A comparison of the relative efficiencies of reinforcement and trait-expectancy theories in the prediction and control of self-esteem

David Edward Dooley

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DODLEY, David Edward, 1936-
A COMPARISON OF THE RELATIVE EFFICIENCIES
OF REINFORCEMENT AND TRAIT-EXPECTANCY
THEORIES IN THE PREDICTION AND CONTROL OF
SELF-ESTEEM.

The College of William and Mary in Virginia,
Ed.D., 1976
Education, psychology

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A COMPARISON OF THE RELATIVE EFFICIENCIES OF REINFORCEMENT
AND TRAIT-EXPECTANCY THEORIES IN THE
PREDICTION AND CONTROL OF
SELF-ESTEEM

A Dissertation
Presented to the
Faculty of the School of Education
College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

by
David E. Dooley
July 1976
APPROVAL SHEET

We the undersigned do certify that we have read this dissertation and that in our individual opinions it is acceptable in both scope and quality as a dissertation for the degree of Doctor of Education.

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Acknowledgments

The completion of this dissertation could not have been consummated without the encouragement and assistance provided by family members, friends, and many other individuals. Primarily responsible for the accomplishment of this investigation, was my wife, Priscilla, who made many sacrifices and demonstrated tremendous understanding.

Obviously, a dissertation is the product of the interaction of a student and his committee. Sincere thanks are extended to my committee members for their encouragement and constructive criticism. I wish to extend appreciation to Dr. Fred L. Adair for providing a free environment in which to pursue my own research interest. I wish to thank Dr. Robert B. Bloom for his guidance in the area of research design, statistical analysis, and self theory. I am greatfull to Dr. Lee E. Doerries who was available for consultation at all times to encourage my efforts and to stimulate my thinking. Dr. Kevin E. Geoffroy provided both wit and wisdom, which many times served as an oasis. Finally, I wish to thank Dr. Charles O. Matthews, II, for the countless number of hours he spend patiently reading, suggesting, supporting, and engaging in the many other behaviors that committee chairman emit. The individual contributions of each committee member are greatly appreciated.

I would also like to express appreciation to several friends who contributed to the research. Dr. Tom Clawson, my friend in graduate school, acted as the confederate; Mr. Robert O'Sullivan, one of the best laboratory assistants ever, gave valuable computer assistance; and Kim King, an energetic psychology major, who spent several days...
and nights aiding me in the actual research.

Lastly, I would like to thank some of my colleagues at Christopher Newport College, Department of Psychology, who gave me support and understanding during my 22 months as a doctoral student. Special thanks are given to Dr. Robert Wildblood for his help in arranging my teaching schedule to meet the residency requirement. Dr. Bruce Hoiberg helped me to relate self theory, assessment, design, and operant learning. Dr. Sanford Lopater and Dr. Robert Herrmann encouraged my educational experiences, and I thank them both. Dr. Lee Doerries participated as a member of my doctoral committee.
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A COMPARISON OF THE RELATIVE EFFICIENCIES OF REINFORCEMENT AND TRAIT-EXPECTANCY THEORIES IN THE PREDICTION AND CONTROL OF SELF-ESTEEM
Chapter 1
Introduction

In this age where culture objects and interpersonal roles rapidly change, individuals will need to adjust to many stresses, conflicts, and frustrations. In those complex situations, it is probable that not too many persons will achieve socially and/or personally reinforcing adjustments. The social need for efficient therapeutic techniques is great. The relationship between therapeutic technique, the self, and adjustment has been stated by Kanfer and Phillips (1970) as follows:

Many schools of psychotherapy demand that the patient reorganize his own life pattern and his attitudes toward himself and others. However, the therapeutic interaction is often viewed as a catalyst that brings about changes in the self. These changes in turn result in the adoption of personally satisfying and psychologically more effective behaviors. Realistic self-reactions and awareness of the important relationships in one's life appear as crucial forces that promote reorganization toward more effective adjustment. In these theories the self, or an equivalent psychological force, such as the ego, is viewed as an active inner structure that can be put into the service of rehabilitation, once the therapist has resolved the conflicts or removed the obstacles that had previously locked the effective functions of this inner force [p. 408].

Anxiety has often been viewed as an obstacle to self-growth.
The ubiquitous and personal nature of anxiety, for example, has typically led to the view that it is an inner agent producing observable behavior changes. Such a view might attempt to change anxiety through the discovery and recognition of some inner force such as self-discrepancy, or guilt. Sidman (1964), on the contrary, has suggested the use of functional analysis methodologies in the investigation of anxiety. Sidman has noted the following functional commonality in the "anxieties" produced by the classical technique of Warner (1932), the Sidman (1953) technique, and the Estes and Skinner (1941) conditioned aversive stimulus study:

In every instance, we produce the anxiety by experimentally manipulating the animal's environment. Anxiety may well be personal and even internal to the organism, but it is generated by specifiable and observable operations in his external world. We may all describe and define our feelings of anxiety differently, but we can specify the sources of this anxiety by standard scientific procedures [Sidman, 1964, p. 480].

Although there are a variety of therapeutic techniques, behavior therapists have tended to discriminate therapies which employ cognitive mediators from therapies which functionally analyze response contingencies. Examples of mediators which behavior therapists would not employ would be "belief," "eros," "expectancy," "feeling," "internal frame of reference," "thought," and the variety of "needs." Behavior therapists have criticized mediator models for several reasons:
1. They contend that all therapists manipulate behavior and there is no evidence that inferred states exist or can be manipulated.

2. Assumed mediator states are irrelevant to the performance of a therapeutic functional analysis of the patient's behavior.

3. The assumption of mediator states, free will, or qualitative differences between man and animal removes the therapist's attention from the lawfulness of the patient's behavior and the environmental variables surrounding it.

The present research was behavior theory based and attempted to explore the prediction and control of self-esteem through a functional analysis of behavior. Specifically, the research explored the relationship between self-esteem and the manipulation of subtle contingencies of reinforcement in a contrived interpersonal laboratory situation. In the exploration an attempt was made to assess the relative efficiencies of theoretical assumptions of two models of personality and therapy:

1. The environmental deterministic behavioral view of man.

2. The underlying trait deterministic view that man possesses cross-situational enduring dispositions to behave.

A measurement of "self-esteem," later to be operationalized, was selected arbitrarily as the personality variable to evaluate those two models. In regards to a behavioral conception of "self-esteem," Homme, Baca, Cottingham and Homme (1968) have written:

How can you teach someone to think favorable of himself?

When we speak of a self-concept, we may simply be talking about the aggregate of sentences, the S says to himself
(and others) about himself. Viewed in this light, it becomes a simple matter to install a favorable self-concept: One simply strengthens a class of verbal behavior [p. 433].

It is to be noted that although there appears to be a rather good agreement between low self-regard and maladjustment (Rachman, 1971, p. 68), Wylie (1968) has concluded, "we can see that the level of self-regard is far from being a valid indicator of degree of pathology [p. 217].

Allport (1955) stated 20 years ago that psychologist were once again, since the time of Wundt, becoming interested in "self-image, self-actualization, self-affirmation, phenomenal ego, ego-involvement, ego-striving [pp. 36-37]." Of the more popular self-theory mediator approaches two have been the so-called "third force" and the "trait-factor" model.

Third force psychology (Maslow, 1954; Rogers, 1951; Snygg & Combs, 1949) has been extensively concerned with the self-theory approach to understanding human behavior. A basic and important theoretical assumption of that approach has been stated by Jourard (1974): "A person's self-structure functions as a regulator of his experiences and action [p. 152]." Third force theory is similar to first force theory in that "self" has been treated as a unitary personality structure assuming the status of an independent variable selecting personality attributes. "For all self theorists, the generic self concept is said to be at least a determiner of behavior [Wylie, 1968, p. 750]."

The failure of the first force and third force therapies to
demonstrate effective therapeutic outcomes has been attested to by Eysenck (1952, 1969). The failure of third force psychology to provide valid therapeutic constructs ("warmth" and "empathy") was demonstrated by Truax's (1966) finding that Rogers implicitly alters (or controls) the patient's behavior and that the evidence weighs in favor of the view proposed by Skinner rather than that of Rogers . . . and that the finding that empathy and warmth act as reinforcers suggests that the evidence relating empathy and warmth to patient outcome is open to a behavioristic interpretation and that the present data suggest the potential value of studies utilizing behavioristic methods [p. 7].

It was the purpose of the present research to extend the behavioral research strategy to a laboratory situation with "normal" college students in an attempt to assess comparative efficiencies of the theoretical assumptions for the experimentally-based functional analysis of behavior model and the correlationally-based trait-expectancy model as evidenced by the prediction and control of student self-esteem level. The present research acknowledges the difficulties involved in attempting to operationalize self theory concepts and manipulate them under laboratory conditions. That difficulty has been particularly well-put by Wylie (1968):

Self theorists criticize learning theorists . . . for offering "caricatures of human nature," apparently being under the wrong impression that the goal of scientific theorizing is to represent everything about the phenomena under study, to re-create reality,
as it were. Yet at the same time that they criticize other psychologists for over-simplifying their analysis of man, the typical alternative offered by the self theorists is a single, overriding motive (e.g., self-actualization, enhancement of the phenomenal self). Such an alternative, if taken literally, provides too few parameters to account for complex behaviors [ p. 731 ].

The correlational trait-expectancy approach to self has produced results indicative of behavioral consistency across time. The culminating concept of personality does offer possibilities for an experimental approach to "self." Pervin (1968) has shown personality to best be conceptualized in terms of the interaction of varying environmental variables and varying behavioral characteristics. In other words, personality would be best studied by a consideration of both external environmental variables and internal cognitive expectancy variables. Mischel (1966) summarized the assessment literature and concluded that there was less evidence for cross-situational behavioral consistency than had been expected by a trait approach. Mischel (1969) again challenged the usefulness of a trait approach and indicated that a more useful view would encompass specific external environmental situations and internal situation-specific expectancies. Mischel (1969) has noted that

dispositional theories try to categorize behaviors in terms of the hypothesized historical psychic forces that diverse behaviors supposedly serve; but it is also possible to categorize the behaviors in terms of the unifying evoking
and maintaining conditions that they jointly share [ p. 1016 ]. Although such a middle-of-road view would appear to synthesize Skinner's views, a cognitive expectancy view, and a trait view, it really does not. Such a view appears to be closely related to situation-specific cognitive expectancies based upon trait-like enduring characteristics; it differs markedly from Skinner's view of behavior. Skinner (1974) writes that "the evidence for a crude environmentalism is clear enough. People are extraordinarily different in different places, and possibly just because of the places [ p. 175 ]." Skinner is of the conviction that the thousands of so-called "traits" . . . can be explained in other ways . . . [ namely that ] an organism will range between vigorous activity and complete quiescence depending upon the schedules on which it has been reinforced. The explanation shifts from a trait of character to an environmental history of reinforcement [ p. 177 ].

Since both the trait-expectancy and functional analysis models attempt to account for the operation of "self," and since each is capable of procedural and variable operationalism, it becomes possible to attempt to assess the comparative efficiencies of the models on behavior prediction and behavior control dimensions.

Watson (1962) has defined behavior modification (behavior therapy) by observing that it includes many different techniques all related to the field of learning, "but learning with a particular intent, namely clinical treatment and change [ p. 19 ]." Behavior therapy, then, would be a synthesis of traditional experimental
learning research methodology and principles, and clinical topics of study (Eysenck, 1972; Krasner, 1965; Lindsley, 1970; Mace, 1948-1949). In contrast to the medical model definition of variables and therapeutic method, the behavioral model (Ferster, 1965) defines both dependent and independent variables as empirical and deterministic events. Therapeutic methods are experimental and treatment evaluation is parsimonious.

The present research, based on behavior theory, defines "self" mainly as a learned dependent variable which changes as environmental response contingencies of the behaving person changes. In other words, the therapeutic construct, "self-esteem," was defined as a dependent variable functionally related to response contingencies. The intention of that definition was to sharply contrast the behavioral conception of self with trait-expectancy conception of self where "self" is treated as a relatively enduring personality characteristic which is cross-situational and which determines behavior. Rotter and Hochreich (1975), for example, have stated that social learning theory and the concept of expectancy is different from most other theories:

Expectancy is defined as the probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation or situations. The emphasis placed on the concept of expectancy sets this theory apart from most others. Whether or not a behavior will occur is considered to be not only a function of the nature and importance of the reinforcement that the individual desires but also of the individual's anticipation
or expectancy that he will be able to achieve this goal if he behaves in a particular way. Such expectations are determined by his previous experience and can be described quantitatively [p. 96].

A behavior theory account of behavior probability normally does not speculate what might be occurring inside the behaving organism. Whereas behavior theory views behavior under the differential control of environmental variables in specific situations, Rotter's (1975) expectancy theory views behavior under the control of subjective feelings:

According to the theory, expectancies are subjective in nature, and the person's subjective feelings about the probability of his being reinforced for some behavior may or may not coincide with the realistic probability. . . . it is not the situation per se which is important in predicting behavior, but rather the way in which a particular individual perceives that situation [Rotter & Hochreich, 1975, pp, 96-97].

It has been shown that whereas expectancy theory has attended to the inner aspects of self for causal variables, reinforcement theory has attended to environmental aspects of self for causal variables. It should be pointed out that the investigator's definition of self is viewed as functionally identical to the innovative self-modification paradigms of Ferster (1965), Goldiamond (1965), Kanfer and Marston (1963), Kanfer and Phillips (1970), Homme (1965), and Cautela (1966). The present study is viewed as being completely compatible with those self-modification views.
Skinner (1953, p. 285) defines "self" as a functionally unified system of responses occasioned by discriminative stimuli and maintained by reinforcing stimuli. Skinner's view of "self" is deterministic as opposed to mentalistic in that all selves are the products of genetic and environmental histories. Self-knowledge and self-management are of social origin, and the selves known and managed are the products of both contingencies of survival and contingencies of reinforcement [p. 225].

Such concepts as "alienation," "self-concept," and "fragmentation of life," are accounted for by Skinner (1974, p. 150) as a repertoire of behavior functionally related to an organized set of contingencies; the behavior becomes fragmented when the contingencies of reinforcement are no longer organized in a reliable manner. Behavior theory would predict that changes in objectively assessed personality characteristics such as "attitudes," "traits," "beliefs," or "self-concepts" would occur as reinforcement contingencies of behavior change. Such changes would be considered "states" (i.e., behavior patterns, thoughts, or feelings under the control of temporary environmental contingencies) or "traits" (i.e., behavior patterns, thoughts, or feelings under the control of relatively permanent contingencies) depending upon the particular experimental paradigm or physical characteristics of the social-physical environment. The purpose of the present research was to functionally analyze trait behavior on the state level in an attempt to parsimoniously account for the prediction and control of a defined state. It was not the
purpose of the research to initiate a state and strengthen it into
trait behavior as such a purpose would not have been within the scope
of a laboratory experiment involving college student volunteers.

In a study very similar to the present research, Davis and
Davis (1972) explored the relationships between locus of control,
success vs. failure conditions, and attribution of responsibility.
Female introductory psychology students, 30 internal and 30 external,
were randomly assigned to success and failure conditions of an
experimental task involving sensitivity in the judgment of other
people. Individual subjects were given a fictitious "social sensivity
test" which "consisted of 20 items in which the subjects' task was
to predict how a particular person would answer a statement given that
person's responses to the two previous statements [ p. 129 ]." Prior
to the administration of that experimental test, each subject was
"shown a sheet of false norms with raw scores labelled 'superior,'
'above average,' 'average,' 'below average,' and 'poor' and was
asked to predict her scores on the test [ p. 129 ]." After completion
of the social sensitivity test subjects in the success groups were
told by the experimenter that they had gotten 18 items correct.
Subjects in the failure groups were informed that they had scored 6
items correctly. The feedback in both instances was false. Following
feedback to the subjects, instruments were administered to discover
satisfaction with score, liking of the test, and attribution of
responsibility for that score. The attribution questionnaire consisted
of eight items, each was rated on a 7-point scale. There were four
items that described personal sources of causality (ability and effort)
and four items that described impersonal causes (situational variables and luck). The results were as follows:

1. Subjects in the failure condition were less satisfied with their scores and disliked the test more than subjects in the success condition.

2. Internals and externals assumed responsibility for success.

3. Internals, more than externals, assumed responsibility for failure.

4. Internals placed more importance on personal forces than did externals.

Davis and Davis (1972) recommended that future researchers discriminate defensive from congruent externals and investigate the differential attributional predictions in a similar interpersonal laboratory situation involving success and failure. Both defensive externals and congruent externals have belief expectations that reinforcements and punishments are due to luck, chance, or fate. Congruent externals tend to attribute responsibility for personal success or personal failure to impersonal forces and not to "powerful others" (e.g., professors, policemen, politicians); this kind of external has more interpersonal trust than do defensive externals. Defensive externals tend to attribute responsibility for personal success or personal failure to personal forces such as powerful others; this kind of external has less interpersonal trust than do congruent externals.

The present research discriminated defensive externals from congruent externals in an interpersonal laboratory situation involving
success and failure. Instead of employing an attribution paradigm, the present research related success and failure to self-esteem, and self-esteem changes to both expectancy theory and to reinforcement theory.

The reasons for conducting the present research were as follows:

1. The researcher was unsuccessful in locating a single study which differentially related internalizers, defensive externalizers, and congruent externalizers to social reinforcement and social punishment, and to changes in social self-esteem. The present study was considered of theoretical importance since it would add to the research literature in the locus of control field.

2. A second reason for the research was to advance the research literature in the therapeutic field by calling attention to the importance of therapist attention to the manipulable variables surrounding patient behavior. This reason was considered to be of theoretical and applied importance.

3. A third reason was to perform a functional analysis of self-esteem, as defined in clinical literature (Fitts, 1965), through the manipulation of reinforcement variables in an interpersonal context involving defined personality characteristics of subjects. Skinner (1974), for example, has noted the following:

Not only does a behavioral analysis not reject any of these "higher mental processes"; it has taken the lead in investigating the contingencies under which they occur. What it rejects is the assumption that comparable activities take place in the mysterious world of the mind. That
assumption, it argues, is an unwarranted and dangerous metaphor [p. 223].

This reason was considered to be of theoretical and applied importance.

4. The fourth reason was to explore the relationship between Skinner's (1953) operant learning and Rotter's (1966) expectancy theory by hypothesizing differential predictions from those theories. It appeared to the writer that the concepts "locus of control of reinforcement" and "social learning theory" ought to have much in common with operant reinforcement. Kanfer and Phillips (1970) have noted that Rotter (1954) and Skinner (1953) have each emphasized the dependence of self-concepts on specific behaviors in specific situations. However, the following two points have also been noted---

a. Skinner (1974) in 264 pages of text and references did not list "Rotter," "internalizer," or "externalizer"; three of Skinner's own books were consulted and are listed in the References. Rotter and Hochreich (1975) in 182 pages of text and references did not list "Skinner," or "operant conditioning"; six of Rotter's books and articles were consulted and are listed in the References.

b. Whereas Skinner has continued to employ a strict functional analysis methodology, Rotter has deviated from that position with his notion of belief expectancy. Skinner (1974) in the following conspicuous but not referenced quote (in Rotter, 1954) points to the difference between functional and mediator approaches:

"In social learning theory the potential of the occurrence
of a behavior is considered to be a function of the expectancy that the behavior will lead to a particular reinforcement or reinforcements and the value of these reinforcements in a given situation." We should have to translate these statements in some such way as this: "The probability of behavior depends upon the kind or frequency of reinforcement in similar situations in the past." A person may well feel conditions associated with "judging," "anticipating," and "expecting," but he does not need to do so [ p. 69 ].

This reason was considered to be of theoretical importance.
Chapter 2
Review of Related Research

History of Cognitive Conditioning

A number of studies have been successful in the functional analysis of attitudes, attraction, and interests. Those studies have shown such cognitive characteristics to be functions of conditioning principles and not unconditioned aspects of the person.

Staats and Staats (1958) performed one of the first investigations of attitude formation in relation to respondent conditioning. There were 92 college students who participated in two experiments which involved simultaneous respondent conditioning of evaluative attitudes. Visually presented national names, Greek, German, Italian, French, Swedish, and Dutch constituted respondently neutral stimuli with regards to the specific evaluative conditioned response. There were two classes of unconditioned auditorily presented stimuli used: (a) words having positive evaluative meaning (e.g., gift, sacred, happy); and (b) words having negative evaluative meaning (e.g., bitter, ugly, failure). In the first experiment, the 6 national names were randomly presented 18 times each for a total of 18 conditioning trials and a total of 108 trials. Each trial lasted 5 seconds and the inter-trial interval was less than 1 second. For subjects in group 1, the name "Dutch" was paired with 18 different words having positive evaluative meaning; the name "Swedish" was paired with 18 different words having negative emotional meaning. For subjects in group 2, "Dutch"
was paired with negative evaluative words and "Swedish" was paired with positive evaluative words. The remaining 4 national names were paired with words having nonspecific respondent meaning such as "chair," "with," and "twelve." During the posttest situation, subjects wrote down the words they remembered. They also completed a 6-page booklet; each page contained a 7-point semantic differential scale with one of the 6 names to be rated on the "pleasant to unpleasant" scale. The second experiment followed the same procedure as the first except instead of national names, the human names "Harry," "Tom," "Jim," "Ralph," "Bill," and "Bob" were used. To rule out the possible interpretation that the conditioning of attitudes might depend upon awareness, the 17 aware subjects were excluded from data analysis. In order to maintain a counterbalanced design, 4 other subjects were randomly eliminated. Regarding attitude conditionability in relation to subject awareness, Staats and Staats concluded that

while these words were different, they all had an identical evaluative meaning component . . . in each experiment there was significant evidence that meaning responses had been conditioned to the names without Ss' awareness [ p. 40 ].

In an unpublished doctoral dissertation, Prestholdt (1969) was successful in operantly establishing attitudes toward cartoons in summer camp children. In one free-operant conditioning session the children read cartoons and expressed their attitudes. Social reinforcement for correct attitude statements was provided; punishment or nonreinforcement for incorrect attitude statements was also manipulated. During session two, the children silently read three sets of cartoons
similar to the original ones. At the completion of that reading, the children expressed their cartoon attitudes on a questionnaire.

The results indicated that social reinforcement increases the frequency of "correct" attitude statements and leads to the acquisition of a "real" attitude. The stimulus control exerted by the attitude object generalized to similar attitude objects [p. 3670-A].

In a 3 X 3 factorial experiment involving 135 undergraduate male subjects and 1 female graduate student functioning as a confederate, Kaplan and Olczak (1970) obtained a linear relationship between three levels of interpersonal attitude similarity and three levels of interpersonal reinforcement. In the first part of the experiment, the subject and confederate completed an attitude scale (Byrne & Rhamey, 1965) in separate rooms. The confederate's scale was completed so that it agreed 100%, 50%, or 0% with the subject's scale. In the second part of the experiment, the subject and confederate were placed in an interpersonal situation where the confederate "won" a coin-toss and was appointed as the experimenter. The confederate and subject were told that the subject was to cross out as many designated letters from a large page of prose as he could within a 25-second trial period. The confederate rewarded or punished the subject's efforts with poker chips which could later be exchanged for money or cigarettes. There were six similar trials conducted. During each trial the confederate rewarded according to a prearranged schedule of 100%, 50%, or 0%. Following task completion, and after being told that the confederate had positively evaluated the subject,
subjects completed the Interpersonal Judgment Scale (Byrne & Rhamey, 1965). A correlation of .92 was obtained between attraction scores and the weighted positive reinforcements. A weight of 3 was assigned to each reinforcement, and a weight of 1 to each attitude similarity statement. Kaplan and Olczak conclude that "the demonstration of noninteractive additivity of positive reinforcement due to direct reward and attitudinal agreement is suggestive of the efficacy of applying a linear averaging model to attraction [p. 188]." Those findings are also indicative of the powerful effects of verbal and token reinforcements on interpersonal liking.

In an experimental study "based upon the belief that behavioral research in a controlled situation has implications for the therapeutic and counselling professions [Wandzek, 1969, p. 407]," Wandzek was successful in operantly modifying specific educational interests after two interviews. In a pre- and posttest situation, 151 students were randomized into experimental and control groups for each of the following areas: (a) Fine and Applied Arts Interest, (b) Physical and Biological Science, and (c) Social Science. Form A of the Oliver (1962) Educational Interest Inventory was used for the pre- and posttest while forced-choice questions from Form B were used during the treatment. Experimental and control subjects met individually with the experimenter. During the two interview situations "E did not speak to control Ss or show any behavior that might be reinforcing, regardless of their choices [p. 408]." During the interview situations experimental subjects were reinforced for their emission of the experimenter-determined "correct" choices by
"mmm-mmm," "good," "all right," and "fine." The pretests were used as covariates and following that adjustment, significant differences were found between experimental and control subjects in the Fine and Applied Arts groups (p = > .05). Although significant differences between experimental and control groups in the other two areas were not obtained, Wandzek stressed that "probably the most important findings were that all experimental groups showed greater net gains than control groups and that some Ss showed marked retention on posttest and retest [p. 411]." Wandzek suggests that future operant research in interest modification might use more positive reinforcers, and other dependent variables so that the "findings of such research would be more readily generalizable to behavioral changes by clients who receive positive reinforcement in counseling [p. 411]."

**Methodological Problems in Cognitive Conditioning**

The failure of some studies (Fagan, 1970; Gold, 1971) to operantly produce changes in self-concept appears to be related to the difficulty in finding and manipulating reinforcing stimuli. Second, to increase the validity of treatment methods when extending operant conditioning principles from the laboratory to a social environment, Azrin, Holtz, Ulrich, and Goldiamond (1961) have advised the use of a high degree of control, simple and accurate response definition, control of experimenter expectancies, objective programming and recording equipment, and guarding against data falsification. A third problem connected with experimentally induced success or failure pertains to the measurement of self-evaluations. Wylie (1968) holds that self-esteem changes "are most likely to involve
self-ratings on the experimental task itself, or on the characteristic which has been evaluated, and are least likely to involve reports on self-regard [p. 777]." A fourth problem involved in self-concept research relates to the validity of self-report personality assessment instruments. For the past 30 years researchers have been plagued by "social desirability" confounding variables distorting test results. The response distortion can be produced by a respondent's tendency to agree with positively worded items (Cronbach, 1946), or the response distortion can be viewed as a trait associated with defensiveness and a need for approval (Crowne & Marlow, 1960). Arlin (1976) investigated possible relationships between self-concept (SC) and social desirability (SD). Comparing causal priority of SC, causal priority of SD, and no causal priority, his results were in support of "those theorists who warn of the need to partial out the confounding influence of SD from such scores as the Minnesota Multiphasic Personality Inventory, the Tennessee Self Concept Survey, and other Personality Measures [p. 271]." In summary, it would appear that studies investigating the prediction and control of self-esteem should employ operationalized variables, operationalized procedures, carefully selected molecular dependent variable measures, and statistical control of SD.

**Expectancy Theory Vs. Reinforcement Theory**

Theoretically, operant conditioning should relate to the "locus of control of reinforcement" concept. Rotter (1975) has stated that the concept pertains to a "generalized expectancy [p. 57]; Phares (1973) has advised that locus of control is a "trait-like concept [p. 5]." The internal-external control of reinforcement
(I-E) expectancy concept developed in Rotter's (1954) social learning theory was presented by Rotter (1966) as a scale. Internalizers are believed to expect, or anticipate, a relationship between their behavior and successes and failures. Externalizers are believed to expect, or anticipate, little or no relationship between their behavior and successes and failures. The differences between reinforcement theory and expectancy theory are pronounced in that "reinforcement may 'stamp-in' behavior, but only when the connecting link is perceived by the individual [Phares, 1973, p. 2]." In other words, whereas expectancy theory holds selective perception primary and reinforcement secondary in behavior prediction and control, reinforcement theory would hold reinforcement primary and selective perception secondary in behavior prediction and control. A further difference between reinforcement theory and expectancy theory pertains to the issue of behavioral specificity vs. behavioral generality. Reinforcement theory holds that specific behaviors are topographically and functionally related to specific environmental variables. Expectancy theory holds that

I-E expectancies cut across need areas in the sense that they apply not just to a single area of one's life but to several. In brief, an individual is presumed to have a generally internal orientation not just in the academic area, but also in areas such as social relationships, vocational areas, etc [Phares, 1973, p. 3].

From the behaviorist's perspective, scores on such a personality measure reflect the kinds of contingencies (reward systems) which an
individual is more likely to respond to. A person scoring low in locus of control (internalizer of reinforcement) would find aversive and avoid social situations in which contingencies outside his control were in effect. Since "self-concept" has generally been treated as a "relatively fixed and stable" entity (Fitts, 1972, p. 3), reinforcement theory would have to be considered theoretically more efficient than expectancy theory if self-esteem (an evaluative aspect of self-concept) could be rapidly changed in spite of its assumed trait-like expectancy status.

Internalizer-Externalizer Characteristics

Defensive externals vs. congruent externals. Rotter (1975) has presented several problems connected with I-E research which relate to the present experiment:

1. "To make a locus of control prediction, one must either control reinforcement value or measure it, and systematically take it into account [p. 59]." Since the research did not involve the traditional operant design (N = 1), the event in the research referred to as a "reinforcing stimulus" was not functionally defined. To have defined 63 equally reinforcing stimuli for 63 different individuals who participated in the research, and to have controlled the variety of deprivation levels relevant to the reinforcing event for each subject at the same time, was beyond to scope of a doctoral dissertation. However, in keeping with Rotter's recommendation the research did operationalize and systematically account for two classes of reinforcing events. Those will be treated more fully under "Treatment Variable Definition."

2. Another "problem in interpreting locus of control scores has to do with the meaning of externality on the I-E scale . . . two
different groups [ were ] suggested by the high variability of the external as compared to internal subjects . . . a fact later strikingly confirmed by Hersch and Scheibe (1967) [ p. 64 ]." Rotter believes that the Interpersonal Trust Scale (Rotter, 1967) "can help select these two different kinds of externals and that differential predictions can be made regarding their behavior in a variety of situations [ Rotter, 1975, p. 65 ]."

3. "In order to understand or make predictions regarding the relationship of internal-external test behavior and some other criteria, it is important to make a careful theoretical analysis of the criterion behavior and its possible relationship to defensive versus congruent externality [ Rotter, 1975, p. 65 ]."

Problems 2. and 3. are similar in the sense that an externalizer discrimination should be accomplished prior to hypothesized predictions concerning subject behavior and/or expectancies regarding a specified criterion behavior. The present research performed such a discrimination and accordingly stated hypotheses in reference to a specified criterion behavior. Suggesting that the I-E theoretical formulation may be too simplistic and nondiscriminating for externals, Hersch and Scheibe (1967) wrote:

Individuals scoring low on the I-E scale (internals) are more homogeneous on their test performances than are high scoring subjects. This may suggest a diversity in the psychological meaning of externality. For example, one may be an external individual because he is in fact physically or intellectually weak in relation to those around him. On the other hand, a
person may describe himself as an external because he is in a highly competitive social situation, where the actions of others may have great relevance for the success of his own efforts. Both of these orientations may be described as simultaneously realistic and pessimistic, yet there are other possible conditions that could be antecedents to an external orientation. If a person believes in luck or fate, and if he further believes that these external forces are on his side, he may accurately describe himself as an external. Further, a person may develop feelings of persecution, with or without reason. Both of these orientations would be described as relatively unrealistic, while the former would be optimistic and the latter pessimistic. These various possibilities are consistent with the findings of diffuseness in the self-descriptions of externals [pp. 612-613].

Prociuk and Breen (1975) advise that the results from many previous studies employing the I-E formulation would be suspect where defensive externals were not differentiated from congruent externals, and that specifically "in terms of academic performance, any potential differences between internals and externals might have been confounded by the relatively high level of achievement of defensive externals [p. 550]." Prociuk and Breen employed the Internal, Powerful Others, and Chance scales (Levenson, 1972) to discriminate the two types of externals. They are described as follows:

Defensive externals may be identified as those individuals who believe that powerful others (e.g., professors) are
responsible for their reinforcements (e.g., grades) but who tend to behave somewhat similarly to internals, regarding reinforcement as primarily obtained through their own effort [ p. 550 ].

Congruent externals, on the other hand, may be identified as those individuals who possess the belief that their level of academic performance is determined by luck, chance, or fate . . . thus achieving a lower degree of academic success compared to either defensive externals or internals [ p. 550 ].

Defensive externals [ would be ] . . . somewhat similar to internals [ in that they are ] achieving, industrious, [ and ] would be more successful academically than congruent externals . . . They would, however, defensively account for failure by externally controlled attitudes . . . In comparison to internals, however, defensive externals would demonstrate a somewhat lower level of academic performance, since they adopt defensive externality as an anxiety-reducing measure while internals tend to respond to anxiety with task-oriented solutions . . . congruent externals [ are individuals ] whose behavior is consistent with their external "world view" [ p. 549 ].

In a correlational study involving 86 undergraduate women who had taken the I-E scale, Interpersonal Trust Scale, and the Motive to Avoid Success scale, Thurber and Friedläi (1976) found the following:

(a) Individuals with high scores on the I-E scale (congruent
externality) can potentially attribute undesirable experiences to chance or fate and need not feel personally accountable for success attainment. (b) Women who maintain a low sense of interpersonal trust (so-called defensive externality) can hypothetically blame other people (e.g., professors) for their success. (c) Internal high trust women, lacking an inherent defensive belief system, may be inclined toward repression and denial in response to induced stress [p. 141].

**I-E differences in relation to persuasion.** A number of studies (Getter, 1966; Gore, 1962; Strickland, 1965) indicate that internals are resistant to demands of subtle and ambiguous tasks involving persuasion when such tasks may be interpreted by subjects as intending to influence them without their knowledge. Internals like to initiate and control reinforcement contingencies; they do not like others to initiate reinforcement contingencies for them, or to have others control them through reinforcement contingencies. When the internal discovers the contingencies of subtle and ambiguous tasks, he more than the external, will deny influence "almost as if they were saying, 'Aha, I know what you are trying to do, and I will not cooperate!" In short they were unwilling to give up control of their own behavior [Phares, 1973, p. 10]."

Ude and Vogler (1969) reported subject awareness of correct response contingencies as not related to rapidity of learning the correct sequence of two flashing lights; it was noted that during the experiment internals did more contingency testing than did externals. Although Strickland (1970) found no overall differences in verbal conditioning between internal and external subjects, aware internals
showed less conditioning than either unaware internals or the externals.

In an interesting variation of the Greenspoon (1955) experiment, which also related subtle persuasion and task ambiguity to I-E conditionability and awareness, Doctor (1971) obtained significant I-E differences in the emission frequency of sentences beginning with "I" and "We." Those differences were obtained through the experimenter established contingency, "good." The 2 by 2 balanced factorial design consisted of 17 internal subjects, 17 external subjects, 8 internal student experimenters, and 8 external student experimenters. The experiment consisted in having experimenter-subject pairs construct sentences from the 80 stimulus cards (Taffel, 1955). Each card contained six random ordered pronouns (I, We, He, She, You, and They) and a different past tense verb. Baseline data was collected during the first 20 trials. During the remaining 60 trials, the experimenters introduced the "good" contingency. Doctor summarized his results as follows:

As predicted, "external" control subjects, selectively reinforced in a sentence construction task, evidenced significantly greater performance gains than "internal" subjects. When reports of awareness were used to further subdivide subjects, it was found that aware externals accounted for the conditioning effect whereas aware internals, unaware subjects, and controls were comparable and showed essentially no change in performance. These differences were interpreted as being due to the internal's resistiveness
to subtle forms of influence [ p. 550 ].

Biondo and MacDonald (1971) question the findings (Getter, 1966; Gore, 1962; Strickland, 1965) that internals are more resistant to subtle or covert influence than to overt influence. Whereas, the former is seen as removing the option to comply or resist, the latter is seen as giving the option to comply or resist.

In a study originating from a critical review of Gore's (1962) dissertation, Biondo and MacDonald (1971) conclude that "it would seem prudent to refrain from citing the results of Gore's experiment as evidence in support of the notion that "I"s react against subtle, but not overt, influence attempts [ p. 417 ]." Biondo and MacDonald's study related locus of control to influence level; 198 undergraduate students participated. Subjects were first classified as internal, internal-external, and external. Each classification was then subdivided into no influence, low influence, and high influence groups. The experimental task pertained to getting student opinions about a new grading system to be adopted by the college. Since the subjects were students at that college, the task would be considered one of average to high involvement. Examples of the three types of influence contained on the mimeographed sheets which contained information about the grading procedure are as follows:

(a) The no influence communication differed from the previous communication only in that it contained a bit more of the same kind of information.

(b) The low influence communication ended with the statement that, "This grading procedure has been widely accepted at
other universities and appears to be one of the best ever used."

(c) The high influence communication ended with, "Taking everything into consideration, it is obvious that this is a very good procedure. I don't see how you have any choice but to rate this procedure highly [ p. 412 ].

Biondo and MacDonald (1971) reported numerous statistics; the more salient results pertaining to the relationship between overt and covert influence, locus of control orientation, and attitude change are reported as follows:

In general, these findings could be summarized by saying that internals conformed under both levels of influence. On the other hand, internals seemed to be negatively influenced or showed reactance under high-influence only. It should be noted that the difference for internals, between no- and high-influence conditions was marginal (p < .10, two-tailed test). Additional research on this question is certainly needed, and this result should be treated with caution until such times as that research is done [ p. 415 ].

Second, it has been suggested that attitude change is more likely to take place under low ego-involvement conditions than under high ego-involvement conditions (Sherif & Hovland, 1961). The influence area used in this experiment was selected as one that would be involving. To the extent that it was, and to the extent that attitude change was in fact reflected in the subject's ratings of the grading procedure,
implications of these results seem clear. Especially so when we look at the results obtained in the high-influence condition—which probably bears closer resemblance to traditional attitude change manipulations than does the low-influence condition. In the high-influence condition, we find that externals and internals moved significantly in opposing directions [pp. 417-418].

I-E differences in relation to failure. I-E differences have been found in relation to failure. One of the first studies relating locus of control to failure was conducted by Efran (1963) who noted that individuals toward the internal dimension would forget failures while more externally-oriented subjects would rationalize failures. Failure moreover, according to Efran, would be considered more threatening to an internalizer than to an externalizer. In a similar vein, Lipp, Kolstoe, James, and Randall (1968) found that physically disabled externals evidenced lower recognition thresholds for pictures of physically handicapped persons than did physically disabled internals. Those results further indicate that externals are less responsive to threat since they deny self-responsibility. Ray and Katahn (1968) have factor analyzed relationships among the Mandler Test Anxiety Questionnaire (MAS), and I-E scale noting the three scales were assessing conceptually different variables which correlated with one another but with no hidden anxiety measures in the I-E scale. Davis and Davis (1972) found that internals tended to blame themselves for failure more than did externals; the two groups did not differ in taking credit for success. They indicate their
findings support the proposition that an external orientation may serve a defensive function. They further indicate that future researches, especially those involving achievement motivation in academic achievement, might usefully distinguish between the two kinds of externals. Houston (1972) had I-E subjects perform on the Digits Backwards Test from the Wechsler Adult Intelligence Scale under two shock conditions.

1. In the unavoidable-shock subjects "were told that there was no way of avoiding an electric shock which would occur randomly while they performed a memory task [ p. 250 ]."

2. In the avoidable-shock condition subjects "were told that receiving or avoiding an electric shock was contingent on their performance on a memory task [ p. 250 ]."

In situations congruent with generalized I-E expectancies (internals in the avoidable-shock condition; externals in the unavoidable-shock condition), subjects made fewer mistakes than when placed in situations incongruent with their I-E beliefs. Houston's two conclusions were pertinent to the present research; the first supported expectancy theory, and the second supported findings that internalizers evidence more state anxiety than externalizers:

1. "Subjects performed better in situations in which there was congruence between their beliefs about locus of control in general and their beliefs about the locus of control in the specific situation in which they were working [ p. 255 ]."

2. Subjects who characteristically see themselves as being in
control of events in their lives (as measured by Rotter’s, 1966 Locus of Control scale) became more physiologically aroused under stress than those who see control of events in their lives as being external. This finding may be attributed to the possibility that the Locus of Control scale measures defensiveness [p. 255].

Congruent externals were not discriminated from defensive externals in the Houston study.

Phares (1973) has offered the following explanation for the greater internalizer anxiety following failure than for externalizers:

One possibility is that the reason externals generally show higher anxiety levels on a fairly chronic basis is that they recognize the vulnerable position in which their external belief placed them. However, it may also be that the immediate, situational threat is greater for the internal (given his belief in personal responsibility) which leads to a rise in anxiety and a consequent need to forget failures in order to reduce discomfort. However, as the internal’s belief in his capacity to control events begins to assert itself, the anxiety drops below that which is chronically characteristic of the external [p. 15].

**I-E theory in relation to learning history.** I-E belief expectancy, although essentially a cognitive behavior mediator concept, has been seen (Phares, 1973) as being related to individual learning history:

As with generalized expectancies for success, the more specific experience the individual has in a given situation,
the less influence generalized expectancies will have; the more novel a situation, the greater will be the influence wielded by general expectancies [p. 4].

Referring to situational familiarity and expectance, Hamsher, Geller, and Rotter (1968) state that "a new situation unique to the individual will involve a greater component of generalized expectancy than one that is familiar [p. 211]." These expectancy predictions would seem a combination of Tinklepaugh's (1928) reward expectancy findings and Harlow's (1949) learning set research. Tinklepaugh demonstrated that his "hungry" monkey subject preferred banana to lettuce; when the lettuce was substituted for the banana, the monkey began "searching behavior" indicative of a specific reward expectancy. Even though Harlow did not use the term "general expectancy," his research was successful in demonstrating that the behavioral solution of a novel problem involves "learning to learn, this transfer from problem to problem which we call the formation of a learning set [p. 53]."

Harlow has written that the determination of a learning set is "a highly predictable, orderly process which can be demonstrated as long as controls are maintained over the subjects' experience [p. 53]." Apparently in some agreement with current trait-expectancy theory, Harlow adds that "a learning set once formed determines in large part the nature and direction of stimulus generalization [p. 64]."

Although there is similarity between expectancy theory predictions and behavior theory predictions in that both views measure reliable behavior, the essential difference seems to lie in the
importance each theory is willing to give to the relative determin-
istic functions of cognitive vs. environmental variables. Expectancy
theory seems to place a greater importance on cognitive variables
determining behavior across situations; behavior theory seems to
place a greater importance on response contingency variables deter-
mining behavior in specific situations.

Personality descriptions. Hersch and Scheibe (1967) correlated
the I-E scale with the CPI and the ACL. Their findings, following a
Chi-square analysis for each of the 300 ACL adjectives, were as follows:
On the CPI the internal scorer is higher on the Dominance,
Tolerance, Good Impression, Sociability, Intellectual
Efficiency, Achievement via Conformance, and Well-Being
scales. The converse of these relationships may be said to
hold for the external scorer [ p. 612 ].

As might be predicted, the internal scorer seems to be
best characterized as high on the ACL measures of Defensiveness,
Achievement, Dominance, Endurance, and Order. On the other
hand, the internal scorer is lower on the ACL scales reflect-
ing Succorance and Abasement [ p. 612 ].

Twenty-three adjectives were checked significantly more
often by the internal individual (p ≤ .05) and present a
fairly coherent description of him, at least as he sees him-
self. The adjectives more frequently checked by internals
were: clever, efficient, egotistical, enthusiastic, independ-
dent, self-confident, ambitious, assertive, boastful, con-
ceited, conscientious, deliberate, persevering, clear-thinking,
dependable, determined, hard-headed, industrious, ingenious, insightful, organized, reasonable, and stubborn. On the other hand, only one adjective was checked significantly more often by the externals—self pitying [p. 612].

Joe (1971) summarized a variety of correlational studies relating locus of control to personality characteristics:

The findings depict externals, in contrast to internals, as being relatively anxious, aggressive, dogmatic, and less trustful and more suspicious of others, lacking in self-confidence and insight, having low needs for social approval, and having a greater tendency to use sensitizing modes of defense [p. 623].

Phares (1973) summarized research relating adjustment and defensiveness to locus of control as follows:

Internals [tend] to be better adjusted, less angry, hostile, or depressed, and less likely to turn to drinking behavior. On the other hand, externals seem to be more lacking in interpersonal trust, more suspicious, and lower in self-esteem.

Some evidence points to a greater suicide proneness in externals, and several studies have pointed out that psychotics, and other pathological groups manifest higher external scores than do more normal groups.

In general, the preceding research has shown linear relationships between I-E and various pathological indices. As externality increases so too does the anxiety and potential pathology [p. 14].
Phares (1973) has suggested the following relationship between locus of control, success and failure, and "pride" (self-esteem):

An internal belief system should, of course, lead to reactions of pride following success or a variety of negative emotions following failure. In either case, the effects on subsequent achievement behavior are likely to be positive. The belief system of an external, however, denies him either emotional experience, and this perhaps provides him little basis for the pursuit of excellence. After all, if one ascribes success to outside forces, why should one either take pleasure in its attainment or make further efforts to achieve it [p. 13]?

Statement of the Problem

Rotter (1975) has maintained that "the potential for a behavior to occur in any specific psychological situation is a function of the expectancy that the behavior will lead to a particular reinforcement in that situation and the value of that reinforcement [p. 57]."

Presumably if "expectancies" are "confirmed" over a period of time, level of self-esteem should increase and vice versa. The present research involved experimentally induced success and failure contingent upon students' responses to 30 social-situation movie slides portraying interpersonal problem-solving situations. Students responded to each slide by indicating whether the designated slide character was behaving in a "socially adequate" or "socially inadequate" manner. The relationship between the social-situation movie slides and responding was considered an equally practiced task (criterion behavior) since all students had behaved interpersonally about the
the same number of years. The social-situation movie slides were considered neutral with regards to self-responsibility; i.e., none of the slides contained stereotyped social "winners" or social "outcasts". Both classes of response contingencies were randomized in respect to specific slides; i.e., no discernible pattern for correct or incorrect responding was employed.

Reinforcement theory, as opposed to expectancy theory, would specify an increase or decrease in measured self-esteem following reinforcement or aversive control for internalizers, defensive externalizers, and congruent externalizers in the experimental social situation. Expectancy theory would tend to make differential predictions for the self-esteem changes for internalizers, defensive externalizers, and congruent externalizers; those predictions are latter stated in the form of hypotheses. It is important to note that to fairly test behavior theory predictions, pre-established powerful reinforcers as well as the relative deprivation levels would have to be employed. However, since it was not logistically feasible to operationalize such events in the present experiment, the chance of affirming the trait-expectancy theory over behavior theory was increased; that was proper since the researcher was a behavior theorist and biased against a trait-expectancy view. Thus by designing the research in favor of the trait-expectancy view, experimenter bias was somewhat controlled. Therefore, it was reasoned that if less evidence for the trait-expectancy theory was found, a reinforcement theory must be considered a more parsimonious explanation of self-esteem. It must be pointed out; however, that in spite of the experimentally designed
 biases against behavior theory (lack of functionally defined reinforcers and aversive stimuli, and the very short experimental treatment period), and that there is research indicating that behavior theory could emerge the victor.

**Precedent for a Short Laboratory Treatment**

Burtle, Whitlock, and Franks (1974) used such behavioral techniques as relaxation, desensitization, and assertive training on 16 patients admitted for treatment at the Women's Alcoholic Unit at the New Jersey Neuropsychiatric Institute. The behavioral techniques were used to promote social interaction, lessen guilt, and to promote self-respect. Following eight training sessions, lasting 1- to 1-1/2 hours each, significance levels ranging from .005 to .05 were obtained on the following five scales of the *Tennessee Self Concept Scale*: Total Positive, Identity, Self-Satisfaction, The Moral-Ethical Self, and Behavior. The researchers again administered the *Tennessee Self Concept Scale* 16 weeks after patient re-entry into the community, and found the treatment gains had eradicated or diminished which was taken to "demonstrate the power of society over deviant women [p. 38]." Those findings would be congruent with behavior theory predictions in two ways:

1. Cognitive self-aspects of the patients changed as evidenced by the Tennessee score.

2. Cognitive self-aspects of the patients changed again as the patients returned to their normal environments with the previous contingencies.

An interesting study by Muller and Spuhler (1976) considered
self-concept first as a dependent variable produced by reinforcement contingencies, and second as an independent variable functionally related to specific task achievement. College freshman volunteers for a new method of teaching foreign languages were given a self-concept scale and a language aptitude test. Group one was then falsely told they were in the top 5th percentile with regards to foreign language ability, and group two was falsely told they were in the bottom 5th percentile with regards to foreign language ability. Group three, control subjects, were given no knowledge of pretest results. Significant results were obtained between the "self-concept lowered" group and the control group. Significant results were not obtained between the "self-concept raised" group and the control group. All subjects then participated in a short verbal learning task. The self-concept raised group "learned the paired-associate task faster than the control; the [self-concept lowered] group learned more slowly than the control [p. 93]." Muller and Spuhler (1976) conclude by asking, "can the self-concept/achievement phenomenon be accounted for by using more basic concepts of learning and performance [p. 93]?

The present research also considered the questionable relationship between learning and self-concept as well as locus of control and social desirability subject variables which have been held to be differentially related to the effects of reinforcement and punishment in raising or lowering self-concepts.

**Statement of the Purpose**

The purpose of the present research was to investigate changes in self-esteem following an experimental social situation in which
contrived variable ratio social reinforcement or variable ratio social aversive control will be made contingent upon college students' responses to "social-situation" movie slides. It was predicted that reinforcement theory would account for a greater proportion of systematic variance than would expectancy theory.

Notation for Hypotheses

The following notation was used in the statement of the hypotheses:

1. Internals introduced to response contingent intermittent positive social reinforcement \((I_r)\).
2. Internals introduced to response contingent intermittent aversive control \((I_a)\).
3. Internals in the first control group, introduced to the slides without response contingencies \((I_c)\).
4. Defensive externals introduced to response contingent intermittent positive social reinforcement \((DE_r)\).
5. Defensive externals introduced to response contingent intermittent aversive control \((DE_a)\).
6. Defensive externals in the second control group, introduced to the slides without response contingencies \((DE_c)\).
7. Congruent externals introduced to response contingent intermittent positive social reinforcement \((CE_r)\).
8. Congruent externals introduced to response contingent intermittent aversive control \((CE_a)\).
9. Congruent externals in the third control group, introduced to the slides without response contingencies \((CE_c)\).
Summary of Research Relevant to Hypotheses

Reinforcement theory. It has been shown that debilitating anxiety (not functionally related to the termination of an aversive stimulus or the production of a reinforcing stimulus) can be produced in non-human animals through the operant and/or respondent manipulation of an animal's environment (Warner, 1932; Estes & Skinner, 1941; Sidman, 1953). Sidman's (1964) theoretical extension of those anxiety-producing environmental manipulation procedures to humans appears to have been justified by subsequent research (Kanfer & Phillips, 1970, pp. 333-358). Since perceived debilitating anxiety and self-esteem are typically inversely related (Skinner, 1953, p. 179; Staats & Staats, 1963, pp. 265-266), it would appear that temporary conditioned aversive verbal control would temporarily produce debilitating anxiety and a temporary decrement in self-esteem for internalizers, defensive externalizers, and congruent externalizers. Also, since the effects of positive reinforcement are typically inversely related to anxiety and positively related to self-esteem (Skinner, 1953, p. 82), the self-esteem of positively reinforced college students should increase.

Expectancy theory. Since the present study employed mild to moderate social reinforcement and punishment in the laboratory situation, it would be predicted that the self-esteem of internals (whether reinforced or punished) would not be influenced. Essentially internals do not like to be controlled by others through reinforcement and they tend to deny having been influenced (Doctor, 1971; Getter, 1966; Strickland, 1965). Expectancy theory would predict that moderate social reinforcement or moderate social aversive control would not change the
level of self-esteem for internalizers.

Reinforced defensive externals would be predicted to behave similarly to reinforced internals (Prociuk & Breen, 1975) except that the defensive externals would probably take less pleasure in their success (Phares, 1973). Expectancy theory would predict that moderate social reinforcement would not change the level of self-esteem for defensive externalizers.

Aversively controlled defensive externals initially tend towards self-pity (Hersch & Scheibe, 1967). The defensive external's self-pity and anxiety would tend to be dissipated through the attribution of responsibility to the experimenter; i.e., the low-trusting students would blame their failure on the experimenter (Prociuk & Breen, 1975). By contrast effect (the subject views the experimenter as not worthy; in contrast, the subject views himself as quite worthy) then, the level of self-esteem for defensive externals could even increase. Expectancy theory would predict that moderate social aversive control would tend to increase the level of self-esteem for defensive externalizers.

Reinforced or aversively controlled congruent externals would be expected to behave according to reinforcement principles. Unlike internals, they would not be resistant to manipulation. Unlike defensive externals they would not project blame on to powerful others. If any attribution of responsibility would be evidenced by congruent externals, they would blame the experiment itself. Expectancy theory would predict that moderate social reinforcement would increase the level of self-esteem for defensive externalizers; moderate social aversive
control would tend to decrease the level of self-esteem for congruent externalizers.

**Statement of Hypotheses**

Hypotheses 1, 2, 4, and 5, contrast reinforcement theory predictions with expectancy theory predictions and serve to evaluate the relative efficiencies for those two theoretical perspectives. Those hypotheses are stated in favor of reinforcement theory. For hypotheses 3, and 6, reinforcement theory and expectancy theory predict the same direction of differences. Those two hypotheses allow for statistical comparisons pertaining to the predictive similarity of the two theoretical perspectives. All six hypotheses were tested at the .05 level of confidence.

1. Reinforcement theory, and not expectancy theory, will account for the "social self" differences between reinforced internals and control internals.
   
   a. Reinforcement theory \( I_r > I_c \)
   
   b. Expectancy theory \( I_r = I_c \)

2. Reinforcement theory, and not expectancy theory, will account for the "social self" score differences between reinforced defensive externals and control defensive externals.
   
   a. Reinforcement theory \( DE_r > DE_c \)
   
   b. Expectancy theory \( DE_r = DE_c \)

3. Reinforcement theory and expectancy theory will predict the same "social self" score differences between reinforced congruent externals and control congruent externals.
   
   a. Reinforcement theory \( CE_r > CE_c \)
b. Expectancy theory \( CE_r > CE_c \)

4. Reinforcement theory, and not expectancy theory, will account for the "social self" score differences between aversively controlled internals and control internals.
   a. Reinforcement theory \( I_a < I_c \)
   b. Expectancy theory \( I_a = I_c \)

5. Reinforcement theory, and not expectancy theory, will account for the "social self" score differences between aversively controlled defensive externals and control defensive externals.
   a. Reinforcement theory \( DE_a < DE_c \)
   b. Expectancy theory \( DE_a > DE_c \)

6. Reinforcement theory and expectancy theory will predict the same "social self" score differences between aversively controlled congruent externals and control congruent externals.
   a. Reinforcement theory \( CE_a < CE_c \)
   b. Expectancy theory \( CE_a < CE_c \)
Chapter 3

Methodology

Design

On the basis of I-E scores and ITS scores, 21 students were assigned to each of the following groups: (a) internal, (b) defensive external, and (c) congruent external. The 21 students comprising each of the three groups were then randomly assigned into two treatment conditions and one control condition; each interaction sub-group contained 7 students. The "randomized factorial design" (Li, 1964, p. 357) has been described by Campbell and Stanley (1963) as "6. The Posttest-Only Control Group Design" which is diagrammed:

\[ R \times O_1 \]
\[ R \quad O_2 \]

Since reasons specific to the present research are given for the preference of Design 6 over Design 4 (Pretest-Posttest Control Group Design) and Design 5 (Solomon Four-Group Design), a diagram of the extension of Design 6 is shown in Figure 1. The following reasons are given for preference of Design 6:

1. Both Design 4 and Design 5 are pertinent to research using pretests. The present research did not use pretests. Pre- and post-test difference scores "are usually less reliable than the scores from which they are calculated. Differences between the experimental and control groups can be not significant when in fact an effect is "substantial" (Kerlinger, 1973, p. 337)."
<table>
<thead>
<tr>
<th>Assigned variable</th>
<th>Treatment variables</th>
<th>Control groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive reinforcement</td>
<td>Aversive control</td>
</tr>
</tbody>
</table>

| Internal          |                     |               |                      |
|-------------------|---------------------|---------------|
| Defensive external|                     |               |                      |
| Congruent external|                     |               |                      |

Figure 1. Diagram of the extension of design 6.
2. Design 6 is "appropriate to all of the settings in which Designs 4 and 5 might be used, i.e., designs where true randomization is possible [Campbell & Stanley, 1963, p. 25]."

3. Design 6 as well as Designs 4 and 5 are listed by Campbell and Stanley (1963) as essentially controlling for the following eight internal sources of invalidity which can produce rival hypotheses for main effects (p. 8)—(a) "History, the specific events occurring between the first and second measurement in addition to the experimental variable [p. 5];" (b) "Maturation, processes within the respondents operating as a function of the passage of time per se (not specific to the particular events), including growing older, growing hungrier, growing more tired, and the like [p. 5];" (c) "Testing, the effects of taking a test upon the scores of a second testing [p. 5];" (d) "Instrumentation, in which changes in the calibration of a measuring instrument or changes in the observers or scorers used may produce changes in the obtained measurements [p. 5];" (e) Statistical regression, operating where groups have been selected on the basis of their extreme scores [p. 5];" (f) "Biases resulting in differential selection of respondents for the comparison groups [p. 5];" (g) "Experimental mortality, or differential loss of respondents from the comparison groups [p. 5];" and (h) "Selection-maturation, interaction, etc., which in certain of the multiple-group quasi-experimental designs, such as Design 10, is confounded with, i.e., might be mistaken for, the effect of the experimental variable [p. 5]."

4. Campbell and Stanley (1963) have stated that Designs 4, 5, and 6 "do not control for unique intrasession history [p. 14]" which would allow any of the many nonprogrammed environmental
variables occurring during the experimental or control sessions to become rival hypotheses. They recommend the two following controls--(a) "control of intrasession history through testing students and animals individually [ p. 14 ]" and (b) "assigning the students and experimental periods at random to experimental or control conditions [ p. 14 ]." The present research employed random assignment to experimental and control groups; furthermore all experimental conditions, control conditions, and dependent variable measurements were individually administered.

5. Although Design 6 controls for testing as a main effect and interaction it does not measure them as does Design 5 and such measurement is tangential to the central question of whether or not X did have an effect. Thus, while Design 5 is to be preferred to Design 6 for reasons given above, the extra gains from Design 5 may not be worth the more than double effort [ pp. 25-26 ].

Campbell and Stanley (1963) recommend the use of covariates for two reasons--(a) to account for the interaction of X and some pretest ability (or untested, as in the case of Design 6) "thus exploring the generalizability of the finding more thoroughly [ p. 26 ]"; and (b) because "the statistical tests available for Design 4 are more powerful than those available for Design 6 [ p. 26 ]."

Considering the three relevant external sources of invalidity, the following experimental controls were employed:

1. Campbell and Stanley (1963, p. 8) have listed the first source of invalidity as being controlled by Design 6; it is described
as follows--

The reactive or interaction effect of testing, in which a pre-
test might increase or decrease the respondent's sensitivity
or responsiveness to the experimental variable and thus make
the results obtained for a pretested population unrepresenta-
tive of the effects of the experimental variable for the
unpretested universe from which the experimental respondents
were selected [ pp. 5-6 ].

2. The second source of invalidity has been described by
Campbell and Stanley (1963) as "interaction effects of selection
biases and the experimental variable [ p. 6 ]." Through the selection
of two assigned variables, one covariate, and a dependent variable,
all of which closely approximated normal distribution, an attempt was
made to diminish atypical interactions of selection biases and the
experimental variable. A further attempt to diminish that source of
invalidity was shown by sampling 10 different classes. The latter
attempt was held to be even more important because of increased
student heterogeneity during the summer session. However, as Campbell
and Stanley (1963) have written--

It is obvious that we are never going to conduct experiments
on samples representatively drawn from all United States
classrooms, or all world classrooms. We will learn how far
we can generalize an internally valid finding only piece by
piece through trial and error of generalization efforts
[ p. 19 ].

3. The third source of invalidity has been described by
Campbell and Stanley (1963) as the "reactive effects of experimental arrangements [p. 6]" and has been described as follows--

A most prominent source of unrepresentativeness is the patent artificiality of the experimental setting and the student's knowledge that he is participating in an experiment. . . . the procedures and experimental treatment are reacted to not only for their simple stimulus values, but also for their role as clues in divining the experimenter's intent [p. 20].

Presumably, even the posttest in a posttest-only Design 6 could create such attitudes. The more obvious the connection between the experimental treatment and the posttest content, the more likely this effect becomes [p. 21].

Attempts to reduce that source of invalidity were as follows--(a) The research was made credible and "life-like" by employing interpersonal social adjustment as an experimental task, and by supplying students with "social adequacy norms" which appeared to come from a scientific journal; (b) a double-blind procedure was used, no student was advised as to the actual purpose of the research, neither the confederate nor the experimenters were aware of any student's locus of control status; (c) the 18 "Social Self" self-esteem questions were imbedded in the 100 TSCS questions; and (d) each student completed a postexperiment suspicion test which helped to identify those students who had divined the purpose of the research.

Subjects

All subjects were selected from 18 sections of introductory
courses at Christopher Newport College. The students' mean ages were about 25.5 years for males, and 24.5 years for females. Most of the students had junior or unclassified status; about 40% were from the freshman, sophomore, and senior ranks. Students varied with regards to marital status, occupation, number of hours worked per week on a job, grade point average, and major area of academic interest. All students commuted from home.

**Apparatus**

**Experimental room.** Individual students were seated in front of a human operant console placed on a table. Slightly to one side and to the rear of the student was seated a confederate. The confederate was described as an expert counselor in the area of "social adequacy" research. The sound-proof operant conditioning room, measuring 6- by 6- feet and 8- feet high was illuminated by a 15-watt electric light.

**Operant console and programming equipment.** A noncommercial human console contained the following:

1. There were two single-pole, single-throw response push buttons labeled "adequate" and "inadequate" and these were mounted on the face of the console.

2. A Lehigh Valley model 253-03 interval timer was mounted on top of the console.

3. Several inches to the left of the timer was placed a re-set counter in front of a 28 VDC light housed in a green-colored lens. The response button labeled "adequate" was directly below that counter.
4. Several inches to the right of the timer was placed a re-set counter immediately in front of a 28 VDC light housed in a red-colored lens. The response button labeled "inadequate" was placed directly below the counter.

 Directly behind the console was located a model 750 Kodak carousel slide projector containing 30 "social situation" slides which were "flashed" onto a movie screen about 5 feet from the subject. The following sequence was programmed by standard Lehigh Valley electromechanical equipment located in an adjacent room. There were 30 forced-choice social situation slides presented in a fixed sequence. Each slide was presented for a maximum duration of 12 seconds. If a student failed to respond during the 12 second interval, the next slide was automatically presented. If a student responded during the 12 second interval, the illuminated slide terminated 1/2 second later and 1 of 3 events occurred during the 1-second intertrial interval: (a) the confederate, while looking at the student, emitted the word "right," (b) the confederate, while looking at the student, emitted the word "wrong," or (c) no response contingency.

 Assigned variable measurement. The Rotter (1966) Scale to Measure Internal Versus External Control (I-E) is a 29-item, forced-choice questionnaire (see Appendix A for a sample scale). Of the items used, six were "fillers" and the remainder measured beliefs pertaining to internal versus external control of reinforcement. Internalizers "have" an "expectancy" that their behavior is functionally related to reinforcement contingencies. Externalizers "have" an "expectancy" that the relationship between their behavior
and reinforcement is adventitious; they tend to attribute the occurrence of reinforcing events to chance, luck, fate, God's will, etcetera. A 1-month test-retest reliability from a sample of Ohio State University introductory psychology students yielded the following:

males, $r = +.60 \ (N = 30)$

females, $r = +.83 \ (N = 30)$

combined, $r = +.72 \ (N = 60)$

Rotter's (1967) Interpersonal Trust Scale (ITS) was used to discriminate defensive externals from congruent externals (see Appendix B for a sample scale). Interpersonal trust is defined by Rotter "as an expectancy held by an individual or a group that the word, the promise, or the verbal or written statement of another individual or group can be relied upon [p. 651]."

Rotter (1967) stresses the urgency for research in interpersonal trust; he indicates trust to be an important variable in adequate family relationships, health personalities, effective community relationships, delinquency, and psychotherapy. His theoretically based ITS sampled a wide variety of social objects and was written using a Likert format. The following three criteria were used for inclusion of an item in the final scale:

1. "The item had to have a significant correlation with the total of the other trust items with that item removed [p. 654]."

2. "The item had to have a relatively low correlation with the Marlowe-Crowne Social Desirability Scale score [p. 654]."

3. "Endorsement of the item showed reasonable spread over the
five Likert categories of (1) strongly agree, (2) mildly agree, 
(3) agree and disagree equally, (4) mildly disagree, and (5) strongly 
disagree [ p. 654 ]."

The final scale is a 40-item test including 25 items measuring 
trust and 15 filler items. There were 12 of the items which 
indicated trust for agreeing and 13 items indicated distrust for 
agreeing. The score range for this additive scale can range from 
125 (very high interpersonal trust) to 25 (very low interpersonal 
trust).

Rotter (1971) has stated that the scale "has an internal 
consistency of .76, and retest reliabilities for 5 weeks, 3 months,
and 7 months were, respectively, .69, .68, and .56 [ p. 446 ]."

Both construct and discriminant validity of the ITS were 
assessed (Rotter 1967, p. 662) by presenting the trust scale, socio-
metric scales, and the Marlowe-Crowne Social Desirability Scale to 
two fraternities (N = 73) and two sororities (N = 83) on the University 
of Connecticut campus. Split-half reliabilities for combined groups 
(N = 156) were found for the following sociometric scales:
(a) Dependency (.88), (b) Trust (.87), (c) Humor (.93), (d) 
Gullibility (.93), (e) Trustworthiness (.89), (f) Popularity (.95),
and (g) Friendship (.82). The ITS correlated significantly with 
Sociometric Trust (.37), Sociometric Trustworthiness (.31), and Self-
Rating of Trust (.29). No significant relationship was found between 
the ITS and the Marlowe-Crowne Social Desirability Scale.

Rotter (1971) describes the relationship between the I-E 
scale and trust as follows:
Alienation, in the sense of powerlessness, as measured by the Internal-External Control scale is significantly related to scores on the trust scale. Since both scales are questionnaires, method variance could account for the correlation. But the relationship remains significant and in the thirties in four large samples when social desirability is partialled out. In any case, it is logical that those who distrust would feel less ability to control and that those who felt that they could not control what happened to them would be somewhat lower in trust [ p. 446 ].

Hochreich and Rotter(1970, p. 212) have presented mean trust scores for college students for 8 yearly samples from 1964 to 1971. The scores have steadily declined from the September 1964 combined scores (male and female) of $M = 72.41$, and $SD = 10.90$ to the September 1971 combined scores of $M = 65.37$, and $SD = 9.60$. The decline in college student mean trust scores is especially interesting since Rotter (1975, p. 62) has advised that college student mean I-E scores since 1966 has risen from $M = 8$ ($SD \approx 4.0$) to $M \approx 11$. Those statistics would seem to indicate that American college students are developing expectancy beliefs that rewards and punishments are adventitiously manipulated by external powerful others--such an expectancy belief appears to be accompanied by a suspiciousness and defensive blaming of those authorities.

The similarities and differences between the two kinds of externalizers as evidenced by I-E scores and ITS scores can be summarized as follows:
1. I-E scores for defensive externals and for congruent externals are high in the direction of externality. This would conceptualize them as having belief expectancies that rewards and punishments are determined by fateful external sources.

2. ITS scores for defensive externals are lower than ITS scores for congruent externals; his means that defensive externals are not as trusting as are congruent externals. The defensive external would be conceptualized as having belief expectancies that he is "being manipulated by others, being at the mercy of chance factors and 'powerful others,' . . . [ he would tend to ] respond with marked suspiciousness toward a variety of authorities [ Hamsher, Geller, & Rotter, 1968, p. 213 ]."

The ITS scores can discriminate defensive externals from congruent externals and differential predictions made regarding behavior in specific situations. A good example is Rotter's (1971) summary of Boroto's (1970) unpublished thesis. Boroto investigating sex and guilt, accidentally found some interesting information relating to the ITS. Boroto "gave information" to subjects individually in a room containing two folders. Personal information pertaining to the subject was in one folder; the second folder contained "filthy pictures." With each subject, Boroto had to quickly leave the room to answer a telephone call. In so doing he would accidentally knock over the "filthy pictures" folder, scoop them up, replace them in the folder and quickly leave the room. The findings summarized by Rotter indicate three important characteristics of defensive externals:

1. Their behavior can be predicted from the ITS.
2. They demonstrate significantly less trust than either congruent externals or internals.

3. Unlike internals or congruent externals, the defensive external will deny that he is suspicious.

Rotter (1971) summarizes these findings as follows:

Those who looked at neither folder had a mean interpersonal trust score of 80, and those who looked at either of the folders averaged a score of 66. The difference is not only highly statistically significant, but is approximately 1.5 standard deviations different. The average score for those who looked at either folder was close to the mean of the larger population. It was those who did not look at either folder who were deviant in being unusually high on trust. Interestingly enough, in a later interview, about half of the suspects who had looked at the folders denied looking at them [p. 449].

Covariate measurement. Arlin (1976), as previously mentioned, advised researchers to "partial out the confounding influence of SD from . . . The Tennessee Self Concept Survey [p. 271]." Crowne and Marlowe's (1964) Social Desirability Scale (MC-SDS) was used for this purpose (see Appendix C for a sample scale). The MC-SDS is a 33-item, forced-choice questionnaire measuring response probability to the demand characteristics of a social situation. Scores can range from "0" (little or no social demand response tendencies) to "33" (very responsive to social demand characteristics). A person high "in" social desirability would tend to describe himself
in favorable or socially desirable terms in order to produce the approval of others. Test-retest reliability from a 1-month sample of Ohio State University introductory psychology students was, 

\[ r = + .88 \ (N = 57) \]

Assigned variable data was collected on a score sheet (see Appendix D).

**Social situation slides.** The social situation slides portrayed ambiguous (no definite answers) but credible (actual photographs) interpersonal situations dealing with themes of frustration, stress, conflict, and anger. One of the characters was labeled so that students could decide if the character was emitting a socially adequate response. Each slide contained a short sentence which explained what events led to the situation (see Appendix E for sample pictures). The final selection of the magazine pictures to be photographed was accomplished by perfect agreement between three psychologists' ratings on stereotype neutrality (see Appendix F for those rating scales).

**Treatment variable definition.** The confederate intermittently emitted the word "right" or "wrong" at specified times.

1. The conditioned aversive verbal stimulus was defined by the word "wrong."

2. The conditioned reinforcing verbal stimulus was defined by the word "right."

It must be reiterated that the words, "right" and "wrong" had not been functionally defined prior to the research to ascertain the relative degrees of positive or negative reinforcing value for each student with regards to the specific experimental task on the specific
day when each subject participates. Learning principles would predict, however, that for the majority of students (including the internal-external classification), the terms would constitute reinforcing stimuli in social situations (Staats & Staats, 1963, pp. 141-143, 154-157).

Dependent variable measurement. The Tennessee Self Concept Scale developed by Fitts (1955, published as a self-scoring scale [1964], and later in a computer scored edition [1970]) consists of 100 self-descriptive statements to which subjects respond on a 5-point scale from "completely true" to "completely false". The TSCS can be obtained commercially from Counselor Recordings and Tests, Nashville, Tennessee. There were 10 of the TSCS items taken from the MMPI L-scale; those items measure overt defensiveness. The remaining 90 items were drawn from a large pool of self-descriptive statements.

The standardization group from which the norms were developed was a broad sample of 626 people. The sample included people from various parts of the country, and age ranges from 12 to 68. There were approximately equal numbers of both sexes, both negro and white subjects, representatives of all social, economic, and intellectual levels from 6th grade through the Ph.D. degree. Subjects were obtained from high school and college classes, employers at state institutions and various other sources [Fitts, 1965, p. 13].

There are two different scoring and profiling systems available from the TSCS test booklet:

1. The Counseling Form deals with fewer variables and scores,
and is appropriate for self interpretation.

2. The Clinical and Research Form is more complex in scoring, analysis, and interpretation. It is not appropriate for self interpretation and appears more responsive toward psychopathological differentiation than for description of normal behavior patterns. Since the present study used normal college students as subjects and did not intend to differentiate the normals from the abnormals, the Counseling Form TSCS was used. From this form, 9 self-esteem scores were derived; a general level of self-esteem is obtained by summing all 90 items comprising the 8 self-esteem areas. The 9 self-esteem scales are described by Fitts (1965) as follows--

Total P Score. This is the most important single score on the Counseling Form. It reflects the overall level of self esteem. Persons with high scores tend to like themselves, feel that they are persons of value and worth, have confidence in themselves, and act accordingly. People with low scores are doubtful about their own worth; see themselves as undesirable; often feel anxious, depressed, and unhappy; and have little faith or confidence in themselves (p. 2).

Row 1 P Score—Identity. These are the "what I am" items. Here the individual is describing his basic identity—what he is as he sees himself (p. 2).

Row 2 P Score—Self Satisfaction. This score comes from those items where the individual describes how he feels about the self he perceives. In general this score reflects the level of self satisfaction or self acceptance. An individual may have very high scores on Row 1 and Row 3 yet still score low on Row 2 because of very high
standards and expectations for himself. Or vice versa, he may have a low opinion of himself as indicated by the Row 1 and Row 3 Scores yet still have a high Self Satisfaction Score on Row 2. The subscores are therefore best interpreted in comparison with each other and with the total P Score (pp. 2-3).

**Row 3 P Score--Behavior.** This score comes from those items that say "this is what I do, or this is the way I act." Thus this score measures the individual's perception of his own behavior or the way he functions (p. 3).

**Column A—Physical Self.** Here the individual is presenting his view of his body, his state of health, his physical appearance, skills, and sexuality (p. 3).

**Column B—Moral-Ethical Self.** This score describes the self from a moral-ethical frame of reference—moral worth, relationship to God, feelings of being a "good" or "bad" person, and satisfaction with one's religion or lack of it (p. 3).

**Column C—Personal Self.** This score reflects the individual's sense of personal worth, his feeling of adequacy as a person and his evaluation of his personality apart from his body or his relationships to others (p. 3).

**Column D—Family Self.** This score reflects one's feelings of adequacy, worth, and value as a family member. It refers to the individual's perception of self in reference to his closest and most immediate circle of associates (p. 3).

**Column E—Social Self.** This is another "self as perceived in relation to others" category but pertains to "others" in a
more general way. It reflects the person's sense of adequacy and worth in his social interaction with other people in general (p. 3).

Pertinent reliability coefficients for the TSCS Counseling Form were reported by Fitts (1965, p. 14) and are described in Table 1. It can be seen that the reliability coefficient for social self, reflective of 18 test questions, is considerably higher than total variability, column total, or row total.

Only the "Social Self" self-esteem score from the TSCS was computed; that measure will define the dependent variable. The reason for using that single measure of self in the present research involving "social adequacy" judgments as the experimental task has been previously stated. To reiterate, Wylie (1968) states that self-esteem changes "are most likely to involve self-ratings on the experimental task itself, or on the characteristic which has been evaluated, and are least likely to involve reports on global self-regard [ p. 777 ]."

Bentler (1972) has indicated that the internal consistency coefficients would doubtless be quite high considering the large correlations obtained between scale scores and other measures such as the MMPI scales. Another reason for such an expectation is the 29 variable intercorrelation matrix; the major subscores correlate highly, up to .91 [ p. 151 ].

Fitts (1965) reports correlations between "social self" and "identity" as .85, "social self" and "self-satisfaction" as .80 and "social self" and "behavior" as .85. The manual indicates that those
Table 1
Means, Standard Deviations, and
Reliability Coefficients

<table>
<thead>
<tr>
<th>Score</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Reliability^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total positive</td>
<td>354.57</td>
<td>30.70</td>
<td>.92</td>
</tr>
<tr>
<td>Identity</td>
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<td>Self satisfaction</td>
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<td>.80</td>
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</tr>
<tr>
<td>Row total variability</td>
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<td>5.76</td>
<td>.60</td>
</tr>
</tbody>
</table>

^a Reliability data based on test-retest with 60 college students over a 2-week period.
correlations may be spuriously high because of overlapping items (p. 16).

A favorable review by Suinn (1972) praises the content validity in that the test is seen as an extremely intriguing instrument that is the result of much painstaking work . . . the items in the original pool were derived from surveys on the literature on the self-concept . . . final items were selected by seven clinical psychologists who were asked to classify each item as to its fit with defined constructs . . . final items included only those on which the judges showed perfect agreement [p. 151].

Suinn feels the clinical form does a good job discriminating, but that the scales attempting to measure self-concept variables have validity problems "which faces all research on self concept assessment, i.e., how does one select the criterion variable [p. 151]?

Procedure

Subject selection and assignment to groups. One Wednesday, June 2, and Thursday, June 3 (the first class meeting for summer school), three personality scales were presented in 18 separate classes to 210 students enrolled in introductory courses in accounting, business, economics, education, marketing, philosophy, psychology, and sociology. In each class the order of presentation was first the ITS, second the I-E scale, and last the MC-SDS. An answer blank entitled "Social Attitude Survey" was used for all three scales (see Appendix D). The purpose of the scales was explained to the students
as follows:

A group of us are very interested in learning the social and personal attitudes of Christopher Newport College students. I will pass out three attitude questionnaires; please complete them in the order you find them. Answer them as quickly and as honestly as you can. Anyone who does not wish to share his or her attitudes need not do so.

Following completion of all scales, the students were advised as follows:

I want to thank you for sharing your attitudes with us. Since we were only able to test about one-half as many students as we hoped for, I would appreciate it very much if all of you would sign up to participate in the 8-minute social attitude experiment. The sign-up sheets are on my office door (W-105). The 8-minute experimental sessions will be held next Wednesday and Thursday—from 9:00 A.M. until 10:00 P.M. Does anyone have any questions at this time?

A digital computer program was designed and implemented on a CDC 6400 under the NOS operating system to verify and score all answer sheets. The program assigned the 63 students, who agreed to participate, into internalizer, defensive externalizer, and congruent externalizer categories. The program then randomly assigned the 21 students in the internalizer category to the two experimental and single control condition. Finally, the program randomly assigned the 21 defensive externalizers to the three conditions, and also randomly assigned the 21 congruent externalizers to the three conditions. Specifically, the computer assigned students to control groups and
experimental conditions according to the three following rules:

1. On the basis of the I-E scale distribution of scores, the 63 students were assigned to either an externalizer category, an externalizer-internalizer category, or an internalizer category. Those students scoring in the upper 33% were assigned to the externalizer category. Those students scoring in the middle 33% were assigned to the externalizer-internalizer category. Those students scoring in the lower 33% were assigned to the internalizer category.

2. The 21 students in the internalizer category were randomized into the two experimental treatment groups and the one control group; each group contained 7 students.

3. On the basis of the ITS, the 42 students in the externalizer and externalizer-internalizer categories were subdivided into a defensive externalizer subcategory and a congruent externalizer subcategory. The 21 students scoring from the median upward on the ITS were assigned to the congruent externalizer category; the 21 students scoring from the median downward on the ITS were assigned to the defensive externalizer category. The median split subject assignment procedure used in the present study was a typical procedure for assigning subjects to groups on the basis of such personality measures as the I-E scale or the ITS (Houston, 1972). In cases where the researcher might have a considerable number of subjects to select from, the top and bottom 25% are normally used (Davis & Davis, 1972). The 21 students of each of the two subcategories were randomized into the two experimental treatment groups and the one control group; each group contained 7 students.
The 63 students who participated were notified in class on Tuesday, June 8, that they would be expected to keep their appointments since they had signed up to participate in the experiment. At that time, it was explained to the students that they would be given a brief test after they had completed the 8-minute experiment.

**Instructions to students.** Upon arrival at the waiting room, a student was met by a laboratory assistant, taken into the experimental room, and seated in front of the operant console. At that time, the laboratory assistant introduced the confederate to the student. Experimental students were informed that the confederate would attempt to "give feedback concerning your social adequacy." Control students were informed that the confederate was there to "initiate and terminate the experiment." The confederate then advised the student that he would activate a tape recorder which would completely explain the purpose of the study. The tape recording presented the following monologue:

A sample slide will now be projected on to the movie screen in front of you [ the slide is automatically presented ]. This slide like the others which follow, contains two persons in a social situation. One of the two persons is marked by an "X." You are to look at the two persons in the social situation, and decide if the person marked with the "X" is behaving in a socially adequate manner. If you believe he is behaving adequately in the situation, press the green button on your left. It is labled "adequate." If you believe he is socially not adequate in the situation, press the red button
on your right. It is labeled "inadequate."

You will be shown 30 slides similar to the one you are now looking at. Each slide has been taken from an actual magazine. The sentences beneath each slide were developed by three psychologists at the College of William and Mary. Valid social adequacy norms for college students have been established and your responses will be compared to those norms. Each slide will be presented for 12 seconds. The timer in front of you will keep you informed as to the remaining time. It counts backward from 12 seconds to 0 seconds. Please try to decide quickly and make your response within the 12-second period of time. Remember, this experiment measures your social adequacy perceptions against those of typical college students. If you have any questions at this time, Dr. Clawson [ Tom Clawson has consented to play the confederate. He seems a wise choice since he could convincingly play the role. None of the Christopher Newport College psychology staff would be of neutral value to CNC students ] will answer them.

The confederate told the student nothing more than the study deals with perception and that the student should try to be as spontaneous and honest as possible. The confederate then closed a switch which activated one of the three experimental conditions. Experimental programs. The experimental programs were presented as follows:

1. Approximately 75% of the 30 social situation slides responded to by the students in the reinforcement group were
determined by a model 253-11 Lehigh Valley probability gate as being "correct" and "socially adequate."

Immediately following program initiation, a social situation slide was presented for 12 seconds. The timer on top of the console in a direct line of view with the screen indicated the time remaining for the student to make his response. The student's response, regardless of the button depressed, terminated the slide and produced a 1-second interval. During the intertrial interval one of three events occurred--(a) the green light (which was removed from the console and the subject's view) illuminated for 45 milliseconds, and the cumulative counter labeled "adequate" advanced one digit indicating that the student had made a socially adequate response (at that time, the confederate verbally reinforced the student's response with the word "right"); (b) if the light did not illuminate and the counter did not advance, those events indicated that the student's response had been socially "wrong" (the confederate did not reinforce the response); and (c) if the student failed to emit a response during the 12-second interval, the slide was automatically terminated and the next slide presented.

2. Approximately 75% of the 30 social situation slides responded to by the students in the aversive-control group were determined as being "wrong" and "socially inadequate." The programming sequence for this group was the same as that for the reinforcement group with two exceptions--(a) the green light and its counter were inoperative, instead the red light and its counter were
indicative of the "socially inadequate" responses; and (b) the confederate administered only aversive verbal stimuli at the appropriate occasions.

3. The "no response contingency" group received neither reinforcement nor response-contingent aversive control. The confederate was instructed to respond to them in S-delta fashion (no response contingencies). The purpose of this group was to control for internal sources of invalidity.

Postexperimental self-esteem measurement. Immediately following a student's response to the final slide, the student was escorted by the laboratory assistant to a testing room where the TSCS was administered. The student was requested to complete the Scale as quickly and honestly as possible. Immediately prior to TSCS administration, the student was shown a table of false social adequacy norms and requested to write his percentile on his TSCS answer blank (see Appendix G for sample norms).

Immediately following the scale's completion, the student was given a "suspicion" test in an attempt to discriminate those students who had "seen" the actual purpose of the experiment (see Appendix H for a sample scale). Upon completion of the "suspicion" test, the student was given a two-part test to assess the student's "interest" in participating in the research, and his "evaluation of the worthiness" of the research project (see Appendix I for a sample scale). These latter two tests were given in an attempt to discriminate those students giving improbable answers in either a positive or negative direction.
**Student Debriefing.** Within 2 days following the inception of the research, each student received a written debriefing form. The form stated the hypotheses, design, expected results, and the nature of the contrived reinforcement and aversive stimuli (see Appendix J for a sample form). Any particular questions pertaining to the research were dealt with by individual appointments.
Chapter 4
Results

The present experiment attempted to assess the relative efficiencies of reinforcement theory and trait-expectancy theory with regards to the prediction and control of level of self-esteem as measured by the TSCS sub-scale, "social self." A sample of 63 undergraduate college students participated in the research. Descriptive statistics for demographic and assigned variable status of the initial sample of 210 pretested students are shown in Table 2. Descriptive statistics for demographic and assigned variable status of the 63 students (from the initial 210 students) who actually participated in the research are shown in Table 3. The representativeness of the 63 participating students, to the original group of 210 pretested students, is seen by a comparison of the descriptor status of those two groups. It can be observed through a comparison of the statistics in Table 2 with the statistics in Table 3 that the two groups did not appreciably differ in terms of demographic measurements (age, sex, and year in college), the measurements employed to discriminate assigned variable status (ITS, I-E), or in terms of the covariate measurement (SDS). Consequently, in terms of these demographic measurements, assigned variable measurements, and covariate measurement, the 63 students were viewed as representative of the initial group of 210 pretested students.

Prior to the execution of the analysis of covariance, each of the 63 suspicion tests were examined in an attempt to discover whether
Table 2
Descriptive Statistics on all Pretested Students<sup>a</sup>

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Mean</th>
<th>Mode</th>
<th>Median</th>
<th>Range</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>26.04</td>
<td>21</td>
<td>22.88</td>
<td>48.00</td>
<td>8.58</td>
</tr>
<tr>
<td>Sex&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.58</td>
<td>1</td>
<td>6.39</td>
<td>-----</td>
<td>.50</td>
</tr>
<tr>
<td>Year&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3.07</td>
<td>4</td>
<td>3.21</td>
<td>4.00</td>
<td>1.22</td>
</tr>
<tr>
<td>ITS</td>
<td>67.76</td>
<td>65</td>
<td>66.63</td>
<td>70.00</td>
<td>10.52</td>
</tr>
<tr>
<td>I-E</td>
<td>10.25</td>
<td>10</td>
<td>10.24</td>
<td>21.00</td>
<td>4.55</td>
</tr>
<tr>
<td>SDS</td>
<td>14.30</td>
<td>10</td>
<td>13.80</td>
<td>79.00</td>
<td>7.47</td>
</tr>
</tbody>
</table>

<sup>a</sup>Descriptive statistics are based on a sample of 210 college students attending 18 different summer school classes.

<sup>b</sup>Pretests were obtained on 122 males (58.10% of the sample), and 88 females (41.90% of the sample).

<sup>c</sup>Year in college; i.e., 1-4.
### Table 3
Descriptive Statistics on Pretested Students Who Participated in the Experiment

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Mean</th>
<th>Mode</th>
<th>Median</th>
<th>Range</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>25.57</td>
<td>21</td>
<td>22.87</td>
<td>38.00</td>
<td>8.63</td>
</tr>
<tr>
<td>Sex</td>
<td>.57</td>
<td>1</td>
<td>6.25</td>
<td>-----</td>
<td>.50</td>
</tr>
<tr>
<td>Year</td>
<td>2.89</td>
<td>4</td>
<td>3.04</td>
<td>4.00</td>
<td>1.30</td>
</tr>
<tr>
<td>ITS</td>
<td>69.43</td>
<td>64</td>
<td>68.00</td>
<td>56.00</td>
<td>10.99</td>
</tr>
<tr>
<td>I-E</td>
<td>9.81</td>
<td>10</td>
<td>10.00</td>
<td>19.00</td>
<td>4.42</td>
</tr>
<tr>
<td>SDS</td>
<td>14.32</td>
<td>7</td>
<td>12.58</td>
<td>78.00</td>
<td>9.98</td>
</tr>
</tbody>
</table>

*Descriptive statistics are based on a sample of 63 college students attending 18 different summer school classes.

**There were 36 males (57.10% of the sample), and 27 females (42.90% of the sample) who participated in the experiment.

*Year in college; i.e., 1-4.*
any student had discovered the true purpose of the experiment. From a content analysis of those 63 written statements, it was clearly decided that none of the students had discovered the purpose of the research. Consequently, the TSCS "social self" scores and the SDS scores for all 63 students were used in the analysis of covariance.

A two-way analysis of covariance was performed for the TSCS "social self" scores. In that analysis, the MC-SDS scores were used as covariates to partial out the effects of social desirability from the TSCS "social self" scores. The first main effect was constituted by the treatment factor and consisted of social reinforcement, social aversive control, and the control group. The second main effect was constituted by the assigned variable factor and consisted of internalizers, defensive externalizers, and congruent externalizers. The "ANOVA" procedure from the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) was implemented on an IBM 370 digital computer at the College of William and Mary Computer Center. Group means and standard deviations for the 3 X 3 factorial design are presented in Table 4. An inspection of those means immediately shows very slight differences for both main effects and the interaction.

Since statistical significance was not obtained for the main effects, or for the interaction, post hoc comparisons were not justified. Consequently, no post hoc statistical tests were performed for the nine groups of students. Had the two-way analysis of covariance shown statistical significance (p = .05) for either one of the main effects, or for the interaction, a relevant procedure would have been
Table 4
Means and Standard Deviations of
TSCS Social Self Scores

<table>
<thead>
<tr>
<th>Assigned Variable</th>
<th>Reinforcement Mean</th>
<th>Aversive Control</th>
<th>Control Mean</th>
<th>Row Means</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>56.14</td>
<td>54.14</td>
<td>56.00</td>
<td>55.43</td>
</tr>
<tr>
<td>SD</td>
<td>2.12</td>
<td>1.90</td>
<td>2.52</td>
<td>---</td>
</tr>
<tr>
<td><strong>Defensive Externals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>57.29</td>
<td>57.71</td>
<td>55.57</td>
<td>56.86</td>
</tr>
<tr>
<td>SD</td>
<td>1.89</td>
<td>5.41</td>
<td>3.78</td>
<td>---</td>
</tr>
<tr>
<td><strong>Congruent Externals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>58.00</td>
<td>56.00</td>
<td>54.57</td>
<td>56.19</td>
</tr>
<tr>
<td>SD</td>
<td>2.16</td>
<td>3.32</td>
<td>3.74</td>
<td>---</td>
</tr>
<tr>
<td><strong>Column Means</strong></td>
<td>57.14</td>
<td>55.95</td>
<td>56.38</td>
<td></td>
</tr>
</tbody>
</table>
to examine the 12 respective predictions for reinforcement theory and expectancy theory. Reinforcement theory and expectancy theory made different predictions for four of the six hypotheses. Those hypotheses pertained to "social self" score differences between experimental and control students for the internalizer and defensive externalizer classifications. Eight contrasts, therefore, could have been performed to evaluate the comparative predictive efficiencies for reinforcement theory and expectancy theory. Reinforcement theory and expectancy theory made identical predictions for two of the six hypotheses. Those hypotheses pertained to "social self" differences between experimental and control students for the congruent externalizer classification. Four contrasts, therefore, could have been performed to evaluate the predictive similarity of reinforcement theory and expectancy theory.

Table 5 presents the results for the two-way analysis of covariance. It is to be clearly stated that after covariate adjustment, the treatment main effect, the assigned variable main effect, and the interaction effects failed to attain significance ($p = .05$). Analysis of variance data alone, then, were related to the six hypotheses which contrasted reinforcement theory predictions with trait-expectancy theory predictions. Those hypotheses and related results are presented as follows:

1. Hypothesis 1 averred that reinforcement theory, and not expectancy theory, will account for the "social self" score differences between reinforced internals and control internals.

   a. Reinforcement theory $I_t > I_c$
   b. Expectancy theory $I_r = I_c$
Table 5

Analysis of Variance of Social Self Scores

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
<th>Percent of variance accounted for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td>4</td>
<td>18.244</td>
<td>1.487</td>
<td>.218</td>
<td>18</td>
</tr>
<tr>
<td>Covariate</td>
<td>1</td>
<td>9.130</td>
<td>.744</td>
<td>.999</td>
<td>9</td>
</tr>
<tr>
<td>Treatment</td>
<td>2</td>
<td>32.769</td>
<td>2.671</td>
<td>.077</td>
<td>33</td>
</tr>
<tr>
<td>Assigned Variable</td>
<td>2</td>
<td>4.018</td>
<td>.327</td>
<td>.999</td>
<td>4</td>
</tr>
<tr>
<td>Interaction</td>
<td>4</td>
<td>8.155</td>
<td>.665</td>
<td>.999</td>
<td>8</td>
</tr>
<tr>
<td>Residual (error)</td>
<td>53</td>
<td>12.271</td>
<td>----</td>
<td>----</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>13.342</td>
<td>----</td>
<td>----</td>
<td>12</td>
</tr>
</tbody>
</table>
Table 5 displays evidence that there were no significant differences among the reinforcement treatment groups. A similar lack of significance was obtained for the trait-expectancy (assigned variable) groups. Furthermore, a lack of significance was obtained for the interaction effects of treatment and assigned variable classification. On the basis of the data presented in Table 5, the decision was made not to accept hypothesis 1 since neither main effects or interactions were shown to differ significantly from chance.

2. Hypothesis 2 averred that reinforcement theory, and not expectancy theory, will account for the "social self" score differences between reinforced defensive externals and control defensive externals.

   a. Reinforcement theory \( DE_r > DE_c \)
   b. Expectancy theory \( DE_r = DE_c \)

3. Hypothesis 3 averred that reinforcement theory and expectancy theory would predict the same "social self" score differences between reinforced congruent externals and control congruent externals.

   a. Reinforcement theory \( CE_r > CE_c \)
b. Expectancy theory \[ CE_a > CE_c \]

Table 5 displays evidence that there were no significant differences among the reinforcement treatment groups. A similar lack of significance was obtained for the trait-expectancy (assigned variable) groups. Furthermore, a lack of significance was obtained for the interaction effects of treatment and assigned variable classification. On the basis of the data presented in Table 5, the decision was made not to accept Hypothesis 3 since neither main effects or interactions were not shown to differ significantly from chance.

4. Hypothesis 4 averred that reinforcement theory, and not expectancy theory, will account for the "social self" score differences between aversively controlled internals and control internals.

   a. Reinforcement theory \[ I_a < I_c \]

   b. Expectancy theory \[ I_a = I_c \]

Table 5 displays evidence that there were no significant differences among the reinforcement treatment groups. A similar lack of significance was obtained for the trait-expectancy (assigned variable) groups. Furthermore, a lack of significance was obtained for the interaction effects of treatment and assigned variable classification. On the basis of the data presented in Table 5, the decision was made not to accept Hypothesis 4 since neither main effects or interactions were shown to differ significantly from chance.

5. Hypothesis 5 averred that reinforcement theory, and not expectancy theory, will account for the "social self" score differences between aversively controlled defensive externals and control defensive externals.
a. Reinforcement theory $DE_a < DE_c$

b. Expectancy theory $DE_a > DE_c$

Table 5 displays evidence that there were no significant differences among the reinforcement treatment groups. A similar lack of significance was obtained for the trait-expectancy (assigned variable) groups. Furthermore, a lack of significance was obtained for the interaction effects of treatment and assigned variable classification. On the basis of the data presented in Table 5, the decision was made not to accept hypothesis 5 since neither main effects or interactions were shown to differ significantly from chance.

6. Hypothesis 6 averred that reinforcement theory and expectancy theory would predict the same "social self" score differences between aversively controlled congruent externals and control congruent externals.

a. Reinforcement theory $CE_a < CE_c$

b. Expectancy theory $CE_a < CE_c$

Table 5 displays evidence that there were no significant differences among the reinforcement treatment groups. A similar lack of significance was obtained for the trait-expectancy (assigned variable) groups. Furthermore, a lack of significance was obtained for the interaction effects of treatment and assigned variable classification. On the basis of the data presented in Table 5, the decision was made not to accept hypothesis 6 since neither main effects or interactions were shown to differ significantly from chance.
Chapter 5
Summary, Discussion, Conclusions, and Recommendations

Summary

The purpose of the present experiment was to compare the relative efficiencies of trait-expectancy theory with reinforcement theory in the prediction and control of self-esteem as measured on the Tennessee Self Concept Scale sub-scale, "social self."

From 18 different summer school classes at Christopher Newport College, Newport News, Virginia, 210 students were evaluated on the following instruments: (a) Scale to Measure Internal Versus External Control (I-E), (b) Interpersonal Trust Scale (ITS), and (c) Social Desirability Scale (MC-SDS). From the initial sample of 210 students, 63 students volunteered to participate in the experiment.

On the basis of the I-E scale the 63 students were assigned into three groups of 21 each. The group designated "internalizers" was composed of 33% of the 63 students who scored lowest. The middle 33% and the top 33% were respectively designated "externalizer–internalizer", and "externalizer." Students in those two groups were then combined into a single group and differentiated into two groups on the basis of the ITS. Scores above the median were assigned to a congruent externalizer group. Scores below the median were assigned to the defensive externalizer group. The resultant classification of students was designated as follows: (a) internalizers, (b) defensive externalizers, and
(c) congruent externalizers. Each group contained 21 students. The three groups were randomly assigned to the following treatment conditions: (a) social reinforcement, (b) social aversive control, and (c) control group. All students participated individually on two consecutive days.

The procedure involved two parts:

1. Each student viewed 30 movie slides depicting interpersonal social situations. Each slide contained one or two sentences which described the situation in such a manner so that the students could make a forced-judgement. Each slide was presented for 12 seconds during which time the student made a choice as to whether the slide portrayed social adjustment or non-adjustment. At that time, the student pressed one of the two response buttons to record his choice. For students in the reinforcement treatment condition, approximately 70% of their responses were determined (falsified) as correct; those 'correct' responses were accompanied by a confederate telling the student he was "right." The confederate had been previously described to the student as an "expert in social adequacy research." For students in the aversive control condition, approximately 70% of their responses were accompanied by the confederate telling the student he was "wrong." Students in the control conditions viewed the slides and responded to them in the presence of the confederate; however, the control students received no feedback from the confederate concerning the correctness of their responses.

2. Following completion of the experimental session, the student was shown a table of falsified but credible-appearing 'social
adequacy' norms from a psychological journal. It was explained to
students in the reinforcement condition that they had done better in
detecting social adjustment than approximately 70% of a large random
sample of college students. Students in the aversive control con-
dition were told that approximately 70% of the college students from
the large random sample had done better than they in detecting social
adjustment. Immediately following the explanation of a student's
results, he was given the TSCS to complete.

With the MC-SDS scores treated as covariates, in order to
partial out social desirability effects on "social self" scores, a
two-way analysis of covariance was performed for the TSCS "social self"
scores. Statistical significance for assigned variable main effects
was not obtained ($p > .05$). Statistical significance for treatment
main effects was not obtained; however, the probability level was high-
er than that for the assigned variable effects ($p < .08$). Statistical
significance for the interaction of treatment with assigned variable
was not obtained ($p > .05$). In light of these statistics, post hoc
comparisons were not performed.

**Discussion**

The six hypotheses of the present investigation were stated in
favor of reinforcement theory over expectancy theory. It was predicted
that reinforcement theory, and not expectancy theory, would account for
differences between TSCS "social self" scores for the following groups
of students: (a) reinforced internals and control internals, (b) rein-
forced defensive externals and control defensive externals, (c) aver-
sively controlled internals and control internals, and (d) aversively
controlled defensive externals and control defensive externals. It was predicted that reinforcement theory and expectancy theory would predict the same differences between TSCS "social self" scores for the following groups of students: (a) reinforced congruent externals and control congruent externals, and (b) aversively controlled congruent externals and control congruent externals. A two-way analysis of covariance, partialling out the effects of social desirability on the "social self" scores, failed to confirm the six hypotheses at the .05 level of significance, $F = (2, 62) = 2.671, p < .08$. The analysis of covariance also failed to demonstrate the superiority of expectancy theory over reinforcement theory at the .05 level of significance, $F = (2, 62) = .327, p < .99$. Furthermore, the interaction of treatment (reinforcement theory) with the assigned variable (expectancy theory) failed to reach statistical significance at the .05 level, $F = (4, 62) = .665, p < .99$.

Concerning the empirical and parsimonious nature of reinforcement theory, it appeared probable to the present investigator that the treatment effects would have been significantly related to the "social self" scores. The prediction of the superiority of reinforcement theory over expectancy theory appeared especially correct in light of prior research. Perhaps one of the more salient examples of reinforcement contingencies modifying self-concept was Muller and Spuhler's (1976) study. In that research students were given false feedback concerning foreign language ability. One group of students were told they had scored in the top 5th percentile; self-concepts for that group were not significantly higher than for control
students. The second group of students were told that they had scored in the bottom 5th percentile; self-concepts for that group were significantly lower than for control students. Muller and Spuhler (1976) suggested that perhaps self-concept could be accounted for by basic learning principles. The results of the present study failed to confirm a relationship between basic learning principles and self-concept. Sidman (1964) has cited considerable evidence that anxiety (usually considered an internal mediator variable) is initiated, maintained, and modified through the manipulation of environmental variables. The present investigation was not successful in demonstrating that self-concept (usually considered an internal mediator variable) could be modified through the manipulation of environmental variables. Homme, Baca, Cottingham, and Homme (1968) have argued that self-concepts are strengthened by reinforcement contingencies. The present research, however, failed to demonstrate that eight minutes of intermittent social reinforcement or aversive control would modify level of self-esteem as measured on the TSCS sub-scale, "social self."

The validity of the present findings need to be examined in respect to such accepted theories and findings as Staats and Staats (1958), Sidman (1964), Skinner (1953, 1974), and Muller and Spuhler (1976). Several aspects of the present investigation are relevant to a discussion of the findings.

The 'reinforcer' used in the present research was the confederate emitted word, "right;" the 'aversive' stimulus was the confederate emitted word, "wrong." Neither word had been functionally defined prior to the research. In spite of a theory-based conjecture that the
two words are usually, respectively, reinforcing and aversive, such a conjecture would remain speculative. There was no evidence in the present investigation that the words "right" and "wrong" were functionally related to behavior. Furthermore, even if it is granted that the two treatment events might have had some functional effect on behavior, there was no empirical measurement assessing the relative strengths of the respective events. It would appear, then, that the validity of the present findings would need to be evaluated against the lack of functional definitions and lack of assessment of relative stimuli strengths.

Another problem in the interpretation of the present findings pertains to the validity of contrived reinforcement for self-concept research. Although there existed both a thematic and molecular commonality between experimental task (social adequacy slides), experimental treatment (social reinforcement by another person), and dependent variable measurement ("social self" sub-scale score), it is possible that the manipulated social stimuli ("right" and "wrong") would not have been valid representations of normally occurring environmental stimuli. In other words, a functionally defined stimulus in the laboratory will probably not produce the same topographical changes as it would under uncontrolled environmental situations. This lack of correspondence between laboratory stimuli and environmental stimuli would tend to invalidate the laboratory use of a personality measure which was developed and normed to be responsive to environmental variables. An instrument such as the TSCS would be responsive to behavioral characteristics acquired in the environment. It is questionable how responsive such a measure would be in detecting changes in a
highly controlled laboratory situation.

A third problem in the interpretation of the present findings pertains to a relationship between the previously discussed problems (treatment definition, treatment intensity, and treatment validity) and the globularness of the mediator construct selected as the dependent variable. Self-concept studies (whether molar or molecular) would appear to pertain to a more globular behavior sample than studies employing mediator constructs other than self-concepts. Such measurements as attitudes, beliefs, evaluative responses, or verbal learning outcomes would tend not to be as strong (in terms of reinforcement history) as the larger self-concepts of which they are presumably a part. This would tend to explain the disproportionate number of published studies relating reinforcement to changes in mediator constructs other than self-concepts. It would appear, then, a mistake to compare changes in self-concept with changes in the emission of plural nouns (Greenspoon, 1955), or the simultaneous respondent conditioning of evaluative attitudes (Staats & Staats, 1958), or the modification of specific educational interests after two interviews (Wandzek, 1969), or the operant establishment of attitudes toward cartoons (Presholdt, 1969).

If self-concepts (even as measured on a sub-scale such as "social self") are more globular than other mediator classes, and are the products of long learning histories, it would appear that to change them would require a functionally defined treatment, a strong treatment, and a valid treatment— one as complex as that which naturally occurs in the environment.

A fourth problem in the interpretation of the present findings
p pertains to standardization of instructions for the interpretation of "social adequacy scores" on the table of falsified norms. Although each student was treated alike in terms of verbal explanation, it became apparent to the present investigator that there were differences in the mannerisms of the experimenter as he related to the two groups of students. Students in the reinforcement groups received their "high" scores from a 'confident'—appearing experimenter. Those students in the aversive control groups received their "low" scores from an 'apologetic'—appearing experimenter. In that second instance it was as though the experimenter was embarrassed to inform a student how poorly he had done. It is possible that students in the aversive control groups were able to rationalize their scores by believing the "norms" were not applicable to them for a variety of personal reasons.

A fifth problem in the interpretation of the present findings pertains to the reliability of the TSCS sub-scale, "social self." The TSCS is reported favorably in the Seventh Mental Measurements Yearbooks and Personality Tests (Burros, 1972) because it has been employed in over 100 recent doctoral dissertations, and is ranked 43rd in a list of 53 tests with bibliographies of over 100 references. An average of 18 references per year are reported for the TSCS.

The TSCS manual (Fitts, 1965) reports two-week, test-retest reliability of .90 (N = 60) for the "social self" sub-scale. This would suggest that 90% of the variation associated with "social self" scores is true, and only 10% of that variation results from random error. Such an interpretation of "social self" scores might not be accurate. For example, neither reliability coefficients for internal
consistency (such as Kuder-Richardson), nor factor analysis data are provided by Pitts (1965). Furthermore, neither Bentler (1972) nor Suinn (1972) have reported such statistics. Therefore, not having data to suggest the "social self" sub-scale as an independent scale, it is certainly possible that the random error associated with that sub-scale may be greater than would be suggested by the test-retest reliability coefficient of .90. It must be stated, therefore, that an interpretation of the present findings should be made in respect to the possibility of an unknown amount of random error associated with the "social self" sub-scale.

A sixth problem in the interpretation of the present findings pertains to operational definitions for internals, defensive externals, and congruent externals. Since the locus of control research literature clearly suggests (Biondo & MacDonald, 1971; Doctor, 1971; Davis & Davis, 1972; Lefcourt, Hogg, & Sordoni, 1975) that a variety of definitions have been employed for different investigations, it is difficult to identify 'true' internals, 'true' defensive externals, or 'true' congruent externals. In spite of this confusion, a more conservative distinction between internals, defensive externals, and congruent externals might have achieved different results. Such a distinction would have defined externals as those students scoring in the upper one-third of the I-E distribution, and internals as those students scoring in the lower one-third of the I-E distribution. Those students scoring in the middle one-third of the I-E distribution would have been eliminated in an effort to achieve greater locus of control expectancy differences. Defensive externals would then have been discriminated from congruent externals on
the basis of ITS scores. Those externals in the upper one-third of the ITS distribution would have been defined as congruent externals, and those externals in the lower one-third of the ITS distribution would have been defined as defensive externals. Those externals scoring in the middle one-third of the ITS distribution would have been eliminated in an effort to achieve greater interpersonal trust expectancy differences.

It would appear that if locus of control research is to achieve a level of scientific clarity equal to that of reinforcement theory, it would need to be responsive to the three following problems:

1. A major difficulty pertains to the different procedures employed in the ITS and I-E scale discrimination of internals, defensive externals, and congruent externals. The following procedures have been used: (a) median-split for samples of different sizes, (b) different top and bottom percentages for samples of different sizes, and (c) different standard deviations for samples of different sizes.

2. Another difficulty pertains to the lack of systematic subject definition from the I-E scale scores and ITS scores. In the Davis & Davis (1972) study, internals were classified by I-E scores from 3-9; externals were classified by I-E scores from 16-23. Lefcourt, Hogg, and Sordoni (1975) classified internals with I-E scores of 8 and below; externals were classified by I-E scores of 9 and above.

3. Finally, expectancy theory has not yet clearly predicted (for the three kinds of locus of control subjects) the kinds of behavior changes, expectancy changes, or attribution changes which would be expected to occur under different environmental conditions.
These locus of control problems make it difficult to clearly interpret the findings of a particular research.

Conclusions

With regards to the six hypothesized predictions concerned with contrasting and comparing the relative efficiencies for trait-expectancy and reinforcement theories, the present investigator was forced to conclude that reinforcement theory was not found to be superior to expectancy theory in the prediction and control of "social self" level of self-esteem. It would be tempting to affirm several of the trait-expectancy hypotheses since they hypothesized no differences. However, such affirmation would be pure speculation, especially since the analysis of covariance for the assigned variables accounted for 4% of the systematic variance as compared to 38% of that variance accounted for by treatment effects. It would further be unwarranted to affirm any of the expectancy predictions since neither the assigned variable effects or the interaction effects were found to be significant for the analysis of covariance.

It would also be tempting to affirm reinforcement theory over expectancy theory since 38% of the systematic variance was related to self-esteem and reinforcement procedures, whereas 4% of that variance was related to self-esteem and expectancy classification. However, it would be unwarranted to affirm any of the reinforcement predictions since neither the treatment effects or the interaction effects were found to be significant for the analysis of covariance.

Recommendations

Concerning the purpose of the present study, the results of the
present study, and the interpretation of those results, the following recommendations are made:

1. Participating students should be pretested in the experimental situation with regards to the establishment of functional definitions for reinforcing stimuli and aversive stimuli. This could be accomplished in a contrived conjugate situation in which base rates would be established for each stimulus class. The base rates would also be useful in assessing response strengths in relation to particular stimuli.

2. A field experiment, rather than a laboratory experiment, would probably be a more valid situation in which to investigate changes in self-concept. It is the personal belief of the present researcher that self-concept is a complex set of variables, and that those variables are somewhat controlled by an equally complex set of environmental variables. It would therefore appear sensitive to the problems involved in self-concept research to sacrifice some of the control which is possible in the laboratory for a more appropriate social experimental situation.

3. In view of the previous discussion, it would be recommended that future investigators pretest a confederate with different types of subjects in order to ascertain the confederate's differential probabilities to reinforce and aversively control. This recommendation would be essential to the standardization of treatment conditions.

4. In view of an undetermined amount of random error for the TSCS sub-scales, it would be recommended that future investigators attempt to determine the internal consistency for a selected sub-scale.
If the amount of random error were ascertained to be of sufficient magnitude to render the use of that sub-scale unreliable, a behavioral measure of self-esteem might be investigated instead of the typical paper and pencil assessment of self-esteem. Several examples of behavioral measures might be: (a) The frequency, which a subject could deliver reinforcements to himself in a conjugate cooperation or competition task; experimental conditions such as conflict, frustration, or stress could be introduced as "ego-blocks." (b) The frequency of smiles under conditions of social reinforcement or social aversive control. (c) The persistence of on-task behavior, number of errors, and goal-setting levels under conditions of social reinforcement and social aversive control. (d) Discriminated eye contact frequency or eye contact duration under conditions of social reinforcement or social aversive control.

5. A large number of subjects should be tested on the I-E scale and the ITS. The purpose for this would be to insure a selection from the large pretested group of only those subjects most clearly typifying internalizers, defensive externalizers, and congruent externalizers. In conjunction with this recommendation, a very careful survey of locus of control research literature should be done in an attempt to operationally define the three types of subjects in relation to hypothesized experimental task behavior.
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APPENDIX A

INTERNAL-EXTERNAL LOCUS OF CONTROL SCALE
Instructions

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered "A" or "B". Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. Find the number of the item on the answer sheet and fill in the box corresponding to that number with the letter (A or B) indicating your choice. Please use capital letters.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

1. A. Children get into trouble because their parents punish them too much.
   B. The trouble with most children nowadays is that their parents are too easy with them.

2. A. Many of the unhappy things in people's lives are partly due to bad luck.
   B. People's misfortunes result from the mistakes they make.

3. A. One of the major reasons why we have wars is because people don't take enough interest in politics.
   B. There will always be wars, no matter how hard people try to prevent them.

4. A. In the long run people get the respect they deserve in this world.
   B. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. A. The idea that teachers are unfair to students is nonsense.
   B. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. A. Without the right breaks one cannot be an effective leader.
   B. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. A. No matter how hard you try some people just don't like you.
   B. People who can't get others to like them don't understand how to
   get along with others.

8. A. Heredity plays the major role in determining one's personality.
   B. It is one's experiences in life which determine what they're like.

9. A. I have often found that what is going to happen will happen.
   B. Trusting to fate has never turned out as well for me as making a
   decision to take a definite course of action.

10. A. In the case of the well prepared student there is rarely if ever
    such a thing as an unfair test.
    B. Many times exam questions tend to be so unrelated to course work
    that studying is really useless.

11. A. Becoming a success is a matter of hard work, luck has little or
     nothing to do with it.
     B. Getting a good job depends mainly on being in the right place at
     the right time.

12. A. The average citizen can have an influence in government decisions.
     B. This world is run by the few people in power, and there is not much
     the little guy can do about it.

13. A. When I make plans, I am almost certain that I can make them work.
     B. It is not always wise to plan too far ahead because many things
     turn out to be a matter of good or bad fortune anyhow.

14. A. There are certain people who are just no good.
     B. There is some good in everybody.

15. A. In my case getting what I want has little or nothing to do with luck.
     B. Many times we might just as well decide what to do by flipping a coin

16. A. Who gets to be the boss often depends on who was lucky enough to be
     in the right place first.
     B. Getting people to do the right thing depends upon ability, luck
     has little or nothing to do with it.

17. A. As far as world affairs are concerned, most of us are the victims
     of forces we can neither understand, nor control.
     B. By taking an active part in political and social affairs the people
     can control world events.

18. A. Most people don't realize the extent to which their lives are
     controlled by accidental happenings.
     B. There really is no such thing as "luck".

19. A. One should always be willing to admit mistakes.
     B. It is usually best to cover up one's mistakes.
20. A. It is hard to know whether or not a person really likes you.  
     B. How many friends you have depends upon how nice a person you are.

21. A. In the long run the bad things that happen to us are balanced by 
     the good ones.  
     B. Most misfortunes are the result of lack of ability, ignorance, 
     laziness, or all three.

22. A. With enough effort we can wipe out political corruption.  
     B. It is difficult for people to have much control over the things 
     politicians do in office.

23. A. Sometimes I can't understand how teachers arrive at the grades they 
     give.  
     B. There is a direct connection between how hard I study and the grades 
     I get.

24. A. A good leader expects people to decide for themselves what they 
     should do.  
     B. A good leader makes it clear to everybody what their jobs are.

25. A. Many times I feel that I have little influence over the things that 
     happen to me.  
     B. It is impossible for me to believe that chance or luck plays an 
     important role in my life.

26. A. People are lonely because they don't try to be friendly.  
     B. There's not much use in trying too hard to please people, if they 
     like you, they like you.

27. A. There is too much emphasis on athletics in high school.  
     B. Team sports are an excellent way to build character.

28. A. What happens to me is my own doing.  
     B. Sometimes I feel that I don't have enough control over the direction 
     my life is taking.

29. A. Most of the time I can't understand why politicians behave the way 
     they do.  
     B. In the long run the people are responsible for bad government on a 
     national as well as on a local level.
APPENDIX B

INTERPERSONAL TRUST SCALE
ITS

GENERAL OPINION SURVEY

This is a questionnaire to determine the attitudes and beliefs of different people on a variety of statements. Please answer the statements by giving as true a picture of your own beliefs as possible. Be sure to read each item carefully and show your beliefs by marking your selected number (1 through 5) in the appropriate box.

If you strongly agree with an item, place number "1" in the box corresponding to that item. If you mildly agree with an item, place number "2" in the box corresponding to that item. That is, mark number "2" if you think the item is generally more true than untrue according to your beliefs. Place a "3" in the box corresponding to a particular item if you feel the item is about equally true as untrue. Place the number "4" in the box corresponding to a particular item if you mildly disagree with the item. If you strongly disagree with an item, place a "5" in the box corresponding to that item.

Please be sure to fill in all the boxes completely and to erase completely any marks to be changed. Make no extra marks on either the answer sheet or the questionnaire.

1. Strongly agree
2. Mildly agree
3. Agree and disagree equally
4. Mildly disagree
5. Strongly disagree

1. Most people would rather live in a climate that is mild all year around than in one in which winters are cold.

2. Hypocrisy is on the increase in our society.

3. In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy.

4. This country has a dark future unless we can attract better people into politics.

5. Fear of social disgrace or punishment rather than conscience prevents most people from breaking the law.

6. Parents usually can be relied upon to keep their promises.

7. The advice of elders is often poor because the older person doesn't recognize how times have changed.

8. Using the Honor System of not having a teacher present during exams would probably result in increased cheating.

9. The United Nations will never be an effective force in keeping world peace.
4. Mildly disagree  5. Strongly disagree

10. Parents and teachers are likely to say what they believe themselves
    and not just what they think is good for the child to hear.
11. Most people can be counted on to do what they say they will do.
12. As evidenced by recent books and movies morality seems on the downgrade
    in this country.
13. The judiciary is a place where we can all get unbiased treatment.
14. It is safe to believe that in spite of what people say, most people
    are primarily interested in their own welfare.
15. The future seems very promising.
16. Most people would be horrified if they knew how much news the public
    hears and sees is distorted.
17. Seeking advice from several people is more likely to confuse than
    it is to help one.
18. Most elected public officials are really sincere in their campaign
    promises.
19. There is no simple way of deciding who is telling the truth.
20. This country has progressed to the point where we can reduce the
    amount of competitiveness encouraged by schools and parents.
21. Even though we have reports in newspapers, radio and television, it
    is hard to get objective accounts of public events.
22. It is more important that people achieve happiness than that they
    achieve greatness.
23. Most experts can be relied upon to tell the truth about the limits of
    their knowledge.
24. Most parents can be relied upon to carry out their threats of
    punishment.
25. One should not attack the political beliefs of other people.
26. In these competitive times one has to be alert or someone is likely
    to take advantage of you.
1. Strongly agree  
2. Mildly agree  
3. Agree and disagree equally  
4. Mildly disagree  
5. Strongly disagree

27. Children need to be given more guidance by teachers and parents than they now typically get.

28. Most rumors usually have a strong element of truth.

29. Many major national sport contests are fixed in one way or another.

30. A good leader molds the opinions of the group he is leading rather than merely following the wishes of the majority.

31. Most idealists are sincere and usually practice what they preach.

32. Most salesmen are honest in describing their products.

33. Education in this country is not really preparing young men and women to deal with the problems of the future.

34. Most students in school would not cheat even if they were sure of getting away with it.

35. The hordes of students now going to college are going to find it more difficult to find good jobs when they graduate than did the college graduates of the past.

36. Most repairment will not overcharge even if they think you are ignorant of their specialty.

37. A large share of accident claims filed against insurance companies are phony.

38. One should not attack the religious beliefs of other people.

39. Most people answer public opinion polls honestly.

40. If we really knew what was going on in international politics, the public would have more reason to be frightened than they now seem to be.
APPENDIX C

SOCIAL DESIRABILITY SCALE
Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally. If you feel that the statement is true, place a capital "T" in the answer box corresponding to the appropriate question number. If you feel that the statement is false as it pertains to you personally, then place a capital "F" in the answer box corresponding to the appropriate question number. Please decide quickly and answer all questions.

1. Before voting I thoroughly investigate the qualifications of all the candidates.
2. I never hesitate to go out of my way to help someone in trouble.
3. It is sometimes hard for me to go on with my work if I am not encouraged.
4. I have never intensely disliked anyone.
5. On occasion I have had doubts about my ability to succeed in life.
6. I sometimes feel resentful when I don't get my way.
7. I am always careful about my manner of dress.
8. My table manners at home are as good as when I eat out in a restaurant.
9. If I could get into a movie without paying for it and be sure I was not seen, I would probably do it.
10. On a few occasions, I have given up doing something because I thought too little of my ability.
11. I like to gossip at times.
12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
13. No matter who I'm talking to, I'm always a good listener.
14. I can remember "playing sick" to get out of something.
15. There have been occasions when I took advantage of someone.
16. I'm always willing to admit it when I make a mistake.
17. I always try to practice what I preach.
18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.
19. I sometimes try to get even, rather than forgive and forget.
20. When I don't know something I don't at all mind admitting it.
21. I am always courteous, even to people who are disagreeable.
22. At times I have really insisted on having things my own way.
23. There have been occasions when I felt like smashing things.
24. I would never think of letting someone else be punished for my wrongdoings.
25. I never resent being asked to return a favor.
26. I have never been irked when people expressed ideas very different from my own.
27. I never make a long trip without checking the safety of my car.
28. There have been times when I was quite jealous of the good fortune of others.
29. I have almost never felt the urge to tell someone off.
30. I am sometimes irritated by people who ask favors of me.
31. I have never felt that I was punished without cause.
32. I sometimes think when people have a misfortune they only got what they deserved.
33. I have never deliberately said something that hurt someone's feelings.
APPENDIX D

SOCIAL ATTITUDE SURVEY ANSWER BLANK
APPENDIX E

SAMPLE SOCIAL ADEQUACY PICTURES
This young man has a job with a country band in the deep South. Is it socially adjustable for him to keep his long hair in this situation?
This girl is angry at having her picture taken. Is her 'making a face' a proper expression of anger?
The man on the left is angry because his friend has cheated him out of one dollar playing cards. Is his shouting and finger-pointing adjustable to the situation?
"Can you help Mr. Carter, Doc?—His smile is stuck..."

Is the cartoonist being socially fair when he pokes fun at a public figure's smile?
APPENDIX F

RATING SCALE FOR SOCIAL ADEQUACY PICTURES
APPENDIX F

Please rate these 100 pictures with regards to stereotyped social outcasts and social winners. In the selection of your response consider the caption and picture as a whole. Cross out your selection with an "X."

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Please rate these 100 pictures with regards to stereotyped social outcasts and social winners. In the selection of your response consider the caption and picture as a whole. Cross out your selection with an "X."

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Please rate these 100 pictures with regards to stereotyped social outcasts and social winners. In the selection of your response consider the caption and picture as a whole. Cross out your selection with an "X."

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APPENDIX G

NORMS: SOCIAL ADEQUACY TEST
ciations which were selected partly on practical grounds but were thought
to be typical of middle class suburbia. They were randomly assigned in equal
numbers to each of the three conditions. Ss did not know the precise nature
of the experiment at the time they volunteered, but were informed generally
that the study had two independent parts: (a) a Ph.D. student was developing
a symbols test for his thesis, and (b) an E wanted to test Ss on some
tasks of intellectual and psychomotor ability. Ss were informed that E’s test
was quite unrelated to that of the graduate student.

2. Procedure

a. Self-Social Symbols Tasks. A graduate student confederate (C) ad­
ministered the Self-Social Symbols Tasks (9, 10) to all Ss and used stan­
dard manual instructions designed to elicit natural responses. The Self-Social
Symbols Tasks measure is a nonverbal test of self-other relationships in which
the S selects, arranges, or produces the symbols to represent the self usually
in relation to symbols representing others. From these arrangements, certain
aspects of the person’s conception of himself in regard to others are inferred.
It is assumed that the patterns seen in the symbolic arrangements represent
relations with the person’s life space.

Table 5. Conversion of Raw Scores into Standard Scores

for the Social Adequacy Test.

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Data based on random sample of 3,215 undergraduate
students at the College of William and Mary.
APPENDIX H

SUSPICION TEST
Please complete the following sentence:

"I feel that the purpose of this study was ____________________________
APPENDIX I

EVALUATION TEST
We are very interested in your appraisal of this study. As honestly as you can, please consider the five following statements and rate them as you see fit:

1. In terms of my interest in this study, I would rank it as,

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
     | F- | F | D- | D | D+ | C- | C+ | B- | B | B+ | A- | A | A+ |

2. In terms of this study being "worthwhile", I would rank it as,

   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
     | F- | F | D+ | D | D | C- | C+ | B- | B | B+ | A- | A | A+ |

3. In terms of the accuracy of my score indicating my present social adequacy, I would say the score is:

   | 1 | 2 | 3 | 4 | 5 |
---|---|---|---|---|---|
very inaccurate | fairly average | fairly accurate | very accurate |

4. After participating in this social adequacy research, I feel that my expectations concerning my social adequacy have:

   | 1 | 2 | 3 | 4 | 5 |
---|---|---|---|---|---|
decreased considerably | Decreased not= increased | increased somewhat considerably |

5. After participating in this social adequacy research, I feel that my social adequacy behavior will have:

   | 1 | 2 | 3 | 4 | 5 |
---|---|---|---|---|---|
decreased considerably | Decreased | not increased | increased | increased |

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APPENDIX J

DEBRIEFING FORM
Social Attitude Experiment

The purpose of the social attitude experiment was to explore the relative predictive power of trait-expectancy and reinforcement theories in the prediction of self-esteem. A trait-expectancy theory would maintain that a mental expectancy, such as level of self-esteem in social situations, would remain relatively stable under a variety of social situations with or without social reinforcement or social punishment. A reinforcement theory, on the contrary, would maintain that the self-esteem in a social situation would rise and fall under different social situations as the contingencies of social reinforcement and social punishment vary.

To examine the relative predictive power of those two theories, the research followed the procedures as outlined below.

Pretests

The three pretests measured: (a) The relative (to CNC students) degree to which you believed that your behavior was related to environmental reinforcement contingencies or to chance, fate, or luck. (b) The relative degree to which you believed that "powerful others" (professors, politicians, police, etc.) could be trusted. (c) The relative degree to which you would tend to present your best self, or to make the socially-called-for response. On the basis of those tests, approximately 65 CNC students were randomly assigned into three categories: (a) Those who believed in personal responsibility for success and failure; (b) Those who had high trust and believed that success and failure was due primarily to chance. (c) Those who had low trust and believed that success and failure was due primarily to chance.
Experimental Task

Tom Clawson is not an expert on social adjustment. It is true that he is a counselor. He is just completing his doctorate in counseling. His presence was necessary to provide authoritative feedback to experimental subjects concerning their perception of social adequacy on the 30 slides. Under that contrived social situation involving you, Tom Clawson, and the 30 slides, three levels of contrived feedback were given concerning the 'adequacy' of your social perception: (a) Social reinforcement administered by the word, "right." (b) Social punishment administered by the word, "wrong." (c) Some of you were in the "no feedback" group. This was a control group. All feedback was both contrived and random.

Posttest Situation

Under this condition, subjects were given either no feedback, or feedback indicating high success or feedback indicating low success concerning perception of social adequacy. Feedback in all instances was contrived. One of the 9 scales on the TSCS (a personality test) measured "social self-esteem." That score constituted the dependent variable. The other two brief tests were of interest mainly to determine those subjects who clearly saw the purpose of the research from those who did not. Those tests were also useful in picking subjects giving highly negative and improbable answers.

In conclusion, what we hope to find is a statistically significant relationship between experimental treatment level and self-esteem scores. It should be pointed out that even if significance is attained, such changes in level of self-esteem would be quite temporary. It is
felt that reinforcement will temporarily elevate level of self-esteem and social punishment will temporarily lower the level of self-esteem.

The research is concerned primarily with an assessment of comparative efficiencies of Skinner's paradigm and Rotter's paradigm. The secondary concern of the research is practical and relates to therapeutic procedures and environmental manipulation during therapy.

Any specific questions you may have regarding any aspect of this research will be fully and honestly answered by appointment.

Dave Dooley
Office: W-105
Phone: 599-7093
abstract

Purpose

Skinner's reinforcement theory and Rotter's expectancy theory were compared for their relative efficiencies in the prediction and control of self-esteem as measured on the Tennessee Self Concept Scale (TSCS), sub-scale, "social self." The theoretical predictions were different for 4 hypotheses, and identical for 2 hypotheses.

Classification of Subjects

On the basis of Rotter's Interpersonal Trust Scale and I-E scale, students were classified as Internals, Defensive Externals, and Congruent Externals. Social Desirability Scale (Crowne & Marlowe) scores were treated as covariates to partial out social desirability effects on self-esteem.

The 21 students in each of the three expectancy groups were randomized into three treatment groups (social reinforcement, aversive social control, and control group) which completed a 3 X 3 factorial design.

Procedure

Individual students were seated at a non-commercial operant response panel on which were mounted two push-buttons designated "yes," and "no." A confederate, who had previously been introduced as an expert in "social adequacy" research was seated close to the student.

In front of the response panel was a movie screen on which were projected non-commercial movie slides depicting social situations. Each of the 30 slides contained sentences explaining the situation and requesting a "yes" or "no" response concerning the "social adjustment" of one of the slide characters. A button press response terminated one slide and introduced the next slide. That sequence continued until all 30 slides had been responded to.

Students in the reinforcement condition randomly received falsified but credible response contingent feedback from the confederate that 70% of their choices were "right." Students were then shown falsified norms from a journal; their scores were interpreted as indicating more "social adjustment" than about 75% of typical college students.

Aversively controlled students were randomly told they were "wrong"; the norms were interpreted for them as indicating that about 65% of typical college students had greater "social adjustment" than they.

Students in the control group viewed the slides without any feedback or introduction to the norms.

After completing the experiment, students were administered the TSCS; only the 18 items for the "social self" sub-scale were computed.

Results and Conclusions

A two-way analysis of covariance failed to attain significance (p = .05) for expectancy classification effects, F = (2, 62) = .327, p < .99, or for treatment effects, F = (2, 62) = 2.671, p < .08, or for the interaction, F = (4, 62) = .665, p < .99. It was concluded that neither reinforcement theory nor expectancy theory were found to be superior to one another in the prediction and control of "social self" level of self-esteem.

A discussion of the findings and recommendations for future research are presented in the last 11 pages.
**Vita**

Name: David Edward Dooley  
Born: November 14, 1936  
Marital Status: Married

### Education

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<td>1958 -1959</td>
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<td>1959 -1962</td>
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<td>1965 -1966</td>
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<td>1966 -1967</td>
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### Degrees

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<td>Psychology, Philosophy, Minor: English</td>
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<td>Ed.D.-1976</td>
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### Military

Enlisted in the Marines in August of 1956, released from active duty in August of 1958, and was honorably discharged in 1962.

### Experience

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<td>1970 -</td>
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Professional Societies

American Psychological Association
American Personnel and Guidance Association

Research Activities and Interests

1. Master's Thesis Title: Operant Conditioning of Letter Discrimination Behavior
2. Chairman of Master's Thesis Committee: Dr. Robert L. Crist
3. Doctoral Dissertation Title: A Comparison of the Relative Efficiencies of Reinforcement and Trait-Expectancy Theories in the Prediction and Control of Self-Esteem
4. Chairman of Doctoral Committee: Dr. Charles O. Matthews, II
5. Publications: None
6. 1967-1968 Research consultant at the Hannibal Diagnostic Clinic, Hannibal, Missouri. My job was to establish a behavior modification program, and train the staff. None of our studies were published in my name.
7. My major research interests are in the area of the experimental analysis of behavior. Closely allied to this interest are interests in human and animal operant learning, and behavior therapy.

Teaching Interests

1. General Experimental Psychology
2. Operant and Respondent Animal Learning
3. Topics, or senior-level courses training students in experimental analysis of behavior procedures
4. Learning Theory
5. Personality Theory
6. Behavior Modification
7. General Psychology
8. Psychology of adjustment
9. Counseling Theories
10. Counseling Techniques

Technical Skills

1. Basic shop skills in electromechanical equipment and woodworking
2. Laboratory design, and development
3. Initiation and management of behavior modification programs
4. Experimental apparatus design and construction

Professional References

1. Dr. Robert L. Crist, Department of Psychology, Illinois State University
2. Dr. Elmer A. Lemke, Department of Psychology, Illinois State University
3. Dr. Bruce E. Hoiberg, Department of Psychology, Christopher Newport College.