Repression-sensitization and verbal conditioning.

Leon David Silber

University of Massachusetts Amherst

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REPRESSION-SENSITIZATION AND VERBAL CONDITIONING

A Dissertation Presented
By
Leon David Silber

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REPRESSION-SENSITIZATION AND VERBAL CONDITIONING

A Dissertation

By

Leon D. Silber

Approved as to style and content by:

Ralph Lippitt
(Chairman of Committee)

Albert J. Anthony
(Member)

Albert W. Parsons
(Dean, School of Education)

Robert C. James
(Member)

January, 1968
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Leon D. Silber
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CHAPTER I

INTRODUCTION

The Problem

Repression-sensitization is a relatively new concept in the literature of personality research. It is considered to be an important determiner of some aspects of interpersonal behavior. It affects a wide variety of behaviors including an individual's perception of others, his responses to the demands of social situations, and basically, his effect upon others. Byrne (1965) concludes that these behaviors are a function of a person's characteristic defense modes. He further states,

... the repression-sensitization variable should be placed within a framework of empirical laws. It will be possible to predict individual differences along this dimension when its antecedents are known and to predict the effects of these differences on other behavior when its correlates and consequents are known ... the goal is to place this variable in a predictive framework. ... Instead of a colorful literary description of repressors and sensitizers, lawful relationships among variables will be sought (pp. 53-54).

The nature of this investigation is in the form of a construct validity study, in the hope of providing some data to differentiate between repressors and sensitizers in an interpersonal task. For this reason, verbal operant conditioning was picked as the differentiating task for two
reasons. The first was the lack of previous research that compared groups of repressors and sensitizers on this type of task. Second, verbal operant conditioning is very much an interpersonal situational task and has many analogues in the form of student-teacher interaction, therapist-client interaction, parent-child interaction, and the whole range of all interpersonal interactions. This study may help to shed additional light on some of these complex interactions.

Repression-Sensitization

During the 1940's, a new dimension was added to research in perception. By developing a unidimensional categorization for defense mechanisms, the traditional psychoanalytical conception of these mechanisms was modified to describe an individual's reaction to a threatening as opposed to a non-threatening stimulus in a perceptual task. In 1947, Bruner and Postman first used the term "perceptual defense" to describe this ongoing process. The authors suggested that some individuals revealed a defensive process in which recognition thresholds to potentially threatening stimulus words were an increasing function of associative reaction times. The greater the anxiety produced by these words, the greater the perceptual defense. Other subjects demonstrated a sensitizing process in which recognition time to these same types of words was actually faster than to a more neutral set of words.
Other studies which investigated the effects of this defensive process on differences between threatening and non-threatening stimuli soon followed (Carpenter, Wiener, and Carpenter, 1956; Eriksen, 1951, 1952a; Kissin, Gottesfeld, and Diekes, 1947; Kogan, 1956; Lazarus, Eriksen, and Fonda, 1951; Nelson, 1955; and Shannon, 1962). This defensive process was described as a continuum with repressing types of defenses at one end and sensitizing or vigilant defenses at the other. Those subjects who fall at the repressive end of the continuum are characterized by their use of avoidant defenses such as denial, repression, reaction-formation, projection, displacement, isolation and undoing (Freud, 1915; Byrne, 1965). At the sensitizing extreme of this continuum are those behaviors which involve an attempt to reduce anxiety by means of an approaching, facilitating, intellectualizing, and vigilant manner of defense (Byrne, 1961; Tampone, 1963). Essentially, these subjects attempt to reduce their anxiety by approaching or controlling the stimulus and its consequents.

Other studies utilizing a repressing-sensitizing variable soon followed the perceptual defense studies. Lazarus and Longo (1953) found that subjects who were shocked and tended to forget the shock also were unable to recall material associated with the experimental task. Other subjects who were able to recall their failures in the experimental task
were also able to recall the material associated with electric shock. Eriksen (1952b) found that individuals who recall incompleted tasks in a threatening situation were able to learn affective words as easily as more neutral ones, while those who forgot the incompleted tasks experienced difficulty in learning. These behavior tendencies were noted in a wide variety of tasks such as the association of aggressive and succorant words with the Rorshach (Eriksen and Lazarus, 1952); the emitting of emotional words in response to Thematic Apperception Test cards (Ullmann, 1958); the identification of facilitators and inhibitors by means of the expression of sexual and aggressive humor (Ullmann and Lim, 1962). The aforementioned studies provided the framework for the pursuit and further study of the variable called repression-sensitization.

The Minnesota Multiphasic Personality Inventory (MMPI) provided a large pool of items from which many authors first developed various types of repression-sensitization scales (Carlson, 1954; Eriksen, 1954; Eriksen and Browne, 1956; Eriksen and Davids, 1955; Eriksen, Kuethe, and Sullivan, 1958; Gordon, 1957, 1959; Mathews and Wertheimer, 1958; Page and Markowitz, 1955; Truax, 1957; and Ullmann, 1958).

The lack of an empirical derivation of a true repression-sensitization scale was a major criticism of these early scales. Altroochi (1961) selected the D, Pt, and Welsh
Anxiety Scales as measures of sensitization and the L, K, and Hy denial Scales from the MMPI as measures of repression. By subtracting each subject's total score on the latter scales from his total score on the former ones, a score for repression-sensitization was obtained.

Byrne (1961) refined Altrocchi, Parsons and Dickoff's scale by substituting a new scoring system which eliminated the overlapping, inconsistently scored items. The result was an 156 item Repression-Sensitization Scale (R-S Scale) in which high scores indicated sensitizing types of responses and low scores, repressing types of responses. A wealth of studies utilizing this scale were soon initiated in the following areas: clinical judgements (Byrne, et al., 1963; Tempone, 1963); selective forgetting (Gossett, 1964); perceptual defense (Tempone, 1962; Ullmann and McReynolds, 1963); awareness of anxiety (Byrne and Sheffield, 1964); physiological response to threat (Lazarus and Alfert, 1963); responding to ambiguous stimuli (Byrne, 1961; Tempone, 1963; Blaylock, 1963); and response to humor (O'Connell and Peterson, 1963). Byrne (1965) in his extensive chapter on repression-sensitization concluded the following from these lines of evidence:

Predictions based on the assumptions that scores on the Repression-Sensitization Scale (R-S Scale) indicate individual differences in the tendency to repress or deny or avoid threatening stimuli have been relatively well supported. There is evidence that behavior which clinicians define as repressive
is related to the behavior measured by the test. When confronted by threatening or anxiety-provoking situations, individuals on the two ends of the scale differ in the predicted direction in terms of memory, perception, and reported anxiety; further, these differences are not manifest in neutral situations (p. 20).

**Verbal Conditioning**

Krasner (1958) in an extensive review of the area of verbal conditioning concluded that studies of the operant conditioning of verbal behavior should be reviewed separately from studies generally called verbal conditioning. What is meant by the latter is a type of conditioning of "verbal expectations" (Humphreys, 1939). In the former, verbal operant conditioning, the subjects emit verbal behavior as part of an interpersonal task and the experimenter reinforces a pre-selected class of the subject's behavior by means of verbal or nonverbal cues. This growing body of research has been further reviewed by Salzinger (1959), Williams (1964), and London and Rosehan (1964).

Further, Bruner and Postman (1947) state that, ". . . perception involves a selection by the organism of a relatively small fraction of the multiplicity of potential stimuli to which it is exposed at any moment in time. In perception, moreover, certain stimuli are accentuated and vivified at the expense of others (p. 300)." The task involved in verbal operant conditioning is analogous to what the above authors describe as the most important part of
the process of perception. The organism selects out a particular stimulus from those made available to him and by means of the experimenter's reinforcement, the stimulus becomes accentuated and fixated upon which would give rise to the contingency relationship of the stimulus with the response at the conscious level. Thus, the behavior in the verbal operant conditioning situation is analogous to the identification of stimuli in perception.

One of the most frequently used verbal reinforcing stimuli in the literature is the "mmm-hmm" sound. Greenspoon (1955) using "mmm-hmm" and "huh-uh" as reinforcing stimuli, found that "mmm-hmm" produced an increase in the frequency of both plural responses and increased non-plural responses. In Krasner's review article, five studies obtained positive results using "mmm-hmm" as a reinforcing stimulus (Ball, 1952; Greenspoon, 1955; Mandler and Kaplan, 1956; B. Sarason, 1957; and I. Sarason, 1957). Two studies came up with negative results (Daily, 1953; and Hildum and Brown, 1956).

**Verbal Conditioning and Awareness**

The question of awareness is as yet an unsolved problem in the literature of verbal conditioning. The basic question involved is: can learning take place when the subject is not aware that he is learning? Adams (1957) in a lengthy review on the topic concludes that the evidence does
not positively state that such learning occurs. Further there was little uniformity as to what constitutes awareness nor general agreement on how to measure it. Krasner reports that approximately 5% of all the subjects in the studies that he reviewed were classified as aware by the various experimenters. Dulaney (1961) mentions the factor of the mediation of verbal hypotheses as a necessary concomitant of conditioning. The subject must be aware on some level.

The primary means of measuring the factor of awareness is by some form of self-report or extended interview. Greenspoon (1955) asked four open-ended questions: "What do you think it was all about?" "Did you notice any change in the kinds of words you were saying?" "What do you think the purpose of the 'mmm-hmm' was?" "How long do you think you were saying words?" Studies by Mandler and Kaplan (1956) and Taffel (1955) used similar techniques.

Levin (1961) found that increasing the length of the post-conditioning interview increased the number of the subjects judged aware. Other studies (Ekman, Krasner and Ullmann, 1963; Kanfer and Marston, 1962; Simkins, 1963; Spielberger, 1962; Spielberger, Levin and Shepherd, 1962) concluded that awareness was a complex interaction of pre-conditioning instructions, discriminability of critical response and reinforcement, personality interaction, and atmosphere. They further suggest that these variables can
be controlled in order to influence subject awareness. Although not a major aspect of this study, awareness will be investigated. Because of the defensive functioning of sensitizers and repressors, differences in awareness should be a concomitant of the verbal conditioning task.

**Evaluation of the Reinforcement**

Mandler and Kaplan (1956) upon combining all the data for their subjects found that the reinforcing stimulus "mmm-hmm" did not increase the rate of plural nouns that were emitted by the subjects. Upon interviewing the subjects, the authors indicated that there were two entirely different interpretations of the reinforcing stimulus. One group interpreted it positively, viewing "mmm-hmm" to mean that they were doing all right, or simply that it was encouraging them to go on. The other group of subjects viewed the reinforcing stimulus in a negative way. They thought that it meant that they were going too fast or they were giving the wrong kind of words. When these two groups were analyzed separately, the "positive" group demonstrated clear conditioning effects, while the "negative" group showed a decrease during the first period of acquisition.

Spielberger, Levin and Shepard (1962) added a question to their post-conditioning interview to determine the subject's evaluation of the reinforcement. They asked, "Would you say you wanted me to say 'good'?" and further required
the subjects to choose from three alternatives (very much, didn't care one way or the other, or some) which described the intensity of their desire to receive the reinforcement during the acquisition trials. Their data indicated that subjects who wanted "very much" to receive the reinforcement demonstrated a greater degree of acquisition of those pronouns of which they were aware than did those subjects who wanted the reinforcement "some" or "didn't care" whether or not they received the reinforcement.

This factor of evaluation of the reinforcement should lead to differential predictions for sensitizers and repressors. Altrocchi (1961) has mentioned that sensitizers tend to make themselves look bad in order that others will reassure them whereas repressors tend to make themselves look good in order that others will praise them. Tempone (1963) predicts that a given threat-experience stimulus associated with that experience would take on a different meaning for repressors and sensitizers. Repressors would avoid similar threat-situations and stimuli associated with these situations where the sensitizers would become acutely aware of similar situations and the stimuli associated with them. For these reasons, sensitizers are expected to value the reinforcement more than would the repressors. Also, if the value of the reinforcement distinguishes between repressor and sensitizer groups, it would also have a pronounced effect
Personality Characteristics and Conditioning

The study of personality characteristics and conditioning has developed into a fertile field for research. Williams (1964) in her lengthy review said,

... there is an increasing interest in the reinforcement history of the individual, which manifests itself in the state of the subject when he enters the experimental situation (Salzinger, 1959). Attempts to measure the effects of such states on conditionability fall into two general categories. One line of investigation uses various devices to measure, in a sense, the reinforcement history of the subject, defined operationally by his scores on tests of personality variables. The other is concerned with manipulating some intra-individual state experimentally and then observing its effect on conditioning (p. 387).

The present study was concerned with the former category. Eysenck (1955) postulated that neurotics of the dysthymic type should condition more readily than neurotics of the hysterical type. Those individuals characterized as dysthymic predominantly employ sensitizing types of defenses while the hysterical utilizes repressive types of defenses. Franks (1954) found that dysthyrmics condition more quickly, condition more strongly, and extinguish less quickly than do normals. Hystericis, on the other hand, condition less quickly, condition less strongly, and extinguish more easily than did the normals in this study.

Franks (1957) utilized a classical conditioning paradigm with an eyeblink reflex and found that dysthyrmics
Gelfand and Winder (1961) hypothesized that dysthymics condition more readily and stably and therefore make more conditioned responses in an acquisition and extinction series than do hysterics. Using the Taffel (1955) procedure and the word "good" as a reinforcer, the authors found that dysthymics and hysterics were not different in the operant level of the verbal conditioning task. In acquisition (60 trials), dysthymics produced more first person pronouns than did the hysterics. It is worthwhile to note that although both classical and instrumental types of conditioning have been used in the aforementioned studies, the results are consistent in that sensitizers or dysthymics condition significantly better and are more difficult to extinguish than are the repressors or hysterics for both types of conditioning.

Repressors have also been viewed as subjects scoring high on the Hysteric (Hy) Scale of the MMPI, while sensitizers have been viewed as scoring high on the Psychasthenia (Pt) scale of the MMPI. Kanfer and Marston (1962) found significant differences between those subjects who scored high on the two scales and a Taffel-like verbal conditioning task. There was a difference in content selection of the pronouns and latency of responding between the groups. The authors
interpreted these differences, in favor of the sensitizers (high Pt scorers), as reflecting differences in response sets associated with personality variables.

Eysenck (1955) stated that dysthymics are persons suffering from anxiety which was Jung's prototype group for the concept of introversion. Hysterics on the other hand, were Jung's prototype group for the concept of extraversion. Eysenck (1959) utilizing the pronoun "they" and three verbs of equal frequency of occurrence, found that extraverts gave more verbs having to do with muscular activity than did the introverts. These results were contrary to his theory. McDonnell and Inglis (1962) failed to support the hypothesis that operant conditioning was related to introversion-extraversion during either the acquisition or extinction phase. There was also no relationship established between the rate of extinction and introversion-extraversion. Quay and Hunt (1965) reinforced "I-we" pronouns with a group of incarcerated offenders from the United States Navy and found that extraversion was related to conditionability. Das (1961), Das and Mitra (1962) also fail to provide support for Eysenck's theory. The result of these studies is mixed, to say the least. There have been no consistent findings relating the dimensions of introversion-extraversion to conditionability. Although evidence is gathering to negate Eysenck's theory, it is by no means conclusive. If repression-sensitization
is a stable dimension of personality, differences on a verbal conditioning task, might help to provide an additional source of information to account for the conflicting results of Eysenck's introversion-extraversion dimension.

**Rationale of the Conditioning Task**

Most studies of verbal conditioning utilize a Taffel-like task where there are three or more pronouns and one verb typed on an index card. The task for the subject was usually to pick any of the pronouns he wished and make up a sentence utilizing the pronoun and the verb.

I. Sarason (1956) utilized in somewhat different procedure. He had one pronoun and a choice of three verbs typed on index cards. The task for the subject was to use the pronoun and pick any one of the three verbs to make a two-word sentence.

The task involved in this study was similar to Sarason's because it was felt that if the concepts of repression-sensitization were to have construct validity, the task should not only differentiate between the two groupings but should have a differential meaning to each group on the basis of the structure of their defensive modes of operation. It was because of this reason that two distinct verb classes were developed. Freud (1894) said that,

In hysteria, the unbearable idea is rendered innocuous by the quantity of excitation attached to it being transmuted into some bodily form of expression. . . .
The conversion may be either total or partial and it proceeds along the lines of motor or sensory innervation (p. 89).5

This notion of Freud's, along with the work of Gelfand, Winder, Franks and Eysenck appears to support the idea that repressors would condition better to "motor-action" type verbs than would the sensitizers.

Concerning obsessions, Freud stated, "... the separation of its affect from an unbearable idea is nonetheless undertaken as a defense against the latter, then this affect must persist in the psychical sphere. Thus weakened, the idea remains present in consciousness, detached from all associations (p.91)."6 It is on this basis that sensitizers will be expected to condition better than would a group of repressors to "thought" type verbs.

Summary of Pilot Study

During the summer of 1963, Silber and Baxter attempted to condition fifty-two undergraduate male and female college students classified as sensitizers and repressors to "thought" and "motor-action" type verbs. An analysis of variance of scores in the operant phase of the task produced a significant difference (< .001) between thought and motor-action type verbs, with the thought verbs being emitted more frequently than the motor-action type verbs. An analysis of variance using difference scores was performed on the acquisition phase of the conditioning series. There were no significant
differences between repression-sensitization groups, verb types, nor were the interactions significant. Also, unfortunately, differences over trial blocks were not significant, indicating that a significant degree of acquisition was not obtained. An analysis of variance using difference scores was performed on the extinction phase of the task. There was a significant difference across trials, indicating the presence of extinction (< .01), with the repressors showing the greater extinction. The absence of conditioning during the acquisition phase was felt by the authors to reflect three basic factors. The first was the verb difference. It seemed that the subjects were unable to respond with "motor-action" type verbs in an "intellectual" task. The second was the presence of only one experimenter. This may have resulted in some bias or action on the experimenter's part which may have affected conditioning. It was felt that the experiment should be replicated with at least two experimenters in order to possibly rule out these effects. Also, sensitizers and repressors were identified by dichotomizing the R-S Scale scores. It was felt that a third category "neutrals" might be more efficient in a future study because of the failure of the literature to identify the subject falling at the middle of the scale.

Purpose of the Study, Variables, and Hypotheses

The purpose of this study was to compare groups of
sensitizers, neutrals, and repressors in an interpersonal situational task, that of verbal operant conditioning. Two experimenters were selected to condition these three groups of subjects to "motor-action" and "thought" type verbs. These specific verb classes were chosen on the basis of the theoretical makeup of defensive functioning of the sensitizers and repressors. Three major independent variables were investigated. They were repressor-neutral-sensitizer groups, verb class ("thought" and "motor-action"), and experimenters. The major dependent variable in this study was the number of verbs of the pre-selected verb class that were emitted by the subjects during the verbal operant conditioning task.

The following hypotheses were tested:

1) There is no difference in the operant level of the conditioning task for sensitizers, neutrals, and repressors.

2) During the acquisition phase of the conditioning task, sensitizers should tend to condition better to "thought" type verbs while the repressors should tend to condition better to "motor-action" type verbs.

3) During the extinction phase of the conditioning task, sensitizers should tend to be more resistant to extinction than would the repressors.

4) Sensitizers should tend to evaluate the reinforcement more favorably than would the group of repressors.

**Summary of the Chapter**

The conception of repression-sensitization as a dimension of personality grew out of the literature of
perceptual defense. Repressors were characterized as avoiding the perception of a threatening stimulus while sensitizers were characterized as vigilant in perceiving it.

The early repression-sensitization scales were based on MMPI subscales. It was not until Byrne (1961) developed a more empirical approach to the measurement of this dimension, that the concept and its research gained new impetus. As more and more research was being undertaken, empirical differences between sensitizers and repressors were becoming more distinct. The present study was undertaken in the hope that it would provide further evidence for the differentiation of repressors and sensitizers on an interpersonal task, that of verbal operant conditioning.
Footnotes to Chapter I

1. Donn Byrne, "Repression-Sensitization as a Dimension of Personality" (unpublished manuscript, University of Texas, 1965).

2. Ibid.


6. Ibid.
CHAPTER II
PROCEDURE

Subjects

Sixty subjects were utilized in this experiment. They were randomly chosen on the basis of their repression-sensitization scores from Introductory Sociology classes at a community college. Thirty-six males and twenty-four females between the ages of eighteen and twenty-three were chosen for this study. Fifty of these sixty subjects had not had a psychology or sociology course previous to their participation, while ten subjects were currently taking a course in psychology. The professor of the psychology course was consulted. He stated that the topic of verbal conditioning had not been covered in his class. It was assumed that knowledge of operant conditioning procedures was not possessed by this subject population, thus making the group suitable to participate in this experiment.

Method

Byrne's Repression-Sensitization Scale (R-S Scale) was administered to 121 subjects in three Sociology classes in order to choose three groups of subjects for this experiment. Repressors consisted of those subjects scoring from zero to fifty on the R-S Scale. Sensitizers consisted
of those subjects scoring from seventy-one and up on the R-S Scale. The third group, designated "neutrals" consisted of those subjects who scored between fifty-one and seventy on the R-S Scale. The third group was necessary because subjects falling at the midpoint of the Scale cannot be clearly identified as either sensitizers or repressors.

After each subject, on the basis of his R-S Scale scores, was classified as either a sensitizer, neutral, or repressor, he was randomly assigned a class of verbs, either "thought" or "motor-action" which were reinforced during the verbal operant conditioning task. In order to reduce or remove any bias on the part of the experimenters, a judge was selected to randomly assign the class of verbs to each subject. The experimenters, therefore, only knew what verb to reinforce during the verbal operant conditioning situation and not the subject's classification (sensitizer, repressor, or neutral).

Two experimenters were chosen from those who volunteered from an Applied Psychology class at a community college. Two female experimenters were chosen because of their minimal acquaintance with the subjects in this experiment.

Each subject was tested individually in a small room by the experimenter, who was seated opposite the subject with a small table interposed between them. The experimenters were neatly dressed and conducted the sessions with a serious demeanor.
The stimulus materials for the conditioning task, which were similar to those employed by Sarason (1958), consisted of 160 four by six inch white, unlined index cards on each of which the pronoun "He" was typed at the top and three verbs, all in the past tense, appeared at the bottom of each card. The pronoun and the verbs were all typed on an electric typewriter with elite type. The pronoun was typed one-half inch from the top of the card and spaced in the middle of the card. The three verbs were typed one-half inch from the bottom of the card and were equally spaced by thirds of the line. All the verbs on each card were equated for frequency of occurrence by means of the Thorndike-Lorge Word Lists and, whenever possible, the verbs were matched for the number of letters composing each verb. Each of these verbs was typed in lower case letters.

There were forty verbs of each class comprising one set of forty cards. All these verbs were rearranged to make up four sets of forty cards with no verb appearing twice with the same pair of verbs throughout the entire 160 cards. The stimulus cards were presented to each subject, one at a time and in the same order. The subject was required to make up a two-word sentence utilizing the pronoun at the top of the card and any one of the three verbs at the bottom of each card. Each subject received the following instructions:
I am going to show you some cards one at a time. On each card will appear the pronoun "He" at the top and three verbs at the bottom of the card. You are to make up a two-word sentence using the pronoun at the top of the card and any one of the three verbs at the bottom of the card. You may choose any verb that you wish to make up your sentence. Are there any questions?

Prior to the actual initiation of the experiment, each experimenter received supervised training for approximately one hour. The procedures were explained and each experimenter practiced, with supervision, on two subjects.

In order to establish a subject's base rate (operant level) of emission of the to-be-reinforced verb class, the first twenty trials (Cards 1 to 20) were not reinforced. An operant level was necessary because of the differential rates of initial responding by the subjects. Those subjects who have a low base rate can emit many more responses in the acquisition phase than those subjects who have a high base rate. The operant level controls for this factor (Matarazzo, Saslow and Pareis, 1960). Following the operant phase, an acquisition phase of 100 trials (Cards 21 to 120) were reinforced whenever the subject emitted the correct verb from the pre-selected verb class. The reinforcement was "mmm-hmm" said in a monotone by the experimenter (Greenspoon, 1955) during this phase. The last phase, extinction, consisted of forty trials (Cards 121 to 160), in which no reinforcement from the experimenter was forthcoming.

As noted previously, the relationship between subject
awareness and conditionability is an important issue in verbal conditioning studies. In an extensive review of the subject by Adams (1957), it was concluded that evidence for conditioning without awareness is equivocal. One of his major points was the differences in the measures of awareness as well as its diversity of definition has led to a major source of ambiguity in the literature. The whole factor of the subject's self-report has been brought into question (Krasner, 1963). Although these difficulties exist, it was felt that a self-report may be useful for examining the differences between awareness, repressor-neutral-sensitizer groups, and verb classes. In order to investigate this factor, a post-conditioning interview was conducted at the conclusion of the conditioning task (Spielberger, 1962). The interview became more specific and detailed as the interview progressed. The questions and the sequence in which they were asked were designed to elicit information regarding the subject's awareness while avoiding suggesting response-reinforcement contingencies. On the basis of the informants' responses, subjects were classified into "aware" and "not-aware" categories. The interview was divided into three parts. The first part, called the "Brief Interview," consisted of the following four questions: "(1) Did you usually pick the first verb that came into your mind? (2) How did you go about deciding which of the verbs to use? (3) Did you think that you were using
some verbs more often than others? Which verbs? Why? and (4) What do you think the purpose of this was?" The "Extended Interview" consisted of the following questions: "(1) While going through the cards, did you think that you were supposed to pick the verbs in any particular way, or that you were supposed to change the way in which you picked out the verbs? How? (2) Did you notice anything about me while you were going through the cards? (3) Did you notice that I said anything? (4) Actually, I did occasionally say 'mmm-hmm.' Thinking back to when you were going through the cards, do you remember me saying 'mmm-hmm'? (5) (Thinking back to when you were going through the cards) What did my saying 'mmm-hmm' mean to you? (6) Did you try to figure out what made me say 'mmm-hmm' or why or when I was saying 'mmm-hmm'? (7) What ideas did you have about what was making me say 'mmm-hmm'? (8) While going through the cards, did you think that my saying 'mmm-hmm' had anything to do with the verbs you chose to complete your sentences? What?"

If the subject had not correctly established some cognizance of the response-reinforcement contingency up to this point, he was asked the following "Confrontation Question": "Did you ever have the idea that I was saying 'mmm-hmm' after you picked out the verb dealing in some way with thought (or motor-action)?" If the subject still had not stated the response-reinforcement contingency, he
was classified as "not-aware." If he stated the contingency prior to, or at the confrontation question, he was classified as "aware."
CHAPTER III
RESULTS

The data from the 160 trials of the verbal operant conditioning task were grouped into trial blocks. Each trial block consisted of twenty trials. The initial trial block constituted the operant period (Trials 1-20). The next five trial blocks (Trials 21-120) constituted the period of acquisition. The last two trial blocks (Trials 121-160) constituted the period of extinction. The scores in each trial block consisted of the following:

1. **During the operant level:** The count of the verbs that the subject emitted from the pre-selected verb class.

2. **During acquisition:** The count of those verbs that the subject emitted that were reinforced by the experimenter.

3. **During extinction:** The count of those verbs that the subject emitted from the pre-selected verb class.

Upon observing Figure I, the curve for classification group (repressors, sensitizers, and neutrals) across the trial blocks of the verbal operant conditioning task, it was interesting to note that the performance of sensitizers, repressors, and neutrals, though distinct from each other, was not much different in terms of number of responses of the
Figure 1: A Comparison of the Classification Groups

(Repressors, Neutrals, and Sensitizers)

Across the Three Periods of the Verbal Operant Conditioning Task
pre-selected verb class from each other. Sensitizers diminish their responding slightly during the first two trial blocks of acquisition and then begin to increase their responding during the next two blocks of acquisition. Although a slight decrease is evident in the last trial block of acquisition, they again increase their responding during the period of extinction. Repressors show a similar trend, except for the extinction series. Whereas the sensitizers increase their responding in extinction, the repressors demonstrate a leveling off process that showed little change from their last trial block of the acquisition trials. The group classified as neutrals demonstrated minor changes from trial block to trial block but emitted less responses than either the sensitizers or repressors.

When "thought" and "motor-action" verbs were compared over trial blocks of the verbal operant conditioning task (Figure II), two observations seem apparent. First, almost double the numbers of "thought" verbs were emitted by the subjects. Second, the curve for the "thought" verbs continues to show an increase from the initial operant level. During the last two trial blocks of acquisition and the two trial blocks of extinction, there was little difference in the numbers of "thought" verbs emitted. The curve for the "motor-action" verbs was quite different. The responding of the subjects during the period of acquisition and extinction
Figure II: A Comparison of "Thought" And "Motor-Action" Verbs Across The Three Periods of The Verbal Operant Conditioning Task
was below the number of responses that were produced during the operant period. There was also a sharp dip for the last trial block in acquisition and a slight increase for the next two trial blocks of extinction.

A 2 x 3 x 2 analysis of variance comparing classification groups (repressors, neutrals, and sensitizers), verb type and experimenters was conducted for the operant level of the conditioning task (Table I). Support for the first hypothesis of this study was attained when no differences were found between repressors, neutrals or sensitizers in the emission of verbs of the pre-selected verb class. Experimenter I elicited more responses (Mean 6.67) of the pre-selected verb class than Experimenter II (Mean 4.70) as a significant difference for experimenters was obtained (F = 5.42; df = 1 / 48; p. < .05). There was also a significant difference between verb types (F = 13.47; df = 1 / 48; p. < .01) with the "thought" verbs emitted more frequently (Mean 7.23) than the "motor-action" verbs (Mean 4.13).

A 2 x 3 x 2 analysis of variance design was employed to compare classification groups (repressors, neutrals, and sensitizers), verb type and experimenters across the five trial blocks of the acquisition phase of the conditioning task (Table II). Hypothesis 2, concerning the differential conditionability of repressors and sensitizers to "thought"
Table I

Analysis of Variance For Experimenters, Repression-Sensitization Groups And Verb Type For the Operant Level Of The Verbal Conditioning Task

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<td>58.02</td>
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<td>38.04</td>
<td>19.02</td>
<td>1.77</td>
</tr>
<tr>
<td>V</td>
<td>1</td>
<td>144.15</td>
<td>144.15</td>
<td>13.47**</td>
</tr>
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<td>.64</td>
</tr>
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<td>3.75</td>
<td>.35</td>
</tr>
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</tr>
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<td>10.70</td>
<td></td>
</tr>
<tr>
<td>Total</td>
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<td>874.99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p. < .05
** p. < .01

and "motor-action" verbs were not supported. There were no differences between classification groups (repressors, neutrals, and sensitizers) (F = 2.10; df = 2 / 48; N.S.) nor was the interaction of classification group by verb significant (F = .03; df = 2 / 48; N.S.) Conditioning was not demonstrated as the effects over the five trial blocks did not reach significance (F = .66; df = 4 / 192; N.S.). There was a significant effect of verb class (F = 41.25; df = 1 / 48; p. < .001) with "thought" verbs emitted more frequently
(Mean 7.99) than "motor-action" verbs (Mean 3.37).

Table II
Analysis of Variance For Experimenters, Repression-Sensitization Groups, And Verb Type For The Five Blocks Of Trials During Acquisition of The Verbal Conditioning Task

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</tr>
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<td>V x TB</td>
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<td>E x RNS x V x TB</td>
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</table>

* p. < .001

A 2 x 3 x 2 analysis of variance design to compare classification groups (repressors, neutrals, and sensitizers), verb type, and experimenters across the two trial blocks of the extinction period of the verbal conditioning task was conducted (Table III). Hypothesis 3, that sensitizers would be more resistant to extinction was supported as there was
a significant difference among the group of sensitizers as compared to the group of repressors (F = 4.18; df = 2 / 48; p. < .05). The group of sensitizers emitted more responses than either the repressors (T = 1.20; df = 38; N.S.) or the neutrals (T = 1.70; df = 38; p. < .05) for the first block of trials in extinction (Trials 121 to 140). For the second block of trials in extinction (Trials 141 to 160), the sensitizers emitted significantly more responses than did the repressors (T = 1.75; df = 38; p. < .05) or the neutrals (T = 2.35; df = 38; p. < .025).

Again, there was a significant difference between the verbs (F = 44.87; df = 1 / 48; p. < .001) with "thought" verbs being emitted more frequently (Mean 8.36) than "motor-action" verbs (Mean 3.13). Throughout the analyses that have been conducted, verb type has been consistently significant. "Thought" verbs were emitted at about twice the rate of "motor-action" verbs.

A significant interaction was found between verb type and experimenters (F = 5.30; df = 1 / 48; p. < .05) with Experimenter I eliciting more "thought" verbs in block 1 (T = 2.25; df = 28; p. < .025) and block 2 (T = 1.77; df = 28; p. < .05) of extinction. There were no significant differences between the experimenters and the extinction of "motor-action" verbs in either block 1 (Trials 121 to 140) or block 2 (Trials 141 to 160).
Extinction did not occur as there were no changes occurring in the rate of emission of verbs from block 1 of extinction to block 2 of extinction (F = .13; df = 1/48; N.S.).

Table III
Analysis of Variance For Experimenters, Verb Type, and Repression-Sensitization Groups For The Two Blocks of the Extinction Period of the Verbal Conditioning Task

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<td>2.91</td>
</tr>
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<td>1</td>
<td>53.33</td>
<td>53.33</td>
<td>4.18*</td>
</tr>
<tr>
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<td>153.35</td>
<td>76.67</td>
<td>4.87**</td>
</tr>
<tr>
<td>V</td>
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</tr>
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<td>.36</td>
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<td>97.20</td>
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<td>Within Ss</td>
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</table>

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

In order to take into account the change in responding from one trial block to another, difference scores were constructed for two further analyses. A difference score was
obtained by subtracting the responses of the previous block of trials in a series from those responses occurring in the next trial block. These difference scores provide information concerning the change in serial order responding from one trial block to the next. They were accomplished as follows:

A. For the Period of Acquisition:

1. The responses in block 1 of the operant level minus the responses in block 1 of acquisition.
2. The responses in block 1 of acquisition minus the responses in block 2 of acquisition.
3. The responses in block 2 of acquisition minus the responses in block 3 of acquisition.
4. The responses in block 3 of acquisition minus the responses in block 4 of acquisition.
5. The responses in block 4 of acquisition minus the responses in block 5 of acquisition.

B. For the Period of Extinction:

1. The responses in block 5 of acquisition minus the responses in block 1 of extinction.
2. The responses in block 1 of extinction minus the responses in block 2 of extinction.

In some cases, negative numbers resulted from these subtractions. A constant of 10 was added to each difference score in order to eliminate any negative numbers.

A 2 x 3 x 2 analysis of variance design employing difference scores was used to compare classification groups (repressors, neutrals, and sensitizers), verb type, and experimenters across the five trial blocks of acquisition of the verbal conditioning task (Table IV). Again, there was a
significant difference for verb type \( (F = 10.38; \text{df} = 1 / 48; p < .01) \) with the "motor-action" verbs emitted more variably (Mean change 10.27) than the "thought" verbs (Mean change 9.78).

Table IV

Analysis of Variance Utilizing Difference Scores For Verb Type, Experimenters, And Repression-Sensitization Groups For The Acquisition Period Of The Verbal Conditioning Task

<table>
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<td>17.76</td>
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<td></td>
</tr>
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<td>TB</td>
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*p. < .01

A 2 x 3 x 2 analysis of variance design employing difference scores was used to compare classification groups (repressors, neutrals, and sensitizers), verb type, and
experimenters across the two trial blocks of extinction of the verbal conditioning task (Table V). There were no significant differences found for experimenters, verb type, nor were the repression-sensitization groups different from each other during the extinction phase of the task. This data indicated that there were no significant changes from block to block of the extinction trials for any of the classifications.

Table V

Analysis of Variance Utilizing Difference Scores For Verb Type, Experimenters, and Repression-Sensitization Groups For the Extinction Phase of the Verbal Conditioning Task

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<td>2.70</td>
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<td>.01</td>
</tr>
<tr>
<td>V</td>
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<tr>
<td>Error</td>
<td>48</td>
<td>2.62</td>
<td>.03</td>
<td>.29</td>
</tr>
</tbody>
</table>

| Within Ss       | 60 | 900.14         |              |     |
| TB              | 1  | 1.20           | 1.20         | .07 |
| E x TB          | 1  | 2.70           | 2.70         | .16 |
| RNS x TB        | 2  | .92            | .04          | .05 |
| V x TB          | 1  | .04            | .04          | .002|
| E x RNS x TB    | 2  | 3.47           | 19.19        | .20 |
| E x V x TB      | 1  | 19.19          | 19.19        | 1.14|
| RNS x V x TB    | 2  | 4.66           | 4.66         | .27 |
| E x RNS x V x TB| 2  | .14            | 28.87        | 1.72|
| Error           | 48 | 16.69          |              |     |

When the data for the postconditioning interview were scored, fifty-two subjects were classified as "not-aware"
while eight subjects were classified as "aware" of the response-reinforcement contingencies. When these classifications were further divided into groups of sensitizers, neutrals, and repressors, and verb type ("thought" or "motor-action"), two cells of the table were void of subjects. Due to the lack of subjects in some cells and the small number of subjects in other cells, the data did not lend itself to further analysis.

Table VI
A Comparison of Awareness, Repression-Sensitization, and Verb Type Categories From The Postconditioning Interview

<table>
<thead>
<tr>
<th></th>
<th>Aware</th>
<th>Not Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sensitizer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Thought</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Neutral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Thought</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td><strong>Repressor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Thought</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td>8</td>
<td>52</td>
</tr>
</tbody>
</table>

All the subjects were asked in the postconditioning interview whether they liked the reinforcement "very much," "a little," "neutral," "disliked it a little," or "disliked it very much." The subjects were then classified into the categories of like, neutral, and dislike of the reinforcement.
Because of the small number of subjects comprising each cell of the table, additional analyses were not calculated. Although the hypothesis of sensitizers or repressors evaluating the reinforcement could not be directly tested, eleven sensitizers and eleven repressors said that they "liked" the reinforcement. Also, four sensitizers and four repressors said that they "disliked" the reinforcement. The data are somewhat suggestive of a "no difference hypothesis" which does not discriminate between sensitizers and repressors for the valuation of the reinforcement.

Table VII

Evaluation of the Reinforcement by Classification Groups (Repressors, Neutrals, and Sensitizers) and Verb Type

<table>
<thead>
<tr>
<th></th>
<th>Like</th>
<th>Neutral</th>
<th>Dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitizers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Motor</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Neutrals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Motor</td>
<td>6</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Repressors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thought</td>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Motor</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Totals</td>
<td>31</td>
<td>13</td>
<td>16</td>
</tr>
</tbody>
</table>
Summary of Chapter III

Analysis of variance procedures were employed to test the hypotheses of the operant level, the acquisition period, and the extinction period of the verbal operant conditioning task. Support was obtained for Hypothesis 1 of no difference in responding during the operant level for repressor, neutral, or sensitizer groups. Hypothesis 2 was not supported during the analysis of the period of acquisition. There were no significant differences found between repressors and sensitizers to "motor-action" and "thought" type verbs. Also, conditioning did not occur during the acquisition series as the effects of trial blocks were not significant. During extinction, sensitizers continued to give responses to "thought" type verbs more than did the repressors. Although extinction effects were not present, Hypothesis 3 was supported due to the difference in responding between sensitizers and repressors, in favor of the sensitizers. Throughout these three analyses, the main effects for verb type were always significant with "thought" verbs being emitted more frequently than "motor-action" type verbs.

During the operant level, Experimenter I elicited more responses than Experimenter II. During the period of extinction, Experimenter I continued to elicit more verbs than Experimenter II. She significantly elicited more "thought" verbs while "motor-action" verbs demonstrated no differences.
Analyses concerning awareness categories by classification group (repressors, neutrals, and sensitizers), and verb type as well as analyses comparing evaluation of the reinforcement, by classification group and verb type were not conducted because of the minimal number of subjects comprising many of the cells of each table. The data for evaluation of the reinforcement were somewhat suggestive of a "no difference" hypothesis between repressors and sensitizers. This did not lend support to the fourth Hypothesis which suggested that sensitizers would tend to value the reinforcement more than would the group of repressors.
CHAPTER XIV

CONCLUSIONS AND DISCUSSION

This chapter will summarize the findings of this research. The conclusions will be listed first and then the discussion of these conclusions will follow. A concluding section will be devoted to suggestions for further research.

The following are the conclusions of this study:

(1) There was a differential rate of responding to the response class of verbs. All subjects tended to emit significantly more "thought" verbs than "motor-action" verbs during the operant level, period of acquisition, and period of extinction in the verbal conditioning task.

(2) There was a differential responsivity on the part of the subjects to the experimenters in the operant level and the period of extinction of the verbal conditioning task. Experimenter I elicited more "thought" verbs during both periods while there was no difference between experimenters in the eliciting of "motor-action" verbs.

(3) The subjects in this experiment did not condition during the period of acquisition of the verbal conditioning task, nor obviously, did they demonstrate extinction during the extinction period of the conditioning task.

(4) As predicted, sensitizers did not differ from
groups of repressors or neutrals during the operant level of the verbal conditioning task.

(5) There were no differences between classification groups (repressors, neutrals, and sensitizers) and verb type during the period of acquisition of the verbal conditioning task. Support for the hypothesis of differential condition-ability for sensitizers and repressors to "thought" and "motor-action" verbs was not obtained.

(6) During the period of extinction of the verbal conditioning task, sensitizers continued to emit more responses than either the repressors or the neutrals. Although there were no significant differences between classification group (repressors, neutrals, and sensitizers) and verb type, "thought" verbs were emitted more frequently than "motor-action" verbs during the period of extinction. The data lend support to the third hypothesis that sensitizers would emit more responses in extinction than would the repressors.

(7) It seemed that conditioning may have been in part, a function of awareness as fifty-two of the sixty subjects were classified as unaware of the response-reinforcement contingencies. This data supports the literature which suggests that no learning occurs without the factor of awareness.

(8) There appeared to be no differences between sensitizers and repressors with respect to the evaluation of
the reinforcement. Equal numbers of sensitizers and repressors (eleven subjects of each classification) "liked" the reinforcement, while four subjects of each classification "disliked" the reinforcement. Support was not obtained for the hypothesis of sensitizers valuing the reinforcement more than would the group of repressors in this study.

Discussion

Throughout the entire verbal operant conditioning task, subjects emitted "thought" verbs more frequently than the "motor-action" verbs. It appeared as though the subjects had an implicit set operating against the emission of the "motor-action" verbs, that possibly the other verbs, those of "thought" and "verbal activity," appealed to the subjects more than the "motor-action" verbs. It may well be that subjects who are enrolled in a community college at the time of experimentation, are preoccupied with situations involving "intellectual activities," and it is difficult to surmount this implicit set, or in this experiment, respond to the "motor-action" verbs. In other words, the contingencies involved with the "thought" verbs were previously established and were prepotent over the contingencies necessary to respond to the "motor-action" verbs. As Salsinger (1959) said, "A great deal depends on the person's history, i.e., on his 'natural' response classes. While the content of such classes can be modified by the experimenter,
this response differentiation often takes more time than a subject is willing to give (p. 69).

The interviewer is an important factor in any interaction. Many times, the interviewee is influenced by the particular interviewer's physical and behavioral characteristics. Opinions of the interviewees have been changed when alterations in the characteristics of the interviewer were accomplished (Cantril, 1944; Robinson and Rohde, 1946; and Sarason, 1954). Binder, McConnell and Sjoholm (1957) found that differential physical characteristics of the experimenter had an effect on the conditioning of the subjects with a female experimenter obtaining a steeper slope for rates of learning curves than the male experimenter.

In the present study, both female experimenters were similar in age, height, and appearance. Another explanation is necessary to explain the differences between experimenters.

Lublin (1965) suggests that the following characteristics of the experimenter would be important determinants of his or her effectiveness: (1) the speed in which the experimenter uttered the reinforcement after the subject emitted the response to the pre-selected verb class; (2) the experimenter's overall success in emitting reinforcement appropriately and withholding it when it is appropriate to do so; (3) some experimenter's utterances are more potent reinforcers than the utterances of others. This is a result
of the personality differences of the experimenters. These three explanations although not directly tested or controlled in the present study, appear to explain the differential effects of the experimenters in eliciting a certain class of verbs. As there were no differences in the eliciting of "motor-action" verbs on the parts of the experimenters, a combination of the implicit set and the above experimenter characteristics best appear to account for the data.

The present study failed to demonstrate conditioning or extinction for the groups of sensitizers and repressors. If, in fact, the concepts of repressor and sensitizer have utility in describing defensive mechanism functioning, then the verbal operant conditioning task should have differentiated between the groups. Some clues as to the reasons for the lack of conditioning were found by examining further, the postconditioning interview. When asked, "What do you think the purpose of this was?" in the postconditioning interview, twenty-three of the sixty subjects responded by stating, in one form or another, that they were supposed to pick out the repeated verbs. Nine subjects felt that the task was to "differentiate personalities of the students." Four subjects simply stated that they "randomly chose the verbs." Four subjects thought the reinforcement meant that they were "keeping up at the right speed." These explanations by the subjects are suggestive of reasons why conditioning was not
obtained. Especially noteworthy are the twenty-three subjects who said they were to pick out the repeated verbs. If these same subjects picked out verbs that were not from the pre-selected verb class and continued to respond with these same types of verbs in later trials, conditioning could not have occurred. This would have been especially apparent during the operant level of the verbal conditioning task, when "motor-action" verbs were emitted at a very low rate.

Dulaney's (1961) comments on the development of hypotheses and intentions on the part of the subjects going through the verbal conditioning task appears to fit the data for the lack of conditioning or extinction. If conditioning did not occur, certainly extinction could not have resulted.

Another explanation is suggested concerning the nature of the task in verbal operant conditioning. The particular task in this study was concerned with the picking of verbs and the utilization of a constant pronoun. Other studies have utilized different pronouns with a singular verb. It may well be that this type of interpersonal task does not differentiate between repressors and sensitizers while the other task might do so. The third possible explanation is that repression-sensitization is not a viable concept. As a result of the literature cited in Chapter I of this thesis, there appears to be differentiating performance between repressors and sensitizers on a wide variety of tasks.
At the conclusion of this chapter, attempts will be made to suggest methods of control of these aspects of the study for future research. It is still too early in the research of this personality dimension to reject its viability on the basis of one study. As additional research accumulates, differential results between repressors and sensitizers should develop. If future research entertains similar findings, the question of the validity of the concept will be considered.

Upon examining the postconditioning interview further on the topic of awareness, most of the subjects in this study noticed that the experimenters said "mmm-hmm" but could not relate it to any specific verb category. A suggestion by Tatz (1956) that subjects may evolve partial solutions to the task even when there were no instructions as to establishment of a specific set to respond may have set the subjects to respond not only in an incorrect manner but prohibited awareness of the task. This data of the thesis also supports the position that learning cannot occur without awareness on the part of the subjects, or as Spielberger (1962) suggests that acquisition cannot occur without awareness of a response-reinforcement contingency.

With regard to the evaluation of the reinforcement by the groups of repressors and sensitizers, there were no differences in the frequency of either group "liking" or "disliking" the reinforcement. This notion runs counter to those
of Altrocchi (1961) and Tempone (1963). It appeared as if both the sensitizers and the repressors interpreted the verbal operant conditioning situation in a similar fashion. Perhaps they did not see the task as "threatening." For this reason, sensitizers did not need "assurance" that they were doing well and repressors did not try to make themselves "look good" in order to receive praise from the experimenter.

**Suggestions for Future Research**

Three suggestions appear warranted from the conclusions and discussions of repression-sensitization. First, the class of verbs is an important determiner of overall responding by the subjects in this experiment. It is suggested that the class of "motor-action" verbs not be used in future conditioning attempts for groups of sensitizers and repressors. Second, there should be some kind of control established for the speed in which the subject goes through the verbal conditioning task. The task of this experiment was the construction of two-word sentences. Perhaps, complete sentences would be a more appropriate task as it will take more time between trials and as Salzinger (1959) suggests give the subject more time to relate the response-reinforcement contingencies. Third, verbal conditioning tasks should not use a series of repeated verbs as they may provide a source of error for the subjects who are attempting to develop hypotheses as to the nature of the task. If these three suggestions are
attempted, differential results should accrue between groups of repressors and sensitizers.

Another line of research may attempt to work with "motor-action" type verbs. If so, perhaps some type of initial set could be established in order to overcome the prepotent effects of other classes of verbs that deal with "intellectual matters." For example, by asking each subject to write a paragraph of description about a person who will be described by means of three adjectives, may predispose the subject to respond with a certain class of verbs. More specifically, if subjects were given three adjectives describing an athletic type of person such as "muscular," "tall," and "coordinated" and are asked to write a paragraph describing this type of person and then are conditioned to "motor-action" verbs, the results may be somewhat different from those encountered in this study.

Summary of Chapter IV

This chapter attempted to suggest some plausible explanations for the lack of conditioning and extinction for the groups of repressors and sensitizers. It appeared to result from a combination of implicit set operating against the emission of "motor-action" verbs as well as certain experimenter characteristics such as speed, potency and overall success of emission of the reinforcement.

It was suggested that a change in response class,
a change in the task in the form of using complete sentences instead of partial sentences, and control of experimenter characteristics might produce differences between repressors and sensitizers in future research.
Footnote to Chapter IV

CHAPTER V

SUMMARY

This study has attempted to condition sixty community college male and female subjects to "thought" and "motor-action" type verbs. The verbs were presented on 4 x 6 index cards, with the pronoun "He" appearing at the top of the card and three alternative words denoting "thinking," "motor-action," and "verbal activity" appearing at the bottom of each card. All the verbs were equated for frequency of occurrence by means of the Thorndike-Lorge word count and were matched for the number of letters comprising each verb. The subject was instructed to use the pronoun "He" and any one of the three verbs at the bottom of the card to make a two-word sentence. The conditioning phase was divided into three segments: an operant phase of twenty trials, an acquisition phase of 100 trials, and an extinction phase of forty trials. The verbal reinforcement was the sound "mmm-hmm" uttered by the experimenter, and was only emitted when a subject chose the reinforced verb during the acquisition phase. All subjects were first given Byrne's Repression-Sensitization Scale and on the basis of their scores, were classified into groups of repressors, neutrals, and sensitizers. Sensitizers, neutrals and repressors were then
randomly assigned either a "thought" or "motor-action" verb for reinforcement. A postconditioning interview was also conducted at the conclusion of the extinction trials. This interview was patterned after the one devised by Spielberger (1962) to determine the level of awareness of subjects, as well as their valuation of the reinforcement.

Using analysis of variance techniques to analyze the results, sensitizers, neutrals, and repressors exhibited similar numbers of responses during the operant level of the verbal conditioning task. When the subjects were compared for the periods of acquisition and extinction, neither acquisition nor extinction was demonstrated in this experiment. Significant effects were found for verb class with "thought" type verbs being emitted more often than "motor-action" verbs, throughout the three periods of the verbal conditioning task. The consistency of this finding suggested the notion of an implicit set operating against the emission of "motor-action" verbs throughout this experiment. Attempts to explain the lack of conditioning centered around two distinct possibilities. The first was the implicit set operating against the emission of "motor-action" verbs. The second was the notion of experimenter characteristics such as speed in responding, potency of the reinforcement and the consistency with which the reinforcement was applied. Further, Dulaney's notions of the formation of hypotheses and intentions on the part of the subjects for verbs that were
repeated, were the ones to be chosen, may have interfered with the conditioning effects. Here subjects concentrated on picking out the verbs that they had previously used and were not attempting to correctly ascertain the response-reinforcement contingency. Although this interpersonal task did not distinguish between groups of sensitizers and repressors, suggestions were entertained as to future research by controlling the class of verbs, the time necessary to complete the task, as well as the overcoming of an implicit set that might operate in interpersonal situations, such as verbal operant conditioning.
APPENDIX A

HEALTH AND OPINION SURVEY

This survey consists of numbered statements. Read each statement and decide whether it is true as applied to you or false as applied to you.

You are to mark your answers on the answer sheet you have. If a statement is TRUE or MOSTLY TRUE, as applied to you, print the letter T on the line with the same number as the statement. If a statement is FALSE or NOT USUALLY TRUE, as applied to you, print the letter F on the line with the same number as the statement.

Remember to give YOUR OWN opinion of yourself. Do not leave any blank spaces.

In marking your answers on the answer sheet, be sure that the number of the statement agrees with the number on the answer sheet. Erase completely any answer you wish to change. Do not make any marks on this booklet.

Remember, try to make some answer to every statement.

Be sure and put your name and classification on both answer sheets.
Health and Opinion Survey

1. I have a good appetite.
2. I wake up fresh and rested most mornings.
3. I am easily awakened by noise.
4. I like to read newspaper articles on crime.
5. My hands and feet are usually warm enough.
6. My daily life is full of things that keep me interested.
7. I am about as able to work as I ever was.
8. There seems to be a lump in my throat much of the time.
9. I enjoy detective or mystery stories.
10. Once in a while I think of things too bad to talk about.
11. I am very seldom troubled by constipation.
12. At times I have very much wanted to leave home.
13. I am troubled by attacks of nausea and vomiting.
14. I feel that it is certainly best to keep my mouth shut when I'm in trouble.
15. At times I feel like swearing.
16. I find it hard to keep my mind on a task or job.
17. I seldom worry about my health.
18. At times I feel like smashing things.
19. I have had periods of days, weeks, or months when I couldn't take care of things because I couldn't "get going."
20. My sleep is fitful and disturbed.
21. Much of the time my head seems to hurt all over.
22. I do not always tell the truth.
23. My judgment is better than it ever was.
Once a week or oftener I feel suddenly hot all over, without apparent cause.

I am in just as good physical health as most of my friends.

I prefer to pass by school friends, or people I know but have not seen for a long time, unless they speak to me first.

I am almost never bothered by pains over the heart or in my chest.

I am a good mixer.

Everything is turning out just like the prophets of the Bible said it would.

I do not read every editorial in the newspaper every day.

I sometimes keep on at a thing until others lose their patience with me.

I wish I could be as happy as others seem to be.

I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others.

I get angry sometimes.

Most of the time I feel blue.

I sometimes tease animals.

I am certainly lacking in self-confidence.

I usually feel that life is worth while.

It takes a lot of argument to convince most people of the truth.

Once in a while I put off until tomorrow what I ought to do today.

I think most people would lie to get ahead.

I do many things which I regret afterwards (I regret things more or more often than others seem to).

I go to church almost every week.

I have very few quarrels with members of my family.
45 I believe in the second coming of Christ.
46 My hardest battles are with myself.
47 I have little or no trouble with my muscles twitching or jumping.
48 I don't seem to care what happens to me.
49 Sometimes when I am not feeling well I am cross.
50 Much of the time I feel as if I have done something wrong or evil.
51 I am happy most of the time.
52 Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.
53 Often I feel as if there were a tight band about my head.
54 My table manners are not quite as good at home as when I am out in company.
55 I seem to be about as capable and smart as most others around me.
56 Most people will use somewhat unfair means to gain profit or an advantage rather than to lose it.
57 The sight of blood neither frightens me nor makes me sick.
58 Often I can't understand why I have been so cross and grouchy.
59 I have never vomited blood or coughed up blood.
60 I do not worry about catching diseases.
61 At times my thoughts have raced ahead faster than I could speak them.
62 If I could get into a movie without paying and be sure I was not seen I would probably do it.
63 I commonly wonder what hidden reason another person may have for doing something nice for me.
64 I believe that my home life is as pleasant as that of most people I know.
Criticism or scolding hurts me terribly.

My conduct is largely controlled by the customs of those about me.

I certainly feel useless at times.

At times I feel like picking a fist fight with someone.

I have often lost out on things because I couldn't make up my mind soon enough.

It makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important.

I would rather win than lose in a game.

Most nights I go to sleep without thoughts or ideas bothering me.

During the past few years I have been well most of the time.

I have never had a fit or convulsion.

I am neither gaining nor losing weight.

I cry easily.

I cannot understand what I read as well as I used to.

I have never felt better in my life than I do now.

I resent having anyone take me in so cleverly that I have had to admit that it was one on me.

I do not tire quickly.

I like to study and read about things that I am working at.

I like to know some important people because it makes me feel important.

What others think of me does not bother me.

It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of things.

I frequently have to fight against showing that I am bashful.
I have never had a fainting spell.
I seldom or never have dizzy spells.
My memory seems to be all right.
I am worried about sex matters.
I find it hard to make talk when I meet new people.
I am afraid of losing my mind.
I am against giving money to beggars.
I frequently notice my hand shakes when I try to do something.
I can read a long while without tiring my eyes.
I feel weak all over much of the time.
I have very few headaches.
Sometimes, when embarrassed, I break out in a sweat which annoys me greatly.
I have had no difficulty in keeping my balance in walking.
I do not have spells of hay fever or asthma.
I do not like everyone I know.
I wish I were not so shy.
I enjoy many different kinds of play and recreation.
I like to flirt.
In walking I am very careful to step over sidewalk cracks.
I frequently find myself worrying about something.
I gossip a little at times.
I hardly ever notice my heart pounding and I am seldom short of breath.
I have at times stood in the way of people who were trying to do something, not because it amounted to much but because of the principle of the thing.
I get mad easily and then get over it soon.

I brood a great deal.

I have periods of such great restlessness that I cannot sit long in a chair.

I dream frequently about things that are best kept to myself.

I believe I am no more nervous than most others.

I have few or no pains.

Sometimes without any reason or even when things are going wrong I feel excitedly happy, "on top of the world."

I can be friendly with people who do things which I consider wrong.

Sometimes at elections I vote for men about whom I know very little.

I have difficulty in starting to do things.

I sweat very easily even on cool days.

It is safer to trust nobody.

Once a week or oftener I become very excited.

When in a group of people I have trouble thinking of the right things to talk about.

When I leave home I do not worry about whether the door is locked and the windows closed.

I do not blame a person for taking advantage of someone who lays himself open to it.

At times I am all full of energy.

My eyesight is as good as it has been for years.

I have often felt that strangers were looking at me critically.

I drink an unusually large amount of water every day.

Once in a while I laugh at a dirty joke.
I am always disgusted with the law when a criminal is freed through the arguments of a smart lawyer.

I work under a great deal of tension.

I am likely not to speak to people until they speak to me.

I have periods in which I feel unusually cheerful without any special reason.

Life is a strain for me much of the time.

In school I found it very hard to talk before the class.

Even when I am with people I feel lonely much of the time.

I think nearly anyone would tell a lie to keep out of trouble.

I am easily embarrassed.

I worry over money and business.

I almost never dream.

At times I have fits of laughing and crying that I cannot control.

I feel anxiety about something or someone almost all the time.

Sometimes I become so excited that I find it hard to get to sleep.

I forget right away what people say to me.

I usually have to stop and think before I act even in trifling matters.

Often I cross the street in order not to meet someone I see.

I often feel as if things were not real.

I have a habit of counting things that are not important such as bulbs on electric signs, and so forth.

I have strange and peculiar thoughts.
150 I get anxious and upset when I have to make a short trip away from home.
151 I have been afraid of things or people that I knew could not hurt me.
152 I have no dread of going into a room by myself where other people have already gathered and are talking.
153 I have more trouble concentrating than others seem to have.
154 I have several times given up doing a thing because I thought too little of my ability.
155 Bad words, often terrible words, come into my mind and I cannot get rid of them.
156 Sometimes some unimportant thought will run through my mind and bother me for days.
157 Almost every day something happens to frighten me.
158 I am inclined to take things hard.
159 I am more sensitive than most other people.
160 At periods my mind seems to work more slowly than usual.
161 I very seldom have spells of the blues.
162 I wish I could get over worrying about things I have said that may have injured other people's feelings.
163 People often disappoint me.
164 I feel unable to tell anyone all about myself.
165 My plans have frequently seemed so full of difficulties that I have had to give them up.
166 Often, even though everything is going fine for me, I feel that I don't care about anything.
167 I have sometimes felt that difficulties were piling up so high that I could not overcome them.
168 I often think, "I wish I were a child again."
169 I have often met people who were supposed to be experts who were no better than I.
170 It makes me feel like a failure when I hear of the success of someone I know well.
171 I am apt to take disappointments so keenly that I can't put them out of my mind.
172 At times I think I am no good at all.
173 I worry quite a bit over possible misfortunes.
174 I am apt to pass up something I want to do because others feel that I am not going about it in the right way.
175 I find it hard to set aside a task that I have undertaken, even for a short time.
176 I have several times had a change of heart about my life work.
177 I must admit that I have at times been worried beyond reason over something that really did not matter.
178 I like to let people know where I stand on things.
179 I have a daydream life about which I do not tell other people.
180 I have often felt guilty because I have pretended to feel more sorry about something than I really was.
181 I feel tired a good deal of the time.
182 I sometimes feel that I am about to go to pieces.
APPENDIX B

VERB TASK

Name: ______________________ Verb Reinforced _______ R S N

1. washed
2. reflected
3. thought
4. suggested
5. reasoned
6. painted
7. asked
8. forgot
9. needed
10. concluded
11. knelt
12. ran
13. discussed
14. threw
15. expressed
16. yearned
17. decided
18. expected
19. carried
20. applauded

reconsidered
advised
shouted
exercised
declared
regarded
lifted
whispered
dressed
pitched
dressed
realized
caught
answered
judged
jumped
hummed
argued
recited
hoped
beheld
imagined
danced
swam

21. announced
22. crawled
23. lectured
24. rowed
25. recalled
26. mentioned
27. pondered
28. waved
29. dashed
30. articulated
31. folded
32. commanded
33. pronounced
34. tossed
35. swept
36. recollected

brushed
boasted
concentrated
sighed
climbed
remembered
chatted
knew
informed
untied
deduced
believed
tugged
memorized
valued
whistled

ruminated
wished
crept
contemplated
explained
stepped
wrestled
told
assumed
appraised
uttered
typed
deliberated
commented
sang
skiied

Begin Reinforcements here
81. washed 82. proclaimed 83. reflected 84. thought 85. thought 86. reflected 87. exclaimed 88. explained 89. decided 90. rowed 91. recalled 92. argued 93. recollected 94. lifted 95. devised 96. regarded 97. walked 98. considered 99. climbed 100. concentrated

101. tugged 102. praised 103. hinted 104. hinted 105. murmured 106. paddled 107. pitched 108. dressed 109. shouted 110. realized 111. judged 112. swam 113. pronounced 114. imagined 115. stepped 116. mentioned 117. wished 118. skilled 119. puzzled 120. appraised


101. tugged 102. remembered 103. knew 104. deduced 105. said 106. whispered 107. declared 108. caught 109. jumped 110. danced 111. hoped 112. beheld 113. commanded 114. articulated 115. wrestled 116. typed 117. contemplated 118. assumed 119. discussed 120. understood
| 121. proclaimed | punched           | considered  |
| 122. meditated  | insisted          | skilled     |
| 123. regarded   | typed             | sang        |
| 124. wrestled   | reconsidered     | commented   |
| 125. stepped    | uttered           | devised     |
| 126. told       | crept             | puzzled     |
| 127. explained  | collected         | tapped      |
| 128. pondered   | called            | swam        |
| 129. recalled   | danced            | laughed     |
| 130. jumped     | expected          | recited     |
| 131. caught     | argued            | decided     |
| 132. hummed     | dressed           | yearned     |
| 133. answered   | concluded         | pitched     |
| 134. heeded     | talked            | paddled     |
| 135. forgot     | pushed            | whistled    |
| 136. hammered   | reasoned          | informed    |
| 137. tugged     | chatted           | thought     |
| 138. sighed     | untied            | reflected   |
| 139. boasted    | agreed            | climbed     |
| 140. concentrated| conversed         | brushed     |
| 141. remembered | walked            | praised     |
| 142. kicked      | knew              | hinted      |
| 143. patted      | murmured          | deduced     |
| 144. said        | dodged            | believed    |
| 145. whispered   | memorized         | lifted      |
| 146. valued      | declared          | exercised   |
| 147. cherished   | swept             | shouted     |
| 148. tossed      | understood        | advised     |
| 149. folded      | debated           | deliberated |
| 150. protested   | dashed            | appraised   |
| 151. pronounced  | assumed           | waved       |
| 152. contemplated| commanded         | rowed       |
| 153. wished      | crawled           | articulated |
| 154. applauded   | ruminated         | mentioned   |
| 155. carried     | lectured          | construed   |
| 156. announced   | threw             | imagined    |
| 157. expressed   | beheld            | ran         |
| 158. hoped       | discussed         | knelt       |
| 159. judged      | painted           | asked       |
| 160. washed      | realized          | suggested   |
APPENDIX C
POSTCONDITIONING INTERVIEW

Name: ___________________________ Verb Case ___________ S R N

1. As you know experiments are conducted for a specific purpose. Some experiments are successful while others fail. Do you think this one will succeed or fail?
   Succeed Fail (Underline one)

2. Did you usually pick the first verb that came into your mind?
   Yes No (Underline one)

3. How did you go about deciding which verbs to use?

4. Did you think that you were using some verbs more often than others? Which verbs? Why?

5. What did you think the purpose of this was?

6. While going through the cards did you think that you were supposed to pick the verbs in any particular way or that you were supposed to change the way in which you picked out the verbs? How?

7. Did you notice anything about me while you were going through the cards?

8. Did you notice that I said anything?

9. Actually I did occasionally say "mmm-hmm." Thinking back to when you were going through the cards do you remember me saying "mmm-hmm?"

10. Thinking back to when you were going through the cards what did my saying "mmm-hmm" mean to you?
11. How many of these "mmm-hmm's" do you think I said?

12. Did you try to figure out what made me say "mmm-hmm" or why or when I was saying "mmm-hmm?"

13. What ideas did you have about what was making me say "mmm-hmm?"

14. While going through the cards did you think that my saying "mmm-hmm" had anything to do with the verbs that you chose to complete your sentences? What?

15. Did you ever have the idea that I was saying "mmm-hmm" after you picked out the verb dealing in some way with thought (or action)?

16. Upon hearing me say "mmm-hmm" during the course of this experiment did you like it very much; like it a little; neutral; dislike it a little; or dislike it very much? Why?

17. After your completion of this interview do you now think that this experiment has been a success or a failure? Why?
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