that the cartoon was either "very funny" or "very unfunny" into the tape recorder. Sometimes the lie light was illuminated and sometimes the truth light was illuminated. After the subject had tape recorded a response, the light was turned off and he was asked to indicate his attitude towards the cartoon.

In line with self-perception theory, the subjects changed their attitudes about how funny the cartoons were when they made their statements in the presence of the truth light. Interestingly, an awareness questionnaire was administered and Bem reported (1965) that no subject was aware of any attitude change nor of the effects of the lights. "The cartoon study demonstrated that the self-attributions known as attitude statements could be brought under the control of an individual's own verbal behavior and the accompanying stimulus conditions in which that behavior occurs (Bem, 1972, p. 10)."

Using the same methodology, Bem (1966) attempted to extend the evidence for self-perception to a different kind of dependent variable: the recall of prior events. The same procedure as above was used, but instead of cartoons subjects were given a list of 100 common nouns and an alphabetical list containing 50 of those nouns. Their task was to cross out
each word on the master list that appeared on the alphabetical list. This was the behavior that, later, the subject would be asked to recall.

After the preliminary training session described above, subjects were asked to make statements about the 100 nouns. Again, true statements were made in the presence of one colored light and false statements were made in the presence of another colored light. After the subject had made a statement, the recorder and light were turned off, and the subject was asked to recall whether or not he had crossed out the word.

Again the results were in line with the self-perception hypothesis; subjects' false confession in the presence of the "lie" light had no effect on recall. In the presence of the truth light, false confessions did produce significant error in recall. Maslach (1971) replicated Bem's major finding that the truth light produced more errors of recall following the false confession.

Using essentially the same procedure as described above, Linder and Jones (1969) demonstrated that post-experimental attitudes could be affected by recording a counter-attitudinal statement in the presence of a light previously associated with correct statements. Importantly, Linder and Jones were only able to obtain this effect if the subjects were given the choice to read the counterattitudinal statement. That is, if the subjects were required to read the statement (opposed to
being asked to read the statement) the attitude change was not found. This finding is congruent with the mand-tact distinction. If the subject was required to read the statement (manding), he discriminates it as more mand than tact (the light influence), and later statements will not be influenced.

Self-perception theory, then, has found both direct and indirect support from a number of experimental sources: the re-evaluation of cognitive dissonance (Bem, 1965, 1967, 1972); the work of Schachter and his colleagues on emotional states (Schachter, 1964; Schachter and Singer, 1962); autonomic feedback and misattribution (Valins, 1966; Valins and Ray, 1967; Beaman, Diener, Tefft, Fraser, 1972; Nisbett and Valins, 1972). Direct support has come from Bem's own research (1965, 1966, 1967; Bem and McConnell, 1970) and from extensions and replications of his methodology (Bandler, Madaras, Bem, 1968; Linder and Jones, 1969). Bem's basic notion that we infer our attitudes, beliefs and dispositions, at least in part, from self-observations of our behavior and the situation in which it occurs has been widely supported.
CHAPTER II

RATIONALE OF PRESENT STUDY

Research in attribution theory has almost exclusively been concerned with attitudes and beliefs and how they are, at least in part, an inference drawn from self-observation. Beaman, et al. (1972), however, have demonstrated that the misattribution process may have relatively long term effect upon the relatively stable personality variable of test anxiety. The present study attempted to extend the findings of self-perception theory into the area of personality dispositions.

A "trait" conceptualization of personality variables as being determined by predispositional states that manifest themselves stably, more or less independently of stimulus conditions, has been seriously questioned (Mischel, 1968). It was the purpose of the study to examine one of the possible stimulus conditions that can affect personality traits.

Anxiety is generally considered to be a relatively stable and enduring personality variable (e.g., White, 1956). This study attempted to produce a change in the anxiety level of high anxious subjects within Bem's lie-light paradigm. That is, subjects were asked to read a low anxious personality statement in a situation that has in the past been associated with true statements.
Spielberger (1966) has differentiated between two types of anxiety: these two distinct anxiety factors have been termed trait anxiety and state anxiety. State anxiety refers to a transitory emotional state or condition and fluctuates over time. Trait anxiety refers to a relatively stable individual difference in anxiety proneness. Spielberger's State-Trait Anxiety Inventory was used as a dependent measure in the present study along with the Taylor Manifest Anxiety Scale.

It was hypothesized that (1) high anxious subjects who read low anxious statements in the presence of the truth light will subsequently decrease their scores on the Trait Anxiety Scale; (2) high anxious subjects who read high anxious statements in the presence of the lie light will subsequently decrease scores on the Trait Anxiety Scale; (3) in both conditions subjects will also subsequently decrease scores on the State Anxiety Scale.
CHAPTER III

METHOD

Summary of Procedures

The subjects were recruited from an introductory psychology class at the University of Montana. All Ss had previously taken Spielberger's State-Trait Anxiety Scale and the Taylor Manifest Anxiety Scale. The Ss represented the top 25% of the distribution of scores on the Trait scale, defining them as high anxious individuals. The Ss were told that they were to help prepare experimental materials for a future experiment concerned with an individual's ability to detect lies and truths from voice material. The Ss were first to fill out a 50-item personal information questionnaire (Lane and Bem, 1965; Appendix A). Using the items from this questionnaire, subjects were asked to tape record some of their answers correctly and some incorrectly. The Ss were trained to answer correctly in the presence of a distinctively colored light (truth light) and falsely in the presence of a differently colored light (lie light). Following this, Ss were asked to volunteer to tape record a personality description. For one group of Ss the description was that of a "low anxious" person (Appendix B) and was read in the presence of
the truth light. For the second group of Ss, the description was read in the presence of the lie light and described a "high anxious" individual (Appendix C). A third group read the low anxious statement in the presence of a neutral light, that is, a white light that has no association with true or false statements. And a fourth group read the "high anxious" statement in the presence of the neutral light. All Ss were run individually. When Ss finished reading the statement, they were told that the tape had ran out and were asked if they would read it one more time. This was done to increase the salience of the manipulation. Following this, Ss were thanked for participating and asked if they would mind "going down the hall" and taking a short questionnaire from another experimenter. In the "other experiment" Ss re-took the State-Trait and the Taylor Manifest Anxiety Scale. After completion of the scales, the Ss were asked to return and fill out further questionnaires (two-week follow-up on State-Trait and MAS). The State-Trait and Taylor Manifest Anxiety Scale were analyzed in a 3 x 4 split plot design.

Subjects

Subjects were students from an introductory psychology class at the University of Montana. The Ss were selected on the basis of their Trait score on a previously administered State-Trait Anxiety Inventory and represented the top 25% of the population. All Ss were run individually.

Procedure

Upon reporting, Ss were told that they were to "assist" in preparing experimental materials for a study on individuals'
ability to detect truths and lies from recorded voice. The Ss were asked to fill out a questionnaire concerning personal information (Lane and Bem, 1965) that was used later in the recording section. The questionnaire consisted of fifty items and the instructions and sample question from this form are reproduced below:

This information form will provide some of the materials you will be recording on tape for the voice-judgment experiment. It should be filled out completely and accurately. THIS INFORMATION WILL REMAIN CONFIDENTIAL AND ANONYMOUS. YOUR NAME WILL NOT APPEAR ON THE TAPE OR ELSEWHERE IN THE EXPERIMENT.

(1) First Name _____________________________________
(29) Do you believe in a Supreme Being? ____________

After obtaining the information, Ss were seated at a desk with a partition separating E from S. Following Bem (1965), the following instructions were given to the Ss:

As I mentioned, you are going to be making a tape of your own voice to be used in some research we will be doing on an individual's ability to judge another person's voice. In particular, we are going to be examining an individual's ability to judge whether the speaker on the tape is telling the truth or not. To do this, some of the things you will say on the tape will be true statements; others will be untrue. The procedure will be as follows: I will ask you questions, one at a time, from the list of information you just filled out. After I ask you questions, I will start the tape recorder, and you should answer into the microphone in front of you. Whenever I turn on the tape recorder, one of the two colored light bulbs in the lamp fixture will also go on automatically. If the red light goes on (red light goes on), you are to answer the question truthfully; if, however, the blue light turns on (blue light on; red light turned off), you should make up an untrue answer and speak into the microphone as convincingly and as naturally as possible. My questions will not be recorded on the tape, so your answers must be complete statements, not just single word answers. For example, I will ask: "What is your first name?" When the ceiling light goes
on, you should answer, "My first name is such-and-such." If the light is red, then you would, of course, give your real first name. If the light is blue, you would make up some other name. As you can see, we wanted this to be spontaneous, which is why you will not know until the tape actually starts whether you are going to give a true or an untrue statement; you have to be on your toes. The lighting circuitry is set to select the two colored lights automatically and in random sequence. I will be checking your responses on your information form; when you record in the appropriate way I will stop the tape, the colored light will go out, and we will proceed to the next question. If you happen to make a mistake, or do not answer with a complete sentence we will repeat that item. Are there any questions? (pause) Okay, remember the red light means you are to give a true answer; the blue light, an untrue one.

The training procedure proceeded as described with half of the questions requiring a true answer and half requiring a false answer. The lights were reversed for half the Ss; that is, blue light for true responses and red light for false responses. At the end of the training session, E returned to the S's room and continued as follows:

We have now completed all the questions on the information form. In the second part of the voice judgment experiment, subjects will be asked to judge whether or not a personality profile is that of a female or that of a male. We have had past subjects write a personality description of themselves, from these descriptions we have grouped some male statements together to produce a male personality profile and we have grouped some female statements together to produce a female profile. Some of the male personality profiles will be read by females and some by males. Also, some of the male personality profiles will be read by females and some by males. We will ask subjects in the voice judgment experiment if the personality profile is that of a female or that of a male. The choice of which one you read is up to you, but we have had a lot of females (males) read male (female) statements and to even out our pool of statements it would be helpful if you read the female (male; sex same statement) statement, but, of course, the choice is up to you. (pause) One of the lights will come on, its just connected
to the tape recorder and it will be a signal for you to begin. (Neutral light conditions: the white light bulb is also connected to the tape recorder and it will be a signal for you to begin.) I would like you to read the statement as convincingly and as naturally as possible. Okay? One of the lights will be on (white light bulb in neutral condition) when the tape recorder is on -- whichever one is next in the sequence programmed into the circuitry. You may begin when the light comes on.

When the S finished reading the statement, E popped the tape out of the recorder and said the following:

Oh! I ran out of tape, would you mind reading the state­ment one more time? Okay? I'll get another tape. (E gets a new tape.) Again, one of the lights will be a signal for you to begin. You may begin when the light comes on.

Ss were blocked along the dependent variable (score on Spielberger's Trait), in groups of four and then randomly assigned to four treatment conditions.

1. **Truth light condition:** In this condition Ss read a "low anxious" statement in the presence of the truth light.

2. **Lie light condition:** Ss in this condition read a "high anxious" statement in the presence of the light that had previously been used to elicit false statements.

3. **Neutral light, low anxious condition:** In this condition Ss read a low anxious statement in the presence of a white light that had not been previously associated with either true or false statements.

4. **Neutral light, high anxious condition:** In this condition Ss read high anxious statements in the presence of a neutral light.
In all four conditions, when the Ss finished reading the personality statement the E thanked the S for participating and then stated the following:

Another graduate student is gathering data on some questionnaires and asked me if I would ask you to participate. He said it only takes twenty minutes or so and he will give you an hour credit for it. Would you like to do it? (pause) It's just down the hall (E leads S out and points out the room where the testing is to be done).

Dependent Variable

The scores on the State-Trait Anxiety Scale and the Taylor Manifest Anxiety Scale were used as the dependent variable.

When subjects completed the above inventories they were asked to return in two weeks and an appointment time set. After the two-week follow-up testing, subjects were given an explanation of the deceptions employed, the necessity for them, and the theories that generated the experiment. The experimenter elicited a promise of secrecy and dismissed the Ss.
CHAPTER IV

RESULTS

Due to a failure of three subjects to report for the initial experimental procedure, the blocking was slightly violated. The resulting mean Trait Anxiety score for the four groups was 49.92, and the four means ranged from 49.15 to 51.38. The initial means and their movement across the testing sessions are shown in Figure 1. An analysis of variance (ANOVA) was conducted which indicated that there were no significant differences between the four groups initially (F < 1). Therefore, the assigning procedure appeared effective and subsequent differences cannot be attributed to initial differences between the four groups. Similarly, an ANOVA on the State Anxiety Inventory and Manifest Anxiety scores yielded no significant differences indicating that randomization of these subject variables was effective.

Fourteen subjects were assigned to each of the four experimental conditions. However, due to the failure of two subjects to report for the two-week follow-up testing (one in each of two conditions) two subjects were randomly dropped from the two remaining conditions. Therefore the State-Trait analysis was conducted on 13 subjects in each of the four conditions.
Figure 1. Mean Trait Anxiety scores as a function of testing sessions. The confidence interval shown is two-tailed, $\alpha = .05$, for group 4. Group 1 was a low-anxious statement in truth light condition; group 2, high anxious, lie light; group 3, low-anxious, neutral light; group 4, high anxious, neutral light.
A 4 x 3 split-plot factorial analysis (Kirk, 1968, p. 248) was performed on the mean Trait Anxiety scores. The summary of the analysis is shown in Table 1. A significant F ratio ($F = 36.779$, $df = 9/96$, $p < .01$) was obtained across the testing sessions (B). In that the subjects represented the top 25% of the distribution, this finding is most likely an artifact due to regression. The overall AB interaction analysis was not significant ($F = 1.38$, $df = 6/96$, n.s.) lending no support for the hypotheses that high anxious subjects who read low anxious statements in the presence of the truth light and high anxious subjects who read high anxious statements in the presence of the lie light will subsequently decrease their scores on the Trait Anxiety Inventory.

An overall significant F ratio is not a necessary condition to conduct a priori orthogonal comparisons (Kirk, 1968, p. 73). Accordingly, orthogonal comparisons were performed between the relevant experimental and control conditions. Their orthogonality and the results of the analyses are summarized in Table 2. The hypothesis that high anxious subjects who read a low anxious statement in the presence of a truth light will subsequently decrease their score on the Trait Anxiety Inventory was supported since groups one (low anxious, truth light) and three (low anxious, neutral light) differed significantly at the post-manipulation testing session ($t = 3.28$, $df = 24$, $p < .01$; comparison 1). The comparison of group one and three at the follow-up testing was also significant ($t = 2.11$, $df = 24$, $p < .01$) although the magnitude of difference did decrease during the two-week period between the
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<td>36.779*</td>
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*p < .01*
TABLE 2

SUMMARY OF ORTHOGONAL COMPARISONS OF TRAIT INVENTORY SCORES

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<tr>
<td>Comparison 2</td>
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<td>gp 3</td>
</tr>
<tr>
<td>Comparison 3</td>
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<td>0</td>
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<td>Comparison 4</td>
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<td>-1</td>
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</table>

*p < .01
post-manipulation testing sessions two and the follow-up testing. No significant results were found in the comparisons between groups two and four at the post-manipulation testing (t = .761, df = 24, n.s.) and the follow-up testing (t = .400, df = 24, n.s.). Therefore, the hypothesis that subjects who read a high anxious statement in the presence of a lie light would subsequently decrease their score on the Trait Anxiety Inventory was not supported.

Confounding the results to some degree was a difference between groups three (low anxious, neutral light) and four (high anxious, neutral light) at the post-manipulation testing. A two-tailed confidence interval was computed with the use of the LSD procedure (Kirk, 1968, p. 76). The critical difference needed at the .05 level was 3.14 and the difference obtained between groups three and four at the post-manipulation testing was 3.46, indicating that it is unlikely that the two means are representative of the same population (see Figure 1). The difference between groups three and four at the follow-up testing (difference = 1.23) did not exceed the critical difference.

A 4 x 3 split factorial analysis (Kirk, 1968, p. 248) was performed on the mean State Anxiety Inventory scores. The summary of this analysis is summarized in Table 3. Again, the repeated measures variable (B) yielded a significant F ratio (F = 5.14, df = 2/96, p < .05). In that all four groups decreased across the testing sessions, the major portion of the
TABLE 3

SUMMARY OF SPLIT-PILOT FACTORIAL ANALYSIS
OF STATE INVENTORY

<table>
<thead>
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<th>Source</th>
<th>SS</th>
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<td><strong>Total</strong></td>
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<td>155</td>
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* p < .01
variance was most likely accounted for by regression. The hypothesis that State Anxiety Inventory scores would decrease as a function of reading low anxious statements in the presence of a truth light and the reading of high anxious statements in the presence of a lie light was not supported ($F = .99$, $df = 6/96$, n.s.). Appropriate a priori orthogonal comparisons also yielded non-significant differences.

Finally, a $4 \times 3$ split-plot factorial analysis (Kirk, 1968, p. 248) was performed on the mean Manifest Anxiety Scale scores. In that not all subjects in the State-Trait analysis took the MAS and the failure of subjects to return for the two-week follow-up, subjects were randomly discarded to produce an equal sample of 11 per cell. The summary of this analysis is shown in Table 4. The hypotheses that MAS scores would decrease as a function of the reading of a low anxious statement in the presence of a truth light and the reading of a high anxious statement in the presence of a lie light were not supported ($F = .310$, $df = 6/80$, n.s.).
TABLE 4

SUMMARY OF SPLIT-PILOT FACTORIAL ANALYSIS OF
MANIFEST ANXIETY SCALE

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<td><strong>Within Subjects</strong></td>
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<td>.310</td>
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<td>B x Subj. W. Groups</td>
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<td><strong>Total</strong></td>
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CHAPTER V

DISCUSSION

The major findings of this study tend to support Bem's basic position that a person comes to understand himself, at least in part, through self-observation. Within Bem's model it could be postulated that subjects who read low anxious, counter-dispositional statements found internal validating cues weak and ambiguous. In accord with self-perception theory, subjects should seek cues to validate or invalidate the description that they were trying to convincingly read. In one stimulus condition, the neutral light of group three, external cues offered little if any information as to the veracity of the statement. On the other hand, subjects reading low anxious statements in the presence of the truth light would, in looking for external cues, find a stimulus condition that contained information suggesting that the statements they were reading were true. In line with Bem's position, the subjects would then tend to infer that the statements they were reading were self-descriptive. The significant differences found between groups one (low anxious statement, truth light) and three (low anxious, neutral light) support this line of reasoning. Moreover, the significant difference obtained
between these two groups at the two-week follow-up suggest that the effect is relatively stable. Suggestive evidence for the stability of attributionally manipulated trait scores has previously been offered by Beaman, et al. (1972).

Also in accord with Bem's formulations, subjects reading high anxious statements in the presence of a stimulus that had been associated with untrue statements in the past (lie light) should tend to infer that the statements were not self-descriptive and subsequently decrease their scores on the Trait Inventory. The comparisons of groups two (high anxious statement, lie light) and four (high anxious statement, neutral light) do not lend support for this hypothesis. A possible reason for the failure to support this hypothesis could be that high anxious subjects who read high anxious statements were in fact reading statements that to some extent were self-descriptive. Therefore internal validating cues might be less ambiguous and subjects may be less likely to search for external sources to validate or invalidate the description. This speculation would be congruent with Bem's fundamental principles of self-perception theory.

Interestingly, the analysis of the State Inventory scores produced non-significant results. It appears that the results obtained on the Trait Inventory did not generalize to the subjects report of his present state of anxiety. In this regard, the descriptions that the subjects read were by in large trait in content. That is, the statements were descriptive of
global dispositions and appeared to have no measurable effect on the subjects' present state of anxiety. In accord with this finding, Mischel (1973) has pointed to "man's impressive discriminative facility (p. 258)" that has been regularly found in studies of noncognitive personality dimensions. Thus it seems reasonable that subjects may have lowered their self-report scores on trait questions due to the trait statements they read, but yet reported no change on state related questions.

Confounding the results of this study to some extent was the significant difference found between groups three and four at the testing following the experimental procedure. These two groups differed on the statement that the subjects read. Group three read a low anxious personality description and group four a high anxious description. In both cases the stimulus condition was that of a neutral light. On the basis of past research indicating that the reading of an attitudinal statement without further manipulation would not lead to attitudinal change, it was predicted that these groups should not differ. Since differences were observed, it could be argued that dispositional statements substantially differ from attitudinal ones. However, there is another more plausible explanation besides assuming that the change resulted from the mere reading of the statement.

The change may have been mediated by an ascription of normality by the subjects to the descriptive statements.
Subjects were told that the description they were reading was a collection of statements of previous subjects. Although it was not made explicit, subjects could have inferred that the composite statement was a description of a more-or-less "average" individual. In the high anxious conditions, subjects inferring this "average" nature of the description could have re-evaluated their own self-descriptions and conclude that they were more "average" than they previously thought. In other words, a subject reading a collection of "high anxious" statements that he assumes to be "average" and at the same time descriptive of himself to some extent, will subsequently, on self-report, mark statements in a less extreme way. Psychotherapists have assumed a similar process. Clients experiencing anxiety, depression, etc., often seem reassured knowing that their problems are not so unique and are found amongst "normal" and "average" people. It would follow then, from an informational processing standpoint, that a person's self-perception is categorized, to some extent, in terms of how he differs from or is the same as others. A test-retest control group would have aided in the interpretation of these results.

To clarify this reasoning 24 new subjects were given the high anxious personality description to read. Half read the statement without the instructions used in the present study. Next each subject rated the degree to which the description appeared like an average person on a 7-point scale
anchored with "not average" (1) and "average" (7). The mean rating was 3.0 for this group. The other 12 subjects were told that they were to perform a part of an experiment that had previously been conducted. Briefly the rationale for the voice judgment study was described. Next the exact instructions used to introduce the high anxious statements in the present study were read followed by a request for the subjects to read the high anxious personality description. Finally these subjects were asked to rate the description on the 7-point scale. As predicted, the latter groups mean of 4.67 indicated a greater ascription of normalcy ($t = 2.61$, $df = 22$, $p < .01$). Thus, this new information supported the speculation above that an attributional process may have mediated the changes observed in high anxious statement conditions.

It could also be speculated that the same process was involved in groups one and three (both reading low anxious statements); that is, high anxious subjects reading low anxious statements could attribute normality to the descriptions and then assume that their anxiousness is even more extreme than they thought. This line of reasoning would not, of course, affect the comparisons of the two groups reading the same statement but it could be a variable for future investigation. Moreover, an additive effect could be present in the comparison of the two control groups. Subjects reading low anxious statements could have "increased" their scores and subjects reading high anxious statements could have "decreased" their scores, making a significant difference between the two groups more likely.
Mischel, in a recent book (1968) and series of articles (1972, 1973) has addressed trait conceptions of personality. In an exhaustive review of the empirical data relevant to trait conceptions, Mischel has concluded that there is little evidence for the existence of global dispositions that exert widely generalized effects on behavior. This finding is contrasted by the consistency often found when people rate their own traits on questionnaires or self-reports, even though these ratings have little to do with non-verbal behavior (Mischel, 1968, 1973). In other words, recall-based trait ratings often yield data that are consistent and systematic but not highly related to behavior based on direct observation. Moreover, traditional personality research has directed its attention towards the behavioral correlates of questionnaires and self-categorizations rather than the investigation of the way individuals come to categorize themselves, how such categorizations are maintained and how they change.

Mischel has postulated a set of person variables that are congruent with Bem's self-perception model and help elucidate the findings of the present study. Mischel maintains that consistency found on self-report trait ratings can be understood from a cognitive-informational processing standpoint. Individuals develop personal constructs or styles of self-presentation. These cognitive structures filter new information that construct and maintain perceived consistency of self-presentation. Such styles of presentation may be reflected in responses to personality tests such as the Trait Inventory used in this study.
From both Mischel's viewpoint and that of Bem's, individuals self-perceptions are based upon informational input. The subjects who read low anxious statements in the presence of the truth light were presented with new information that they had a lowered "trait anxiety" and subsequently lowered their self-report ratings of trait anxiety. The differences found between groups three and four (low anxious statement, neutral light and high anxious, neutral light) could be similarly understood. In the high anxious conditions subjects could have been presented with information that high anxiety was more "average" than they previously thought. Considering this new information, they reported a less extreme presentation of their "trait anxiety."

In that no behavioral measure of anxiety was taken, and in light of Mischel arguments, it does not seem appropriate to assume that the subjects actually reduced their anxiety as it would be behaviorally or physiologically defined, but, rather, that they re-evaluated their perception or presentation of the quantity of trait anxiety they possess.

As previously pointed out, traditional personality research has directed its attention towards the behavioral correlates of self-categorizations in the hope they would have utility in predicting behavior. In Mischel's view, self-categorization is but one kind of person variable that could tell us much about how people construct self-perception but may have little utility in generalized behavioral predictions.
Future directions of research could examine this question by adding behavioral correlates to determine if the decrease in anxiety scores reflect only self-report changes of personality or are also reflective of non-verbal alterations.
It has been postulated that a person comes to understand himself in much the same way that a person learns of the attitudes, beliefs and dispositions of other people; that is, we learn of our own attitudes, beliefs and dispositions, at least in part, from self-observation and from these observations we infer what we are like. This theory has been termed self-perception and has found support, both indirect and direct, from a number of experimental sources. However, most of the research has been directed at attitudes and beliefs with only one study directly concerned with personality dispositions or traits. The present study was an attempt to extend self-perception theory to Trait Anxiety, a disposition that has been considered a relatively stable individual difference in anxiety proneness.

Using Bem's truth-lie light paradigm, it was hypothesized that high Trait anxious subjects, as measured by Spielberger's State-Trait Anxiety Inventory, who read a low-anxious statement in a stimulus condition that in the past was associated with truthful statements (truth light) would subsequently decrease their scores on the Trait Anxiety Inventory.
Secondly, it was hypothesized that high Trait anxious subjects who read a high anxious statement in the presence of a stimulus condition that in the past was associated with incorrect statements (lie light) would subsequently decrease their scores on the Trait Anxiety Inventory. Finally, it was hypothesized that in both of the above conditions subjects would also decrease their State Anxiety Inventory scores.

The prediction that high anxious subjects would read a low anxious statement in the presence of the truth light would subsequently decrease their Trait Anxiety scores was confirmed in a comparison between this condition and a control group. It was also found that this change was maintained over at least a two-week period.

The hypothesis that high anxious subjects who read a high anxious statement in the presence of a lie light would subsequently decrease their Trait Anxiety scores did not receive support. The prediction that State Anxiety scores would also decrease as a function of reading a low anxious statement in the presence of the truth light or reading a high anxious statement in the presence of the lie light was not confirmed.

Confounding the results was a significant difference obtained between two control groups that were not predicted to significantly differ. A rationale, formulated within self-perception theory, was presented to explain this obtained difference and a post-hoc study was conducted to test this rationale. The post-hoc prediction was confirmed lending
some support to the proposed rationale. However, future research was suggested to elucidate this observed difference.

The results were discussed in terms of self-perception theory and recent discussions and research approaches of person variables posited by Mischel. Also, implications for clinical practice were discussed and future research directions were suggested.
PERSONAL INFORMATION FORM

1. What is your first name? ______________________________

2. What is your age? _________________________________

3. When is your birthday? ____________________________

4. What is your mother's first name? ______________

5. What is your father's first name? ________________

6. What is your school address? _____________________

7. Do you wear glasses? ______________________________

8. Do you wear hats? ________________________________

9. What is your major field of study? _______________

10. Are you generally favorable to sororities and fraternities? _______________________________

11. What is your grade-point average? _______________

12. In what city do your parents live? ________________

13. What is your best academic subject? ______________

14. Do you play bridge? ______________________________

15. What is the name of the last movie you have seen? ___

16. Do you favor abolishing grades? _________________

17. What is your favorite magazine? _________________

18. What is your height? _____________________________

19. What is the color of your eyes? _________________

20. What is the color of your hair? _________________

21. Can you drive a car? _____________________________

22. What political party do you favor? _______________

23. Have you taken any courses in calculus? __________

24. Do you consider yourself even-tempered? _________
25. Do you play chess? _________________________________
26. What is your favorite work of fiction? _______________
27. Have you been to Canada? __________________________
28. Have you been to Mexico? __________________________
29. What is your favorite type of music? __________________
30. Did you watch television last night? ________________
31. Have you even flown in a jet? ______________________
32. Do you play a musical instrument? _________________
33. What graduating class are you in? __________________
34. Are you wearing a ring? ___________________________
35. How many psychology courses have you taken? ________
36. What high school did you attend? __________________
37. Are you married or engaged? _______________________ 
38. What foreign languages do you know? _______________
39. What is your favorite sport? _______________________
40. Are you right- or left-handed? _____________________
41. Whom would you like to see as the next President of the United States? _________________________________
42. Do you learn more from lectures or discussion sections? ________________________________________________
43. What brand of toothpaste do you use? ______________
44. What is the most important military service? ________
45. What was the main course at dinner last night? _____
46. Do you prefer hot or cold weather? _________________
47. Who is your favorite actress? ______________________
48. Who is your favorite actor? ________________________
49. Are you an extrovert or an introvert? ______________
50. What is man's most heinous crime? ________________
APPENDIX B
LOW ANXIOUS STATEMENT

My name is (first name) and I am a (Fresh., Soph., Jun., Sen.) at the University of Montana. I would describe myself as a calm person and am happy most of the time. I approach difficult situations in a straight-forward way and most of the time feel successful. I feel I have a great deal of unused capacity that I have not turned to my advantage, but I work hard at trying to usefully direct it. I don't tend to worry and fret over a lot of small things and although I have a few personality weaknesses, I am generally able to compensate for them. I don't often feel uneasy nor do I have a lot of difficulty in making decisions.

I think I am generally a pretty self-confident person and although I have some problems I am generally able to overcome them. I prefer a certain amount of change and variety. Although once in a while I am a little restless, I am generally able to direct my energies towards the job or task that needs to be done. I seldom become so restless that I have trouble sleeping.

I feel confident about most activities I engage in and when my performance is not as good as I would like it to be I don't tend to worry a lot about it but usually decide to improve next time. Although, like everyone else, I have some problems and disappointments, I feel my life is generally a happy and pleasant one.
HIGH ANXIOUS STATEMENT

My name is (first name) and I am a (Fresh., Soph., Jun., Sen.) at the University of Montana. I would describe myself as a nervous person and I am not always as happy as I want to be. Difficult situations tend to upset me and I often feel insecure and worry about the outcome. I feel I have a great deal of unused capacity, but don't seem to have the energy to usefully direct it to my advantage. I seem to worry and fret over a lot of small things and this tends to make me very upset. When I am called upon to make a decision I become uneasy and have difficulty in making up my mind.

I am not as self-confident as other people are and I find the difficulty parts of my life often hard to overcome. I prefer a certain amount of change and variety. Often I am restless and find it difficult to direct my energies towards the job or task that needs to be done. Sometimes I become so restless that I have trouble sleeping.

I don't feel as confident as I would like when I engage in activities and when my performance is not as good as I would like it to be, I tend to worry a lot about it, even though I know worrying doesn't help. Comparing myself to what I think other people are like, I don't think my life is as happy and pleasant as it could be.
REFERENCES


