

THE EFFECT OF RACIAL PREJUDICE ON VISUAL DEPTH PERCEPTION:
AN EXAMINATION OF PERCEPTUAL DEFENSE/SENSITIZATION

By

MARK LLOYD GOLDSTEIN

A DISSERTATION PRESENTED TO THE GRADUATE COUNCIL OF THE
UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1976



UNIVERSITY OF FLORIDA



3 1262 08552 5995

ACKNOWLEDGMENTS

The author wishes to gratefully acknowledge the participation and cooperation of all the people who in various ways helped in the development and preparation of this document. He is indebted to the entire faculty who, as teachers, provided the knowledge and skills necessary to undertake and complete this task. In particular, he is beholden to his supervisory committee members.

Dr. Barry Guinagh and Dr. Hannelore Wass, in their roles as co-chairmen of the supervisory committee, provided invaluable assistance in guiding the direction of this study as well as critical comments and suggestions in making the final product a worthy one.

Dr. Hattie Bessent and Dr. Robert Ziller not only provided technical assistance and comments but also provided warm, supportive counseling and friendship throughout the dissertation period.

Finally, and most importantly, the author wishes to thank his wife, Janis, for her constant love, devotion, understanding patience, as well as assistance throughout the years of his doctoral studies.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
LIST OF TABLES	v
ABSTRACT	vii
Chapter	
I. INTRODUCTION	1
Definitions	2
Purpose of the Study	6
II. REVIEW OF THE LITERATURE	9
III. CONCLUSIONS FROM THE LITERATURE REVIEW AND HYPOTHESES GENERATED	46
IV. METHODOLOGY	56
Subjects	56
Instrument Selection	56
Experimental Procedure	57
Stimuli	59
Starting Position	60
Recording Device	60
Statistical Procedure	61
V. ANALYSIS OF THE DATA	63
VI. SUMMARY AND CONCLUSIONS	81
The Sample	82
Treatment of the Data	82
Results	83
Conclusions	84
Recommendations for Further Study	88

TABLE OF CONTENTS - continued

Appendix

1. STIMULI EMPLOYED	94
2. SELECTION OF RACIALLY-CONNOTATIVE STIMULI . . .	96
3. ORAL STATEMENT TO SUBJECTS COMPLETING THE SOCIAL SITUATIONS QUESTIONNAIRE	98
4. MODIFIED SOCIAL SITUATIONS QUESTIONNAIRE	100
5. IDENTIFICATION SHEET	107
6. EXPERIMENT RECORDING SHEET AND EXAMPLES OF INDIVIDUAL RESPONSES OF HIGH AND LOW PREJUDICED SUBJECTS	109
LIST OF REFERENCES	111
BIOGRAPHICAL SKETCH	120

LIST OF TABLES

Table

1.	CLASSIFICATION OF THEORIES IN PERCEPTUAL DEFENSE/SENSITIZATION	44
2.	MAJOR METHODOLOGICAL INADEQUACIES OF PERCEPTUAL DEFENSE/SENSITIZATION STUDIES. .	49
3.	FREQUENCY DISTRIBUTION FOR THE RACIAL ATTITUDE SURVEY	66
4.	DISTANCE MEANS OF THE RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS FOR THE HIGH PREJUDICED, AVERAGE PREJUDICED, AND LOW PREJUDICED GROUPS	67
5.	DISTANCE MEANS OF THE EGO ALIEN WORDS AND THEIR CONTROL WORDS FOR THE HIGH PREJUDICED, AVERAGE PREJUDICED, AND LOW PREJUDICED GROUPS..	68
6.	ANALYSIS OF VARIANCE OF RACIALLY CONNOTATIVE WORDS BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED AND LOW PREJUDICED GROUPS	69
7.	ANALYSIS OF VARIANCE OF RACIALLY CONNOTATIVE CONTROL WORDS BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED AND LOW PREJUDICED GROUPS	70
8.	ANALYSIS OF VARIANCE OF EGO ALIEN WORDS BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED AND LOW PREJUDICED GROUPS	70
9.	ANALYSIS OF VARIANCE OF EGO ALIEN CONTROL WORDS BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED AND LOW PREJUDICED GROUPS	71
10.	DISTANCE MEANS OF RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED, AND LOW PREJUDICED GROUPS FOR MALES AND FEMALES . . .	72

LIST OF TABLES - continued

Table

11.	DISTANCE MEANS OF EGO ALIEN WORDS AND THEIR CONTROL WORDS BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED AND LOW PREJUDICED GROUPS FOR MALES AND FEMALES	73
12.	DISTANCE MEANS OF RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS AND EGO ALIEN WORDS AND THEIR CONTROL WORDS BETWEEN NEAR AND FAR STARTING POSITIONS FOR THE HIGH PREJUDICED GROUP	75
13.	DISTANCE MEANS OF RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS AND EGO ALIEN WORDS AND THEIR CONTROL WORDS BETWEEN NEAR AND FAR STARTING POSITIONS FOR THE AVERAGE PREJUDICED GROUP	76
14.	DISTANCE MEANS OF RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS AND EGO ALIEN WORDS AND THEIR CONTROL WORDS BETWEEN NEAR AND FAR STARTING POSITIONS FOR THE LOW PREJUDICED GROUP	77

Abstract of Dissertation Presented to the Graduate Council
of the University of Florida in Partial Fulfillment
of the Requirements for the Degree of Doctor of Philosophy

THE EFFECT OF RACIAL ATTITUDE ON VISUAL DEPTH PERCEPTION:
AN EXAMINATION OF PERCEPTUAL DEFENSE/SENSITIZATION

By

Mark Lloyd Goldstein

June 1976

Chairman: Dr. Barry Guinagh
Major Department: Foundations of Education

The problem to which this dissertation is addressed, and which has concerned Bruner and Postman, Combs and Snygg and numerous others, is whether or not personal values and attitudes influence perceptual processes. Specifically, this paper examines the relationship between racial attitude and visual depth perception.

Eighty-four Caucasian high school students were administered a modified Social Situations Questionnaire. From the results of this survey, students were chosen for the experimental facet of the study. Two experimental groups -- high prejudiced (one standard deviation or more above the mean on the attitude survey) and low

prejudiced (one standard deviation or more below the mean) -- along with a control group (clustered around the mean) were employed.

Each subject, after being dark adapted for approximately five minutes, was seated in front of the experimental apparatus. For five seconds, the subject observed a word painted in luminescent paint. After the stimulus was removed, a luminescent marker placed on a track below the word was shown to the subject. The subject was required to tell the examiner whether to move the marker closer to or further away from himself so that the marker was "directly below the spot where the word appeared."

Unknown to the subject, the word was always positioned at a distance of four feet in the median plane from the slot through which the subject looked.

Two words were presented to the subject which were thought to be ego alien to each subject (e.g. PIG). For each ego alien word, there was a neutral control word presented which was perceptually similar except for a change in one letter (e.g. PIN). Three words were also presented which were thought to be racially connotative to each subject (e.g. NIGGER). Again, perceptually similar control words were presented (e.g. BIGGER). The starting position of the luminescent marker (closer to the subject than the word or

farther away from the subject than the word) was randomly varied on two trials. Distance was measured from this zero point.

There are three major conclusions generated from this study. First, it was found that racial attitude does, in fact, influence visual depth perception. Secondly, this disseratation provides support for the perceptual defense position and questions previous research which demonstrated a sensitization or duality effect. Finally, the present research provides credence for Snygg and Comb's phenomenological theory and questions the learning theory position.

CHAPTER I INTRODUCTION

Over 25 years ago, a paper by Bruner and Postman (1947a) initiated one of the most significant controversies in the study of perception. The paper, which suggested that the perception of external stimuli is not independent of the influences of internal events, began what has come to be known as the "new look" view in perception. With the advent of the "new look" in perception, also came two major problems. The first problem centered around three major theoretical positions and the concomitant conflict even within each theoretical camp. The second problem focused on methodology and the lack of controls employed in perceptual research. Numerous publications since the Bruner and Postman article have attempted to explore if and how attitudes, values, expectancies, needs and psychodynamic defenses impinge upon perception. The problem to which this dissertation is addressed is whether or not personal attitudes influence perceptual processes. In particular, the purpose of this paper is to examine the effect of racial attitude among Caucasian high school students on visual depth perception.

Definitions

Historically, psychologists have used the word "perception" to refer only to "a single unified meaning obtained from sensory processes while a stimulus is present" (Bartley, 1969, p. 15). Early psychologists such as E. B. Tichener and W. Wundt viewed "perception" as the result of learning added to raw sensations, while Ames' transactional approach stated that perception is developed by each individual through his own unique transactions with the environment. Perception becomes a learned act of constructing reality to fit one's assumptions about it. Cognitive field psychologists think that perception not only involves what an individual senses and feels, but also the behavior associated with the senses and feelings. Although the various definitions differ on the basis of their respective theoretical frameworks, the definition of perception in Benjamin Wolman's Dictionary of Behavioral Science seems to be general enough to encompass their commonality. The working definition for perception in this dissertation will be: "the process of obtaining information about the world through the senses" (Wolman, 1972, p. 386).

Therefore "visual perception" as employed in this study will refer to the process of obtaining information about the world through vision. More specifically, visual depth perception as defined, for this dissertation is defined as the perception of

distance between the stimulus and the subject through the visual sense.

Because the perceptual system is made up of all the sensory mechanisms, it is conceivable that several sense modalities may be involved as they act together to meet environmental demands and goals of the organism. For example, during the act of eating an individual may employ four of his senses which contribute to the totality of his perception. Attempts to dissect the weight of each sense in the perception are doomed to failure because of the lack of scientific precision at this time.

Just as it is difficult to determine the relative weight of one sense within a perception, it is just as difficult to separate and distinguish between sensory, cognitive and social perception.

Social perception is viewed as "something crucially determined by the specific character or state of the individual perceiver rather than being totally stimulus bound. However, sensory mechanisms are still integrally involved in social perception" (Bartley, 1969, p. 74). In cognitive perception, defined as the process by which information is acquired through experience and becomes part of the organism's storage of facts (Fergus, 1966), both sensory and social perception play integral roles. In analyzing a learning task for

example, the sensory channels employed (sensory perception) as well as the state of the individual perceiver (social perception) both have roles in determining the total perception.

Although the terms "cognitive perception, social perception, and sensory perception" connote three different forms of perception, in reality one does not exist without the others. As in attempts to delineate between perception, learning and thinking, attempts to separate forms of perception becomes a matter of semantics. Therefore, for the purposes of this study, perception will encompass cognitive, social, and sensory perception.

Just as authorities differ as to what constitutes "perception" there also appears to be a lack of semantical agreement on "perceptual defense." Perceptual defense is one manifestation of the general idea derived from Freudian theory that a defensive process should produce observable effects in any cognitive situation when the individual's security or self esteem is threatened and there is an opportunity for him to reduce the affective disturbance. In the personality theory of Snygg and Combs (1959) as well as that of Rogers (1951), defensiveness is described as primarily a perceptual phenomenon which follows as a consequence of threat to the individual's self. Defense, in essence, is

inaccurate perception which prevents that which is threatening from reaching conscious awareness. Therefore, aspects of the environment may be denied awareness or may be misperceived by the individual. Furthermore, the adequacy of the individual's personal adjustment is considered to be inversely related to the degree to which experiences are denied awareness.

Although "perceptual defense" has been adopted as the nomenclature to describe inaccurate perception, in reality two phenomena are encompassed by the term -- perceptual defense and perceptual sensitization or vigilance. Perceptual defense occurs when the subject's recognition threshold for an emotional stimulus is greater than for neutral stimuli, whereas perceptual sensitization or vigilance occurs when the subject's recognition threshold for an emotional stimulus is less than for neutral stimuli. In other words, when presented with an emotionally laden stimulus and a neutral stimulus, defense occurs when the subject requires, for example, longer exposure time for the emotionally laden stimulus in order to recognize the stimulus; vigilance occurs when a shorter exposure time for the emotionally laden word is required for recognition.

For this dissertation, perceptual defense will hereafter refer only to the one process and not encompass both defense and sensitization. When referring to the general phenomenon, "perceptual defense/sensitization" will be utilized.

Purpose of the Study

Within this general paradigm of perceptual defense/sensitization much of the controversy has centered around two issues -- experimental methodology and theoretical formulation. With regards to methodology, experimental rigidity has impeded progress and knowledge. Rigidity with reference to perceptual defense/sensitization can be demonstrated by the adherence to the psychophysical method of the ascending Method of Limits in almost every study. Defining perceptual defense/sensitization in relation to this methodology places too much emphasis on negative factors, that is, the not seeing of a stimulus. If the subject reports seeing the neutral word either before or instead of the anxiety-provoking stimulus, it is thought that he must be defending against seeing the anxiety-provoking stimulus. In addition, negative indicators are vulnerable because they yield little if any information about the process involved, and there is no reason to conclude that the failure to report seeing a word was indeed caused by the word itself rather than by some other possibility. In most of the perceptual defense/sensitization studies, the only response available to the subject is to see or not see the stimulus. Time is the major variable with the subject seeing either the conflict stimulus or the neutral stimulus first. One objective of the present study is to provide the subject with a broader range of response alternatives.

The conglomeration of theoretical positions revolving around perceptual defense/sensitization has been a second major area of controversy. The perceptual defense/perceptual sensitization dynamic will be explored in the review of the literature in Chapter Two as it pertains to a number of theories including Howe's word probability theory, Goldiamond's response bias theory, Bruner and Postman's hypothesis theory, learning theories, and Neisser's information processing theory. In addition, two conflicting theories relating racial attitude to perceptual defense will be delineated. A second objective of this dissertation will be to shed additional light upon the present theoretical chaos and add support to one or more positions.

The confusion surrounding theoretical postulates has become increasingly complex as new theories are added to the ever-growing number. There appear to be three major positions -- those theories which espouse only perceptual defense, those theories which support only perceptual sensitization, and those theories which adhere to a dual process of defense and sensitization. To muddle the picture even further, there are serious disagreements within each theoretical camp. Learning theorists and phenomenologists, for example, both posit a perceptual defense approach to the problem, yet view the defense process in very different perspectives, as might be expected.

Compounding the present picture is the fact that almost all of the theories and studies have pertained almost exclusively to the use of taboo or other ego alien stimuli and have failed to delineate any personality characteristics of the subjects which might influence the subject's response patterns.

It seems logical that before this theoretical schizophrenia can be remedied, research needs to be conducted which 1) refines the methodological inadequacies of previous research and 2) initiates an investigation of the effect of a personality variable upon the subject's response patterns. Keeping these two guidelines in mind, the present research has attempted to attack these two weaknesses and thereby provide more insight into the present disagreement.

CHAPTER II REVIEW OF THE LITERATURE

The "new-look" approach to perception made its appearance on the psychological scene in articles by Bruner and Postman (1947a, 1947b), McGinnies (1949), and Postman, Bruner, and McGinnies (1948). In their initial study, Bruner and Postman (1947a) observed differences in the tachistoscopic duration necessary for the recognition of threatening or emotional stimuli as opposed to neutral stimuli. Subjects reported seeing neutral words prior to reporting the emotionally charged words. Bruner and Postman believed that the higher threshold for the emotionally charged words represented a way in which the subjects perceptually defended themselves against seeing these words, and they labeled this process perceptual defense. In the same research, the authors found a second perceptual process which they called perceptual sensitization. In this phenomenon, the subjects reported seeing the emotionally laden words prior to recognizing the neutral words.

In another study, Bruner and Postman (1947b) administered a word association test and subsequently studied the tachistoscopic duration necessary for the recognition of words with

long, medium, and short association times. For some subjects, words with long association times (words indicating emotional disturbances) required much longer durations for recognition than words with medium or short association times (neutral words). The authors termed this heightened recognition threshold perceptual defense and likened it to the process of repression whereby anxiety-provoking stimuli were defended against in perception or prevented from attaining conscious awareness in order to minimize anxiety. They also found, however, that in certain subjects long association time words had lower thresholds for recognition. The principle of perceptual sensitization was invoked to account for this lowering of thresholds for affect-laden words.

The concept of perceptual defense/sensitization also appeared in subsequent articles by the same authors (Bruner and Postman, 1948; Bruner and Postman, 1949; Postman and Bruner, 1948) where the tachistoscopic durations necessary for recognition of emotional words (words representing low values as assessed by the Allport-Vernon Study of Values) were found to have higher recognition thresholds than neutral words (words representing high values as assessed by the Allport-Vernon Study). Support for perceptual defense was again invoked, although little evidence in this series of studies was found for the perceptual sensitization position.

The entire problem area gained a great deal of momentum following an article by McGinnies (1949). The perceptual duration thresholds for recognition of a group of neutral words and a group of taboo words such as whore, bitch, and kotex were studied. McGinnies obtained the recognition thresholds and concurrently measured the galvanic skin response (GSR) during prerecognition and recognition trials. Not only did he find that the sexually taboo words tended to require higher durations for recognition but also that the subjects had greater GSR's on the taboo words than they did on the neutral words. The higher recognition threshold for the taboo words was considered to be a manifestation of perceptual defense, and the greater GSR to the taboo stimuli was believed to be not only an indication of the active nature of the inhibition occurring in perception but also an unconscious detection or manifestation of anxiety elicited by these emotional words. Other investigators became interested in this problem area and started the "dirty word" studies (Byrne and Sheffield, 1964; Eriksen, 1951; Howes and Solomon, 1950; Postman and Leytham, 1951; and Weiner, 1955), which have been severely attacked for both methodological and theoretical reasons. However, a more recent study attempting to control for these weaknesses clearly demonstrated the perceptual phenomenon (Sauber, 1971). The taboo/neutral word difference

score attained significance beyond the .001 level, indicating higher recognition thresholds for disagreeable words.

In apparent conflict with the Bruner and Postman results (showing two perceptual processes), the dirty word studies only found evidence of perceptual defense. Similar results were found by Beier and Cowen (1953), Cowen and Obrist (1958), and Zuckerman (1955). In his 1955 study, Zuckerman measured recognition thresholds for neutral words and for words with aggressive meanings and found that the aggressive words had significantly higher recognition thresholds than neutral words.

There have also been reports in the literature indicating that emotional stimuli have had lower recognition thresholds than neutral stimuli. Datson (1956) used words with nonsexual, heterosexual and homosexual connotations and found lower recognition thresholds for the homosexual stimuli. Eriksen and Browne (1956) gave their subjects an experience of failure on an anagram solution test. They found that the words for which the subjects had been asked to find anagrams (words assumed to be associated with failure) had lower recognition thresholds than neutral words which had not been in the anagram test.

Pustell (1957) and Chapman and Feather (1972) conditioned an electric shock with certain stimuli and found a lower

recognition threshold for these stimuli than for stimuli which did not have an electric shock attached.

Two different approaches to resolving the question whether the recognition threshold is raised, lowered or both raised and lowered when emotional stimuli are employed have been delineated in the literature. One approach stresses the variability in technique or methodology. Proponents of this position have attempted to resolve the problem by searching for variables which have led to defense, sensitization, or both. A second approach, which has generated most of the support in the literature stresses the variability within the individual. Proponents of this approach have attempted to find other variables within the personality which might be correlated with one or another type of response. Early studies by Carpenter, Wiener, and Carpenter (1956), Eriksen (1951, 1952), Kates and Klein (1954), Lazarus, Eriksen, and Fonda (1951), and Nelson (1955) found that personality and/or intellectual differences in subjects had a significant effect upon responses to emotional stimuli.

Three experimenters used the Minnesota Multiphasic Personality Inventory (MMPI) in order to differentiate groups for the study of personality correlates of perceptual defense/sensitization. Greenbaum (1956) reported that high scorers on the MMPI found photographs of faces with hostile expressions

easier to recognize than low scorers did. No differences between the groups were found to photographs of friendly faces.

Mathews and Wertheimer (1958) used two MMPI scales to select their subjects. Their groups were high scorers on the Hysteria (Hy) scale and high scorers on the Psychasthenia (Pt) scale. Using associative reaction time as a criterion, they selected neutral and emotional stimuli for each subject individually and found a significant tendency for emotional words to have higher thresholds than neutral words (perceptual defense) in the Hy group. No such difference was found among the high Pt scorers.

Porzemyky (1969) separated obese women into three groups by means of the MMPI and subdivided each group into two subgroups based upon the results of the Repressor-Sensitizer (R-S) subscale of the MMPI. Employing five words which were regarded as ego-alien to each of the three groups as well as neutral words, Porzemyky discovered that the ego-alien words had significantly higher recognition thresholds than the neutral words for all three groups. No differences were found for the Repressors versus Sensitizers on the R-S scale.

Although a number of studies have failed to support Bruner and Postman's contention that two dichotomous phenomena -- perceptual defense and perceptual sensitization -- were present,

this postulate of two mechanisms gained wide acceptance in the literature. Even a recent review of the literature in the area by Erdelyi (1974) took this point of view.

Although the duality of the perceptual defense-perceptual vigilance phenomenon is an interesting problem on its own right, it is not of major concern here since this duality never became a serious issue in the critical literature. This relative lack of concern can probably be attributed to the rather clear and certainly massive demonstration that the specific mode of reaction could be independently predicted... (p.7).

Whereas the perceptual defense/sensitization differentiation has received little attention in the literature, other problems in this area have been debated frequently.

One debate has centered around the methodology employed. Perceptual defense/sensitization has been primarily and almost exclusively studied by using the traditional psychophysical methodology of the ascending Method of Limits, where early presentations are made under conditions which prevent the subjects from adequately viewing the stimulus. Gradually, some of the hinderances are removed until the subject accurately reports the perceived stimulus. When this point is reached, the recognition threshold is determined.

The apparatus most frequently employed in these experiments has been the tachistoscope which presents stimuli visually at the exposure speed designated by the experimenter, who can also vary the amount of illumination. Thus, the

experimenter chooses either of two possible tachistoscopic methodologies: varying the amount of illumination while holding the exposure speed constant or varying the exposure speed while holding the illumination constant.

Varying the exposure time is the most common method used in perceptual defense/sensitization experiments (e.g., Freeman, 1954, 1955). With this method, both the critical and neutral stimuli are initially presented at such rapid speeds that the stimuli cannot be seen; slowly the speed of presentation is reduced until the recognition threshold is obtained. If the neutral words are recognized at a more rapid exposure time than the critical words, the phenomenon is entitled perceptual defense. If the opposite is true, it is called perceptual sensitization or vigilance.

Other studies have varied the illumination during the experiment (e.g., Spence, 1957). Successive presentations take place under an illumination which is initially dim and gradually increases in intensity until recognition occurs. Each presentation has the same exposure speed, a period of time too short to allow recognition at the lower illumination, but long enough to permit recognition at higher illumination levels. The level of illumination at which recognition occurs provides a measure of the recognition threshold.

Berger (1956) varied the distance between the subject

and the stimulus, placing the stimulus too far from the subject to be recognized and gradually moving it closer until recognition occurred. The distance remaining between the subject and stimulus served as a measure of recognition threshold.

Instruments other than the tachistoscope have been limited. One investigator exposed subjects to carbon copies of typed words which ranged from the most smudged and illegible to completely legible (Beier and Cowen, 1953). The recognition threshold was determined by the number of unrecognized words before the subject correctly recognized the word.

Other studies have used the auditory modality. In these either the acoustical equipment has been varied in voltage (Vanderplas and Blake, 1949) or the tape recording has been varied in intensity (Kleinman, 1957; Kurland, 1954).

All of the studies cited thus far have used the ascending Method of Limits methodology to determine the recognition threshold. A great difficulty with this method is that the threshold is a statistical concept which requires the average of a number of measurements since the threshold oscillates constantly (depending on factors such as practice, fatigue, etc.) However, in many of the experiments previously cited, the threshold was determined on the basis of only one trial.

An additional problem with the methodology is the restriction of the range of possible responses. The response category is limited to whether the subject did or did not see or hear the critical stimulus. As Garner, Hake, and Eriksen (1956) state, "If the number of response categories is too small to demonstrate the perceptual discrimination capacity of a subject, then the outcome of the experiment will be limited by a property of the response system rather than by a property of the perceptual system" (p. 321).

Few studies have utilized a methodology other than the ascending Method of Limits. Gordon (1957) presented nonsense syllables in a light box in a dark-room situation and asked the subjects to guess how far away the distant stimuli were. Davis (1959) and Van de Castle (1960) in separate studies utilized a stereoscopic methodology in which critical words were presented to one eye while neutral words were presented to the other eye. The subject's task was to report which words he saw.

Another area of concern in the literature has centered around the stimuli employed. Individual words of various types have usually served as stimuli. Other than the sexually taboo words previously discussed, emotionally laden words have generally been used. Postman and Solomon (1950) used failure-related words after exposing the subjects to a failure experience.

Eriksen (1951, 1952) employed words which showed disturbances on word association tests. Another methodology utilized nonsense syllables which were previously paired with an electric shock (Lazarus and McCleary, 1953). Spielberger (1956) exposed stutterers to stutter-arousing words. Wiener (1955) used words with a double entendre (fairy, pussy, etc.), establishing the connotation of the word through the context. Undesirable traits as opposed to desirable traits were used by Postman and Leytham (1951). Derogatory adjectives were used by Whittaker, Gilchrest, and Fisher (1952), while Eriksen (1951) utilized aggressive, homosexual, and succorance-need words as stimuli.

Other than verbal stimuli, most experimenters have employed pictures. Dulaney (1957) used geometrical figures while Blum (1954) exposed subjects to Blacky pictures. Eriksen (1951) displayed pictures in which aggressive, homosexual and succorance themes were portrayed.

In almost all of the experiments, subjects have been free to respond with whatever word they choose. However, Minard (1965) provided the subjects with a list of alternatives from which they must choose the correct stimulus. A group of studies have adopted a response methodology first employed by Blackwell (1952, 1953), where subjects were required to choose from four stimulus configurations (forced choice).

Another issue in perceptual defense/sensitization has revolved around the variables affecting an individual's response--those factors which affect all responses and those which affect specific responses (i.e. to the critical stimuli).

Mishkin and Forgays (1952) and Orbach (1952) in separate studies produced evidence that the ease of recognition of printed words depends on the retinal area that is stimulated. Melville (1967) reported an interaction between retinal focus and word length in the determination of word-recognition thresholds. Howes and Solomon (1951) reported that visual recognition of words improves with practice, while Postman and Bruner (1948) found an improvement in the recognition of three word sentences after a practice experience of examining drawings exposed tachistoscopically.

On a practical level, these studies seem to have two implications for perceptual defense/sensitization studies. First, the need to continually control for practice effects must be emphasized. Therefore, findings from experiments which determine the recognition threshold on the basis of a few trials at the early stages of the stimulus series must be questioned. Secondly, the word length for critical and neutral words employed in the studies must be equal, if Melville's research is accurate.

Although no discussion of the influence of practice

efforts on neutral versus ceitical stimuli could be found in the literatue, theoretically, practice effects should equally affect neutral as well as critical stimuli.

Because the critical stimuli most often represent one class of stimuli (e.g., sexually taboo words), whereas the neutral stimuli may come from many classes, a factor which selectively affects one class of stimuli would more than likely affect the critical rather than the neutral stimuli. For example, Eriksen and Browne (1956) reported that the recency of prior experience with the stimuli is a crucial variable in response latency. Sexually taboo words would be more likely to be affected by this variable than would neutral words.

The criticism that taboo and neutral words differed markedly in familiarity or frequency of past occurrence in the subject's experience was first exposed by Howes and Solomon (1950). The authors showed that the frequency with which the taboo words occurred in the Thorndike-Lorge word tables (1944) was appreciably lower than those for neutral words. They advanced the hypothesis that differential recognition thresholds for words were a function of the frequency with which these words had been experienced in the past. Stimuli which had a high frequency of prior occurrence would have low visual duration thresholds while infrequent

or rare stimuli would be expected to have high thresholds. In further studies (Howes and Solomon, 1951; Solomon and Howes, 1951), these authors demonstrated that the duration thresholds could be predicted by the Thorndike-Lorge tables of word frequency.

The Thorndike-Lorge tables are based upon the frequency of the word occurrence in children's books or popular adult magazines and as such were outdated in 1950. In addition, taboo words probably appear less frequently in written English than in conversation, and hence the frequency tables may systematically underestimate the frequency of usage. If the familiarity of taboo words is indeed underestimated, Howes and Solomon's hypothesis stands open to debate. More recently, Eriksen (1963) published data that focuses upon this question of frequency. His research indicates that the Thorndike-Lorge tables are misleading with regard to taboo words. In addition, it raises serious doubt regarding the frequency criticism leveled by Howes and Solomon. Erdelyi (1974) points out that the significant threshold difference in the Howes and Solomon study was due to differences between the "extremely infrequent and very frequent words."

Still, Broadbent (1967) obtained more powerful frequency effects than Howes and Solomon, indicating a need for further exploration into frequency effects before the issue can be dismissed.

Nevertheless, the criticism by Howes and Solomon did have a marked effect upon later studies. Experiments controlling for or neutralizing frequency effects still reported perceptual defense and/or perceptual vigilance outcomes (Chapman and Feather, 1972; Dulaney, 1957; Levy, 1958; Pustell, 1957; Sales and Haber, 1968; and Wiener, 1955).

Closely related to the frequency argument has been the expectancy set argument. The proponents of this position argue that perceptual defense data are largely a consequence of the subject's expectations. Since unexpected stimuli tend to have higher thresholds (Cable, 1969; Forrest, Gordon, and Taylor, 1965; Freeman, 1954; Howie, 1952; Lacy, Lauringer, and Adamson, 1953; Luchins, 1950; and Postman, Bronson, and Gropper, 1953), use of the expectancy set argument to explain perceptual defense seems plausible. However, a number of studies documenting perceptual vigilance challenges the expectancy set hypothesis (Bootzin and Natsoulas, 1965; Bootzin and Stephens, 1967; Chapman and Feather, 1972; Chapman, 1974; Dorfman, 1967; Dulany, 1957; Pustell, 1957; and Wiener, 1955).

Perhaps the most heated argument regarding the perceptual defense/sensitization concept revolves around the response bias position. The response bias issue is related to the reporting of the perceptual experience rather than to the perceptual phenomenon itself, in that not all responses have

an equal probability of appearing in the response sample. The response bias argument was initiated by Howes and Solomon's (1950) criticism of the McGinnies study. In their article, they attacked McGinnies' findings on the basis of the frequency argument (previously discussed) as well as on the basis of response bias. Howes and Solomon argued that the subjects' responses may have been skewed not because of what they saw or did not see, but because of what they were willing to report. The response suppression occurs when a subject recognizes a stimulus but fails to tell the experimenter because of the social implications involved. For example, the subject may wait for a few more exposures in order to be absolutely certain before he responds. Howes and Solomon suggest that response suppression will probably occur whenever taboo stimuli are used. If their hypothesis is true, then the effect of response suppression would be to raise the recognition threshold measures artificially for the taboo stimuli.

The criticism leveled by Howes and Solomon engendered significant changes in the experimental methodology used in the studies which followed. Experimenters began controlling for response bias through a combination of mathematical and experimental controls.

One popular experimental control was to forewarn subjects

that taboo words might appear. Lacy, Lewinger, and Adamson (1953) and Freeman (1954, 1955) reported that forewarning lowered the thresholds of taboo words to a level below that of neutral words. According to Lacy et al., the more specific the forewarning, the greater the fall in recognition threshold. Fulkerson (1957) also investigated the effect of forewarning on taboo-word thresholds, but found it not to be significant except in the case of the first taboo stimulus presented. Cowen and Beier (1950) found that forewarning significantly lowered thresholds for taboo stimuli, although they remained higher than those for neutral stimuli.

Mathews and Wertheimer (1958) indirectly attempted to secure a score which would represent the subjects' tendency not to call the emotional words. The subjects were given a list of eight words (four neutral and four emotional) and were forewarned that every word on the list would be flashed. In reality, the experimenters only flashed four words (two neutral and two emotional). They were able to attain measures of both response and perceptual suppression and still found a significant perceptual defense phenomenon after subtracting the measures of response suppression from those of perceptual suppression.

A second methodology designed to control for response

bias has been that employed by Goldiamond and Hawkins (1958) as well as Goldstein (1962). Utilizing a non-stimulus control, subjects were given a closed set of possibilities from which to choose in order to eliminate the variability contributed by guessing. If no difference was evident in the distribution of responses when a stimulus was present versus a control condition when it was absent, then one could conclude that the response suppression accounted for the effect. Although Goldiamond and Hawkins (1958) and Goldstein (1962) found support for response bias utilizing the above described methodology, numerous other studies (Brown and Rubenstein, 1961; Zajonc and Nieuwenhuyse, 1964) offered evidence to the contrary.

Another experimental methodology which attempts to avoid response bias is the spatial forced choice technique, where more than one stimulus word, design, picture or object is simultaneously presented. The subjects locate one of the stimuli by determining its spatial position in the group of stimuli (upper left, lower left, upper right, lower right). The use of a spatial forced-choice indicator markedly changes the psychological nature of the recognition situation, since it is no longer necessary for the subject to determine the presence or absence of one of a class of stimuli (emotional or neutral words). Instead, the subject

is told a stimulus will be presented, and that he must merely discriminate it from the others which will also be presented.

Blum (1954), employing this spatial forced-choice technique, presented Blacky pictures tachistoscopically before and after a situation in which feelings of psychosexual conflict were aroused in the subjects. In another experiment, Blum (1955) exposed four Blacky pictures simultaneously on the screen to subjects who were familiar with the pictures. The subjects were told that all eleven pictures would appear equally, and that they must identify each picture presented. Responses were classified as to whether the pictures mentioned were present or absent and to the presence or absence of conflict plus repression in the subject. The author compared the frequency with which the names of different Blacky pictures (assumed to be anxiety provoking) were given as responses to tachistoscopic exposures where the Blacky pictures, unknown to the subject, were not exposed. The responses were then compared with the frequencies obtained when the anxiety-provoking pictures were actually presented. Blum found that subjects avoided calling the names of pictures relating to their own conflicts and repressions, but only when these pictures were actually present. No such avoidance behavior (relative to the pictures which were neutral for the subjects) was exhibited toward the pictures which were not presented.

More recent studies have employed still more refined techniques to control for response bias. Bootzin and Natsoulas (1965) and Bootzin and Stephens (1967) controlled response bias by forcing the subject to choose one of two neutral words or one of two "rude" words as a response. Rude and neutral words were never presented together and no systematic preference within pairs could be found. Although response bias as a source of variation was controlled, the studies still were able to document perceptual defense. Ruiz and Krauss (1968) and Zigler and Yopse (1960) required the subject to respond with a taboo word to indicate perception of a neutral word, and to respond with a neutral word to indicate perception of a taboo word. The report mode was calculated to eliminate report suppression. Again, perceptual defense outcomes were found.

The response bias criticism of Howes and Solomon (1950) led to various methodological changes to avoid response bias. Nonetheless, whenever a verbal response is required from the subject, the verbal response is subject to various motivational factors. To avoid this problem, a methodology would need to require the subject to make a non-verbal response or to limit the response to a "yes" or "no" answer. One glaring weakness of all the studies reviewed is their failure to control this problem and implement a methodology which will satisfy one of the criteria discussed above.

More recently a new question has arisen in perceptual defense literature. According to Erdelyi (1974), "the major criticisms of the perceptual defense and vigilance hypothesis are reducible ... to the question of the locus of selectivity (bias)" (p. 11). In more simplistic terms, the issue of selective attention (of which the frequency, expectancy set, and response bias arguments are considered parts) has become relevant in recent perceptual defense/vigilance literature. At the forefront of controversy is the information processing approach, particularly the multiprocess theories of Dixon (1970) and Neisser (1967). The basic premise is that between the stimulus and the response, a whole complex of actively interacting systems intervenes. Inputs are subjected to different kinds of transformations and storages, in such a manner that different selection processes are likely to be operating at different levels of processing.

Although the information-processing approach to selective attention has received considerable attention in recent literature, the role of selective attention in perceptual defense/vigilance theory is as yet unclear. Certainly, more research is necessary in order to explore new hypotheses. For example, Erdelyi (1974) proposes that "selectivity is pervasive throughout the cognitive continuum, from input

to output, and thus is likely to be found in most places an investigator searches" (p. 4). Erdelyi's hypothesis implies that the motivational basis for selectivity may vary, resulting in biased or selective processing of information in one of many ways. If future research supports Erdelyi's contention, then the perceptual defense/vigilance argument may have an added dimension to consider. For a more complete discussion of selective attention and/or information processing, the reader is encouraged to review the work of Broadbent (1958), Erdelyi (1974), and Neisser (1967).

Just as the criticism by Howes and Solomon (1950) led to various methodological changes to control for problems of response, a criticism by Eriksen (1954) engendered methodological changes in the stimulus. Eriksen criticized those perceptual defense/sensitization studies which lacked independent verification of the anxiety arousing nature of the stimulus.

...The implicit assumption that the taboo words are anxiety-arousing for all or even a majority of the subjects is extremely gratuitous. Even if this assumption were substantially correct, the studies using this procedure make no provision for individual differences among subjects in terms of how they respond to or handle this anxiety. If one wishes to determine whether psychological defenses can affect recognition thresholds, it would seem obvious that a first requisite is to show that the particular stimuli give rise to defensive behavior as determined by other independent criteria (p. 219).

Three techniques have been employed in order to insure that the stimuli are, in fact, anxiety provoking. Presenting the stimuli on two different occasions is one methodology. A word association test, to determine an objective measure of the stimuli emotionality for the subject, might be utilized for example. The second confrontation with the stimuli would be during the experiment itself.

Another method to guarantee stimulus emotionality is to build it into the experimental design. That is, instead of testing for the emotional significance of the stimulus, the experimenter creates conditions which insure the attachment of emotional significance to the stimulus. For example, conditioning the stimuli to shock or using failure related words as the stimuli (after the subjects were exposed to frustrating failure experiences) have been used to accomplish this condition.

Finally a third strategy to insure the emotional significance of stimuli requires the combination of a priori and empirical criteria. In this method, a class of stimuli which are likely to be emotional for certain subjects is chosen. Subjects, for whom it is believed the stimuli will be anxiety-provoking, are then selected. Thus, if the stimuli are racially connotative words, subjects would be individuals who are highly prejudiced. The criteria

for selecting subjects has usually relied upon nontesting procedures such as psychiatric diagnosis. Carpenter, Wiener, and Carpenter (1956), for example, selected subjects who used repressive or sensitizing mechanisms in particular conflict areas and submitted words designed to evoke these conflicts.

Motivation, interests, values and their affects upon physical perception have also been studied. Wispe and Drambarean (1953) investigated the effect of food and water deprivation on the recognition of hunger-relevant and thirst-relevant words and found that after periods of ten and twenty-five hours of deprivation, need-relevant stimulus words had lower recognition thresholds than neutral words. McClelland and Atkinson (1948) also noted an increase in food responses as a function of deprivation.

Considering ego-involvement as a motivational state, Freeman (1954) used "ego-involving instructions" for the experimental group which led the subjects to believe that the perceptual task was related to academic success and aptitude. Ego involvement had the effect of reducing thresholds for all words (neutral and critical). Another experimental technique for inducing motivation has been to condition anxiety towards specific words by means of electric shock. Pustell (1957) produced perceptual sensitization experi-

mentally by associating an electric shock with a number of neutral geometric figures. Hochberg, Haber, and Ryan (1955) sounded a buzzer simultaneously with, as well as after, presentation of a nonsense syllable. The buzzer was followed by an electric shock in both cases and resulted in higher thresholds for the critical as opposed to neutral nonsense syllables.

If motivation, recency of prior experience with the stimuli, as well as other variables affect the individual's response with this methodology, the practicability of this methodology and the need for a methodology to control for these variables should be considered.

Although there is considerable research on perceptual defense/sensitization, research specifically investigating prejudice and perceptual defense/sensitization is limited. Steelman (1940) showed Caucasian subjects fifteen pictures showing white people and another fifteen pictures showing black people; then the experimenter mixed in an additional eight pictures depicting white people and eight more pictures depicting black people. Subjects were asked to pick out the pictures in the initial presentation series from all the pictures. The results showed that low prejudiced subjects (as measured by an interview) recognized significantly more pictures with black people in them than did the high prejudiced group.

Malpass and Kravitz (1969) found evidence that there is better recognition and memory of faces belonging to one's own race than there is for faces of another race. The findings were not related to the level of prejudice of the subjects though.

Under the guise of a yearbook evaluation study, Sensening, Jones, and Varney (1973) had twenty-two prejudiced and non-prejudiced white male undergraduate students inspect twenty-five photographs of whites and twenty-five photographs of blacks. With inspection time as the dependent measure, the authors found that a significant interaction occurred between race of the person depicted in the photograph and the subject's prejudice level (as measured by a racial inventory). Non-prejudiced subjects spent equal amounts of time looking at the photographs of whites and of blacks, whereas prejudiced subjects spent significantly less time looking at photographs of blacks than at photographs of whites (significant at .01 level).

Based on the studies by Steelman (1940) and Sensening, Jones, and Varney (1973) one would expect that if an individual has a strong negative orientation toward blacks, then exposure to blacks would be avoided. Such avoidance is consistent with the idea of perceptual defense.

However, if one assumes that the prejudiced white

feels threatened by blacks, and there appears to be some evidence for this (Campbell, 1965), then avoidance may be somewhat surprising from the point of view of perceptual vigilance. Jones and Gerhard (1967) define perceptual vigilance (sensitization) as "an enhanced readiness to perceive certain stimuli that have information value for the person, including those that alert him to impending danger" (p. 718). From this theoretical viewpoint, it is predicted that a highly prejudiced person might not avoid exposure to blacks, but would, rather, attend to blacks very carefully.

In consideration of this data, it would be expected that prejudiced individuals would focus less on the highly connotative words, perceiving them at a farther distance than the control words or that prejudiced individuals would focus more on the highly connotative words, perceiving them at a closer distance than the control words.

Although there are only two theoretical positions which confront the relationship of racial attitude and perceptual defense/sensitization, a number of explanations are addressed to the perceptual defense/sensitization phenomenon.

Howes (1954) offered a theory to account for the perceptual defense findings in terms of the probability

of any specific word being evoked as a response. The probability of a word is the strength of the subject's tendency to emit the word, and this summates with the stimulus factor to produce a momentary probability value. If the stimulus word is of a lower probability than a neutral word according to the Thorndike-Lorge tables, then the momentary probability for the subject to emit this word would be smaller than for the neutral word (which has a higher probability). Evidence which challenges this interpretation has already been considered.

Goldiamond (1958) asserted his response bias theory to account for perceptual defense and supplied experimental substantiation for the response bias position (Goldiamond and Hawkins, 1958). The authors gave their subjects prior experiences with a number of paralog (pairs of nonsense syllables), which had varied frequencies. The subjects were then tested in what seemed to be a standard recognition experiment with the paralog as stimuli. However, the paralog did not, in fact, serve as stimuli, since the correct response on each trial was arbitrarily predetermined by the experimenters. The subjects tended to guess high frequency paralog rather than low frequency paralog though, so that more correct responses were made when high frequency paralog were really correct. In other words, the high frequency

paralogs obtained lower recognition thresholds than the low frequency paralogs, because of the existence of a response bias in their favor. Goldiamond (1958) applied this finding to perceptual defense, arguing that a bias against using a word would give it the appearance of being difficult to recognize.

Goldiamond's theory does an adequate job of accounting for many findings in the literature which employ the ascending Method of Limits procedure. If evidence for perceptual defense can be found with a completely different technique than one in which recognition thresholds are critical, then Goldiamond's hypothesis may be tarnished.

Several writers have explained the phenomenon by invoking biological adaptation and survival principles. In advocating the presence of both defense and sensitization Pustell (1957) stated:

If perceptual vigilance occurs, he is sensitized to the conflict stimulus and thereby is prepared for whatever behavior is needed in order to cope with it. On the other hand, if perceptual defense occurs, he is relatively insensitive to the conflict stimulus, and thus perhaps successfully avoids the anxiety which comes with conflict situations (p. 88).

This method of accounting for the findings has failed to gain support, because of the failure of data to support this contention. Not only is this explanation teleological, but it also fails to predict what stimuli will lead to sensitization and which will lead to defense. The biological

adaption theory serves only as a possible explanation of the event after it occurred.

Postman (1951, 1953) advanced a general theory of perception, termed hypothesis theory, to account for the duality of the defense/sensitization phenomenon. His basic assumption is that an individual is always prepared to perceive something, and forms hypotheses as to what will be perceived. Postman attempts to explain the perceptual defense phenomena as attributable to the "dominance of strong alternative hypotheses" which interfere and delay the recognition of emotional stimuli. While those who adopt the "defense" mechanism have strong dominant (non-emotional) hypotheses which require large amounts of appropriate information before they are rejected, those who adopt the "sensitizing" mechanism are considered to have stronger negative (emotional) hypotheses.

Postman lists four main ingredients of hypothesis strength: 1) frequency of past confirmation of the hypothesis; 2) motivational support for the hypothesis; 3) the number of alternative hypotheses; 4) cognitive support for the hypothesis.

Little evidence to support Postman's theory has appeared in the literature. However, a study by Levy (1958), which found that emotional stimulus words evoked

fewer chained associates than did neutral stimulus words, offers evidence to the contrary.

Another theoretical position, introduced by Lysak (1954) and later Datson (1956), argues that individuals tend to focus more closely upon anxiety-provoking stimuli, so that lower recognition thresholds for these stimuli result. Little support has been generated for this hypothesis, since the majority of the research has shown either perceptual defense or perceptual defense and sensitization.

The learning theory account of perceptual defense/sensitization removes the phenomenon from the field of perception and places it back with response variables which are subject to the laws of learning. Because all perceptions have to be reported in terms of some response, the question of whether the variance exists in the perception itself or in the response is a difficult one.

Behavior theorists believe that each individual has at his disposal a hierarchy of responses to any given stimulus. If a response is rewarded, it is more likely to recur the next time the stimulus appears; if the response is punished, it is less likely to appear during future presentations of the stimulus and is replaced by another response. Anxiety is considered to be a punisher, so

a response which elicits anxiety will be less likely to occur again in the future. In the tachistoscopic situation the stimulus is the word or picture presented, and the response is the verbal statement, galvanic skin response, etc. of the subject.

The concept of generalization is also brought forth in the behavioral theorists attempts to account for perceptual defense. In stimulus generalization, the response learned to one stimulus may also be elicited by other stimuli which resemble the original stimulus. If anxiety is thought of as a learned response to a conflict-stimulus word presented tachistoscopically, the response may generalize and be elicited by another stimulus, such as a neutral word which physically resembles the conflict stimulus. Some evidence for this position exists. For example McGinnies and Sherman (1952) found a perceptual defense effect for neutral words which immediately followed the anxiety-provoking stimulus. If perceptual defense is learned, then the findings of McGinnies and Sherman support the concept of stimulus generalization.

Some researchers have gone beyond the hypothesis theory advanced by Postman and postulated that a curvilinear relationship exists between sensitivity to input and extent of input emotionality (Brown, 1961). More recently,

Neisser (1967) has expanded and further developed Brown's curvilinear theory in his information processing paradigm. Although Neisser's theory has generated much support in the last few years, the numerous studies which fail to show a curvilinear relationship between stimulus and response cast doubt upon this position.

Two other theoretical positions have directed their attention to the perceptual defense/sensitization phenomenon. The psychoanalytic approach as first espoused by Blum (1954) and Nelson (1955) adheres to a two-process or two-stage perceptual process. The first process, where the stimuli act directly on the unconscious if the stimuli are consistent with libidinal desires, results in perceptual sensitization. The second process, where the ego defense mechanisms act on the stimuli, results in perceptual defense.

Numerous writers, including Wiener and Schiller (1960) have objected to any explanation which supports a dual process. The two-process viewpoint posits two distinct processes -- a supraliminal one and a subliminal one. In a series of three experiments, the authors pointed out that there is a lack of sufficient evidence to support subliminal perception. Wiener and Schiller demonstrated that what had been thought to be subliminal perception can be interpreted as the perception of partial cues, which requires only a one-process

view and therefore offers evidence which challenges the psychoanalytic position.

A final theoretical framework is provided from the works of Snygg and Combs (1959). In their phenomenological theory, the authors have contended that goals and values exert a selective effect on perception and thus, markedly affect behavior. In addition, Snygg and Combs have commented that anxiety is in a state of being threatened, but one in which the object of threat cannot be clearly and precisely differentiated, resulting in less clear perception. According to the authors, under this state of anxiety (threat), "we have no choice but to defend our self concepts when they seem to us to be severely threatened" (p. 172). Therefore, when threatened (as by anxiety-provoking stimuli), the reaction is likely to be perceptual defense.

The research which indicates perceptual sensitization or a dual phenomenon presents evidence that phenomenological theory fails to explain however.

Although various theoretical frameworks have been expounded, the theories can be categorized to a degree into 1) those theories which accept perceptual defense and attempt to explain why the phenomenon occurs (Howes word probability theory and response bias theory); 2) those

theories which accept perceptual defense and attempt to explain perceptual defense in terms of their viewpoint (learning theory and Snygg and Combs phenomenological theory); 3) those theories which accept the duality of perceptual defense/perceptual sensitization (psychoanalytic theory, biological adaptation theory, Postman's hypothesis theory, and Neiser's information processing theory); and 4) those theories which accept perceptual sensitization (Lysak as well as Datson). See Table 1 for a breakdown of theories and their respective positions in perceptual defense/sensitization.

TABLE 1

CLASSIFICATION OF THEORIES IN
PERCEPTUAL DEFENSE/SENSITIZATION

THEORY	DEFENSE	SENSITIZATION	DEFENSE AND SENSITIZATION
Word Probability Theory	X		
Response Bias Theory	X		
Biological Adaptation Theory			X
Hypothesis Theory			X
Lysak's Theory		X	
Learning Theory	X		
Information Processing Theory			X
Psychoanalytic Theory			X
Phenomenological Theory	X		

Table 1 - continued

THEORY	DEFENSE	SENSITIZATION	DEFENSE AND SENSITIZATION
Datson's Theory		X	

CHAPTER III
CONCLUSIONS FROM THE LITERATURE REVIEW
AND HYPOTHESES GENERATED

The problems involved in perceptual defense/sensitization seem to revolve around two major issues -- methodology and theory. In terms of theoretical framework it is now apparent that disagreement exists as to whether perceptual defense, perceptual sensitization, or both perceptual processes can be found. A number of theories have attempted to account for or defend one or both processes. In addition, two positions have emerged with respect to the relationship between racial attitude and perceptual defense/sensitization.

Regarding methodology, the use of ascending Method of Limits in almost every study has been scrutinized. In particular the use of negative indicators and the limited response range have been discussed, as well as the issues of frequency, response bias and selective attention.

Although the two problems of theory and methodology seem, on the surface, to have little overlap, it appears that a shift in the experimental/methodological approach to the phenomenon could provide an understanding of how personal attitudes and psychological conflicts influence

our perceptual processes, thereby providing some insight into a theoretical resolution of the problem.

A methodology which aims to reach this goal would require: 1) The response should fall on a continuous scale which allows for differentiation into perceptual defense, perceptual sensitization, and non-defended perception. 2) The response should be nonverbal or require as little verbalization as possible. 3) The response should utilize the same modality as the perception itself.

In addition, Minard (1965) listed six points which should be heeded if the methodology is to avoid some of the pitfalls previously discussed.

- 1) Measurement of perceptual defense/sensitization should avoid the use of unexpected or socially unacceptable stimuli.
- 2) The stimuli employed should be chosen so that they are personally emotion arousing for the subjects and that they incorporate adequate controls for word frequency.
- 3) Results should not be averaged for stimuli which differ greatly in their emotion-arousing properties.
- 4) Results may be obscured if the scores of subjects with "quite different" personalities are averaged.
- 5) Averages and comparisons which involve different situations should be avoided, because the experimental situation may serve to alter the effective level of stimulus

emotionality (changing the sex of the experimenter, for example).

6) Obtain measures of response bias by the use of some control.

The major methodological inadequacies for previous perceptual defense/sensitization studies are cited in Table 2.

Following the advice of Minard, as well as the three methodological refinements cited above, this study has attempted to overcome methodological problems in perceptual defense/sensitization and provide evidence to add credence to a theoretical position.

Within the framework of this methodology, any of the three theoretical positions seem to have potential merit. However, the position which espouses the duality of defense and sensitization has generated no support in the literature when personality variables are considered. Since the subjects are being grouped on the basis of racial attitude (a personality variable), it seems highly unlikely that the duality position would be supported by the present study. However, an analysis of individual respondents within each prejudice group would indicate the occurrence of this phenomenon, should it be so indicated.

Since support has been generated in the literature

TABLE 2

MAJOR METHODOLOGICAL INADEQUACIES
OF PERCEPTUAL DEFENSE/SENSITIZATION STUDIES

AUTHOR	INADEQUACY						
	Restriction of response range	Small number of trials	Too much verbalization required in the response	Scores of different personality subjects are averaged	Response bias	Use of Non-continuous scale	Stimuli not shown to be anxiety provoking
Beier & Cowen	X	X	X	X		X	X
Berger	X	X	X	X	X	X	X
Blackwell	X		X	X	X	X	X
Blum			X	X		X	X
Bootzin & Natsoulis		X	X	X		X	
Bootzin & Stephens			X	X		X	
Broadbent	X		X	X			
Brown & Rubenstein			X	X			
Bruner & Postman	X	X	X	X	X	X	X
Byrne & Sheffield	X	X	X	X	X	X	X
Cable			X	X		X	X
Carpenter et al.	X		X	X		X	
Chapman			X	X			
Chapman & Feather			X	X			
Cowen & Beier	X	X	X	X		X	X
Cowen & Obrist	X	X	X	X	X	X	X
Datson	X		X	X		X	
Davis	X	X	X	X		X	X
Dorfman			X	X	X	X	X
Dulaney	X			X		X	X
Erikson	X	X	X		X	X	X
Erikson (1963)			X			X	

Table 2 - continued

AUTHOR	INADEQUACY						
	Restriction of response range	Small number of trials	Too much verbalization required in the response	Scores of different personality subjects are averaged	Response bias	Use of non-continuous scale	Stimuli not shown to be anxiety provoking
Eriksen & Browne	X	X	X	X		X	X
Forest et al.	X		X	X	X	X	X
Freeman	X	X	X	X	X	X	X
Fulkerson	X	X	X	X		X	X
Goldiamond & Hawkins	X		X	X		X	
Goldstein	X	X	X	X		X	
Gordon			X	X		X	X
Greenbaum	X		X				
Hochberg et al.	X		X	X	X	X	X
Howes and Solomon	X	X	X	X		X	X
Howie	X	X	X	X	X	X	X
Kates and Klein	X	X	X			X	X
Kempner & Wiener	X	X	X	X		X	
Kleinman	X	X	X	X		X	
Kurland	X		X	X		X	
Lacy et al.	X		X	X		X	
Lazarus et al.	X	X	X		X	X	
Lazarus & McLeary	X		X	X	X	X	
Luchins	X	X	X	X	X	X	X
Mathews & Wertheimer	X		X				

Table 2 - continued

AUTHOR

INADEQUACY

	Restriction of response range	Small Number of trials	Too much verbalization required in the response	Scores of different personality subjects are averaged	Response bias	Use of non-continuous scale	Stimuli not shown to be anxiety provoking
McGinnies	X	X	X	X	X	X	X
Minard				X			
Nelson	X	X	X			X	X
Porzemyky		X					
Postman & Bronson	X	X	X	X	X	X	X
Postman & Bruner	X	X	X	X	X	X	X
Postman & Leytham	X	X	X	X	X	X	X
Postman & Solomon	X	X	X	X	X	X	X
Postman et al.	X	X	X	X	X	X	X
Pustell	X		X	X		X	
Ruiz & Krause		X	X	X			
Sauber			X	X			
Sensening et al.			X	X		X	
Solomon & Howes	X	X	X	X	X	X	X
Spence			X	X		X	X
Spielberger			X	X			
Van deCastle			X	X		X	X
Vanderplass & Blake	X	X	X	X	X		X
Whittaker et al.	X	X	X	X	X	X	X
Wiener	X	X	X	X		X	X
Wiener & Schiller	X	X	X	X		X	X

Table 2 - continued

AUTHOR	INADEQUACY						
	Restriction of response range	Small number of trials	Too much verbalization required in the response	Scores of different personality subjects are averaged	Response bias	Use of non-continuous scale	Stimuli not shown to be anxiety provoking
Zajonc & Nieuwenhuyse			X	X		X	
Zigler & Yopse			X	X			
Zuckerman		X	X	X		X	

for both the sensitization and the defense arguments, two-tailed hypotheses have been postulated. Although the power of the statistical tests is weakened by such a strategy, the opportunity of discovering the direction of a significant difference, if any exists, is increased. Based upon this thought, the following hypotheses are offered in order to investigate the visual depth perception of racially connotative words and their control words as well as ego-alien words and their control words by high, average, and low prejudiced male and female high school students.

- 1) Highly prejudiced individuals will perceive racially connotative and control words at significantly different distances.
- 2) Average prejudiced individuals may or may not perceive racially connotative words at significantly different distances.
- 3) Low prejudiced individuals will not perceive racially connotative and control words at significantly different distances.
- 4) High, average, and low prejudiced individuals will perceive ego-alien and control words at significantly different distances.
- 5) There will be a significant difference in the depth per-

ception of racially connotative words between highly prejudiced and low prejudiced individuals.

6) There will be a significant difference in the depth perception of racially connotative words between highly prejudiced and average prejudiced individuals.

7) There will be a significant difference in the depth perception of racially connotative words between average prejudiced and low prejudiced individuals.

8) There will be no significant difference in the depth perception of racially connotative control words between highly prejudiced, average prejudiced, and low prejudiced individuals.

9) There will be no significant difference in the depth perception of ego alien words between highly prejudiced, average prejudiced, and low prejudiced individuals.

10) There will be no significant difference in the depth perception of ego alien control words between highly prejudiced, average prejudiced, and low prejudiced individuals.

11) There will be no significant differences between males and females within the highly prejudiced, average prejudiced, and low prejudiced groups with regard to racially connotative racially connotative control, ego alien, and ego alien control words.

12) There will be no significant difference between the forward and backward starting positions with regard to words and prejudice group classification.

CHAPTER IV METHODOLOGY

Subjects

Eighty-four Caucasian freshman and sophomore high school students were separated into three groups by means of The Social Situations Questionnaire (Kogan and Downey, 1954). These students were randomly selected from the master role of an Alachua County, Florida high school; subjects for the second phase of the experiment were then chosen from these students. One experimental group (designated as the high prejudiced group) was composed of those students whose score on the attitude survey fell at least one standard deviation above the mean. A second experimental group (designated as the low prejudice group) was composed of those students whose score on the attitude survey fell at least one standard deviation below the mean. A control group (the average prejudice group), composed of a random selection of students whose score on the attitude survey fell between plus one and minus one standard deviation, was also employed.

Instrument Selection

Eighty-four subjects were administered an adaptation of

the Social Situations Questionnaire (See Appendix 4). This is a fifteen item, Guttman-type scale developed by Kogan and Downey (1956) to measure discriminatory attitudes toward Negroes. The instrument was modified slightly in 1974 (the word "colored" was replaced by the word "black"). Shaw and Wright (1967) report that "this scale appears to be above average in validity for the measurement of attitudes toward the Negro...." Reliability is average for a scale of this sort (.73).

Experimental Procedure

During the experimental procedure, the subject was first dark adapted for approximately two minutes. Then, the subject observed for five seconds a word painted in two-inch letters with luminescent paint on a flat black card. Immediately after the word was removed, a luminescent marker placed on a track below the word was shown to the subject. The subject was then required to tell the experimenter whether to move the marker closer to or farther away from the subject, so that the marker was "directly below the spot where the word appeared or the same distance away as the word." The word was objectively positioned at a distance of four feet in the median plane from the front of the instrument. The marker was positioned at either the near position (one foot in front of where the word

appeared) or the far position (one foot behind where the word appeared).

Apparatus (See figures 1 and 2)

The experimental apparatus was a box-like structure eight feet long, one foot wide, and one foot high. It was constructed of three-eighth inch plywood with all walls solid except for the top which was open. The interior of the box was painted flat black and all devices were painted the same color or made of black construction paper (i.e. the paper upon which the words are printed).

Centered in the apparatus at the zero foot mark (four feet from each end of the eight foot long box), and eight inches off the floor of the apparatus, the words appeared. A window slide through which the words were slid, was attached by a hinge to a bar running across the width of the apparatus at the top. After the word was exposed for five seconds, the viewing slot was closed by means of a hinged cover operated by a pulley, and the window slide device lifted out of the box. The luminescent marker was then inserted and the viewing slot opened. On the floor of the apparatus a track two and one-half inches wide extending the entire length of the box, served to guide the marker. The marker, two inches by two inches in size, was pushed along the track by a wooden standard ruler attached to the

base of the marker. The wooden standard ruler was ten feet long and extended through a covered hole in the back of the apparatus, and was able to move the luminescent marker to either extremity of the apparatus. The ruler was also employed to tell exactly how far the words were perceived from the zero inch point (the zero inch point being the point where the word was exposed).

The entire apparatus was mounted on a table, so that it was eye level to the subject, when the subject was seated before it. When seated in the dark room, the subject was able to see only the luminescent words or the luminescent marker in the approximate median plane. When the words were visible, the luminescent marker was removed from the box; when the marker was present, the hinged word holder or window slide was placed in an upward position out of the box. With the equipment not visible, the environment was free from distracting and confounding stimuli. To prevent the subject from seeing or estimating the size of the apparatus, a "wall" was constructed so that the only contact with the apparatus was by looking through the viewing slot. After each trial, the viewing slot was closed and the measurement taken and recorded.

Stimuli (See Appendix I)

Two words were presented that were thought to be ego-

alien to each subject, as defined by Porzemy (1969), eg. PIG. For each ego-alien word, defined as inharmonious with one's total self, the subject was also presented a neutral control word which was perceptually similar except for a change in one letter, eg. PIN.

Three words were also employed that were thought to be racially connotative, eg. NIGGER. The three racially connotative words used were chosen prior to the experiment from a list of ten words by five students serving as judges (see Appendix 2). Again, for each racially connotative word employed, a neutral control word which was perceptually similar except for a change in one letter were presented to each subject.

Starting Position

There were two trials for each word. For one trial, the starting position for the luminescent marker was one foot closer to the subject than the zero inch point where the word appeared. For the other trial, the starting position of the luminescent marker was one foot further away than the position of the word. The initial starting position as well as the order of presentation of the words was randomly assigned.

Recording Device

The distance that each word was perceived from the zero-inch mark was recorded on the experiment recording sheet to the nearest quarter inch (see Appendix 6).

Statistical Procedures

The primary analysis of the data consists of individual t-tests and analysis of variance. Two-tailed t-tests were carried out to test for differences between ego-alien and control words for the high, average, and low prejudiced groups. In addition, two-tailed t-tests were carried out to test for differences between racially connotative and control words for the high, average, and low prejudiced groups. Two-tailed t-tests were also employed to test for sex differences and starting position differences.

Analysis of variance was employed to test for differences between the three groups in depth perception of racially connotative, racially connotative control, ego alien and ego alien control words.

All told, ten two-tailed t-tests and two analyses of variance were conducted.

FIGURE 1--APPARATUS (Open View)

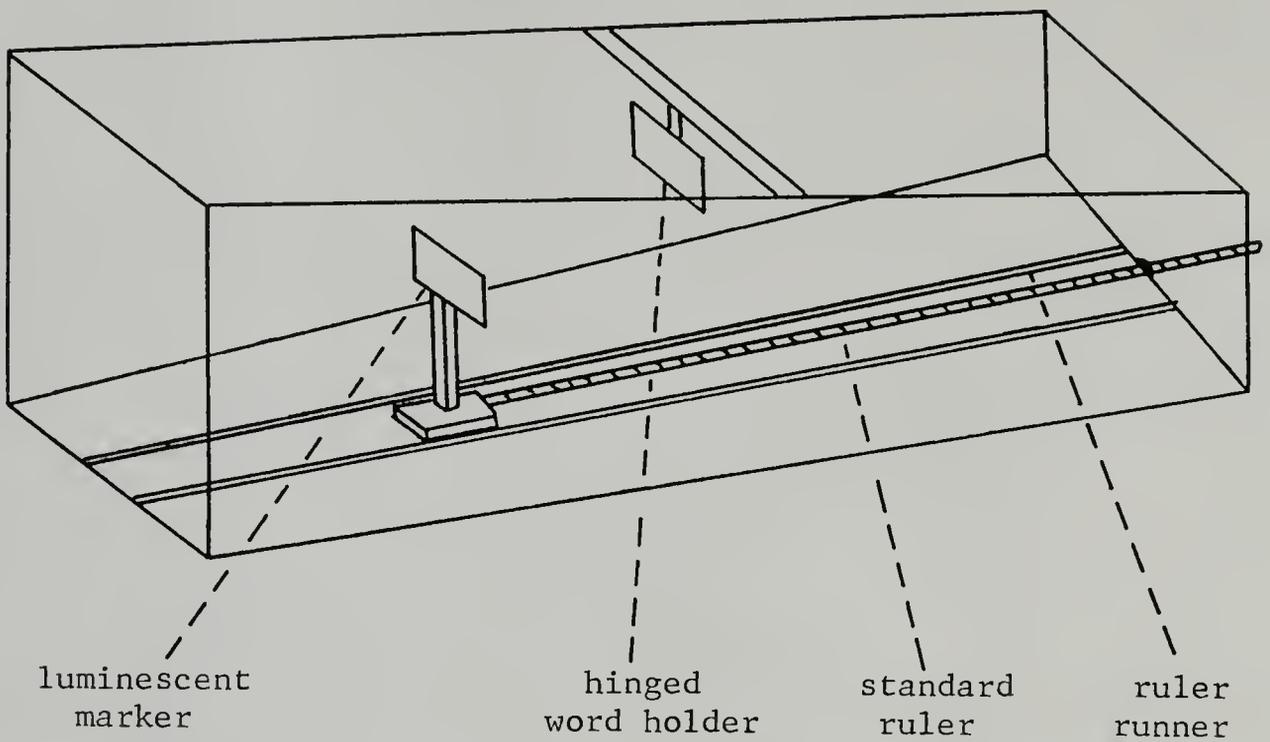
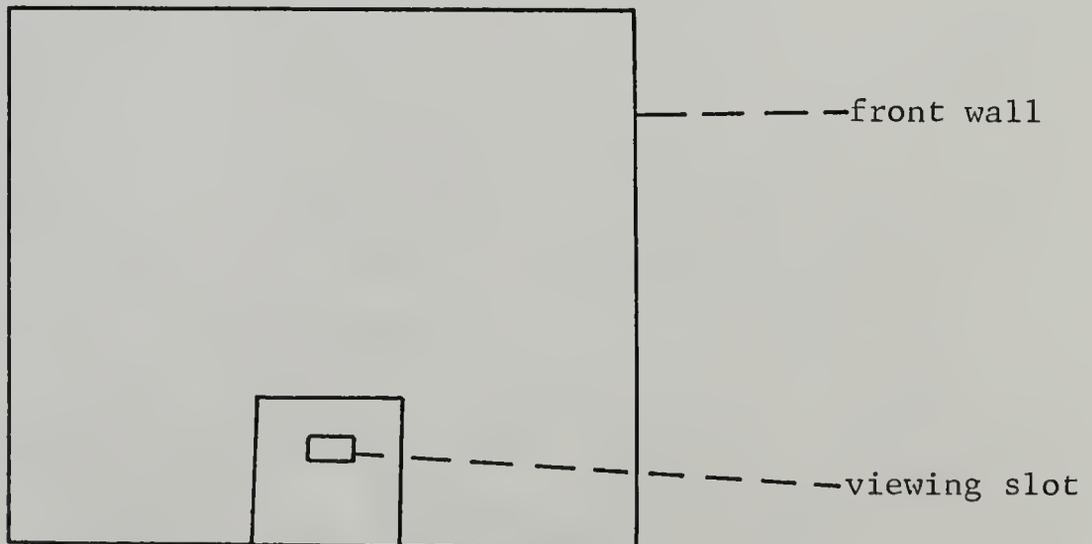


FIGURE 2--APPARATUS (Front View)



CHAPTER V ANALYSIS OF THE DATA

In the initial stage of the study eighty-four students responded to the racial attitude survey. Twelve students failed to complete all items on the survey, responded more than once to one or more questions, or failed to complete the data sheet. The results for these twelve students were ruled invalid and therefore not included in the data. For those seventy-two students who correctly completed the racial attitude survey as well as the data sheet, Table 1 shows the frequency distribution. A low score is indicative of low prejudice while a high score is indicative of high prejudice.

For the purposes of this study, those students who scored twenty-seven or less on the racial attitude survey (less than or equal to one standard deviation below the mean) became the low prejudiced group in the second part of the study. Those subjects who scored forty-four or greater (more than or equal to one standard deviation above the mean) became the high prejudiced group in the second phase of the experiment. The average prejudice group consisted of a random selection of fourteen students whose scores fell

between twenty-eight and forty-three (between one standard deviation below the mean and one standard deviation above the mean.)

The data for the second phase of the experiment (for those students in the low, average and high prejudiced groups) was collected on the "Experiment Recording Sheet" -- see Appendix 6. Analysis of the data by means of individual t-tests and analyses of variance provided information bearing upon the hypotheses and questions previously mentioned in Chapter 3.

The first hypothesis, which suggested that highly prejudiced individuals would perceive racially connotative words and their control words at significantly different distances, was affirmed. Table 2 indicates a significant difference at the .01 level. For the average prejudiced individuals, a significant difference in depth perception distance was also found between the racially connotative words and their control words. In this instance, a significant difference at the .05 level was found, as delineated by Table 2. No finding had been suggested in the second hypothesis. Finally, the third hypothesis, which suggested that low prejudiced individuals would not perceive racially connotative words and their control words at significantly different distances, was affirmed. Table 2 shows no significant difference.

Hypothesis 4 stated that all three groups would perceive ego alien words and their control words at significantly different distances. Table 3 shows a significant difference at the .05 level for the high prejudiced group and a significant difference at the .01 level for the low prejudiced group. There was no significant difference found between ego alien words and their control words for the average prejudiced group. However, the difference did approach significance (.14).

The fifth hypothesis postulated that a significant difference in the depth perception of racially connotative words between highly prejudiced and low prejudiced individuals would exist. Table 4 shows the difference to be significant at the .05 level.

The sixth hypothesis, which suggested that there would be a significant difference in the depth perception of racially connotative words between the high prejudiced and average prejudiced groups, was affirmed. Table 4 shows a difference at the .05 level.

However, no significant difference was found in the depth perception of racially connotative words between the low prejudiced and average prejudiced groups as delineated by Table 4. Therefore, hypothesis 7 is rejected, although the difference approached significance (.17).

TABLE 3

FREQUENCY DISTRIBUTION FOR THE RACIAL
ATTITUDE SURVEY

<u>SCORE</u>	<u>FREQUENCY</u>	<u>SCORE</u>	<u>FREQUENCY</u>
21	2	38	4
22	0	39	6
23	1	40	2
24	2	41	0
25	3	42	2
26	4	43	2
27	3	44	3
28	1	45	2
29	4	46	3
30	2	47	2
31	1	48	0
32	1	49	0
33	3	50	1
34	2	51	1
35	4	52	1
36	2	53	0
37	5	54	1

TABLE 4

DISTANCE MEANS OF THE RACIALLY CONNOTATIVE WORDS
AND THEIR CONTROL WORDS FOR THE
HIGH PREJUDICED, AVERAGE PREJUDICED, AND LOW PREJUDICED
GROUPS

	<u>RACIALLY CONNOTATIVE</u>	<u>CONTROL</u>
High Prejudiced	9.88 (S.D.=4.61)	-0.15 ^a (S.D.=3.69)
Average Prejudiced	4.03 (S.D.=3.82)	-0.68 ^b (S.D.=3.27)
Low Prejudiced	1.58 (S.D.=3.52)	-0.05 (S.D.=2.39)

^a $t=5.30$, $p<.01$ between racially connotative words and their control words for the high prejudiced group.

^b $t=2.25$, $p<.05$ between racially connotative words and their control words for the average prejudiced group.

An analysis of variance revealed no significant difference in the depth perception of the racially connotative control words between the high prejudiced, average prejudiced, and low prejudiced groups. Table 5 indicates that no significant difference exists, thereby affirming hypothesis eight.

Table 6 also fails to indicate a significant difference, in this instance in the depth perception of ego alien words between the three groups. Acceptance of the ninth hypothesis is indicated by the analysis of variance.

TABLE 5

DISTANCE MEANS OF THE EGO ALIEN WORDS
AND THEIR CONTROL WORDS FOR THE HIGH PREJUDICED,
AVERAGE PREJUDICED, AND LOW PREJUDICED GROUPS.

	<u>EGO ALIEN WORDS</u>	<u>CONTROL WORDS</u>
High Prejudiced	5.98 (S.D.=4.07)	1.00 ^a (S.D.=3.01)
Average Prejudiced	1.53 (S.D.=2.94)	-1.20 (S.D.=3.17)
Low Prejudiced	3.15 (S.D.=2.91)	-0.55 ^b (S.D.=2.33)

^a $t=2.47$, $p<.05$ between ego alien words and their control words for the high prejudiced group.

^b $t=2.76$, $p<.01$ between ego alien words and their control words for the low prejudiced group.

Analysis of variance also points to an acceptance of the tenth hypothesis. Table 7 shows no significant difference in the depth perception of the ego alien control words between the high prejudiced, average prejudiced and low prejudiced groups.

Male/female differences are examined in Tables 8 and 9. As expected, a significant difference was found among both high prejudiced males and females in the depth perception of racially connotative words versus their control words. A similar finding was discovered among the average prejudiced male and female groups. However, as

TABLE 6

ANALYSIS OF VARIANCE OF RACIALLY CONNOTATIVE WORDS
 BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED,
 AND LOW PREJUDICED GROUPS

SOURCE	SS	DF	MS	F
Among Groups	363.72	2	181.86	8.30*
Within Groups	591.44	27	21.91	
Total	955.16	29		

Post-hoc Test of Significance (Turkey's Test)

\bar{X} (High Prejudiced)	\bar{X} (Average Prejudiced)	\bar{X} (Low Prejudiced)
-----	5.85*	8.30*
	-----	2.45

*-- $p < .05$

anticipated, no significant difference in the depth perception of racially connotative words versus their control words was found for either the male or female low prejudiced groups. Table 8 delineates the significant differences.

Whereas no male/female differences were discovered for the racially connotative words versus their control words, the data comparing male/female differences for the

TABLE 7

ANALYSIS OF VARIANCE OF RACIALLY CONNOTATIVE CONTROL WORDS
 BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED,
 AND LOW PREJUDICED GROUPS

SOURCE	SS	DF	MS	F
Among Groups	2.56	2	1.28	0.11
Within Groups	321.84	27	11.92	
Total	324.40	29		

TABLE 8

ANALYSIS OF VARIANCE OF EGO ALIEN WORDS
 BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED,
 AND LOW PREJUDICED GROUPS

SOURCE	SS	DF	MS	F
Among Groups	101.41	2	50.71	3.08
Within Groups	444.47	27	16.46	
Total	545.88	29		

TABLE 9

ANALYSIS OF VARIANCE OF EGO ALIEN CONTROL WORDS
 BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED,
 AND LOW PREJUDICED GROUPS

SOURCE	SS	DF	MS	F
Among Groups	25.55	2	12.78	1.21
Within Groups	384.65	27	10.54	
Total	410.20	29		

ego alien words versus their control words revealed unexpected findings. Table 9 indicates a significant difference for high prejudiced males in the depth perception of ego alien words versus control words, but the difference for high prejudiced females failed to reach significance. For the average and low prejudiced groups, however, the opposite result was found. Table 9 indicates a significant difference in the depth perception of ego alien words and their control words for average and low prejudiced females, but the difference for average and low prejudiced males failed to reach significance. There appears to be no explanation for this unexpected finding. It should be pointed out, though, that the \bar{t} scores for the high prejudiced female group, as well as the average and low prejudiced male groups all approach significance.

Tables 10, 11, and 12 examine the effect of the

DISTANCE MEANS OF RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS
BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED, AND LOW PREJUDICED
GROUPS FOR MALES AND FEMALES

	<u>MALES</u>		<u>FEMALES</u>	
	Racially Connotative Words	Control Words	Racially Connotative Words	Control Words
High Prejudiced	9.40 (4.13)	-0.50 ^a (3.02)	10.35 (4.70)	0.02 ^c (2.83)
Average Prejudiced	4.28 (4.01)	-0.40 ^b (2.77)	3.78 (3.70)	-0.96 ^d (3.41)
Low Prejudiced	3.90 (3.89)	.93 (2.49)	-0.75 (3.17)	-1.40 (2.90)

^at=5.65, $p < .01$ between racially connotative words and their control words for high prejudiced male subjects.

^bt=3.21, $p < .01$ between racially connotative words and their control words for average prejudiced male subjects.

^ct=4.98, $p < .01$ between racially connotative words and their control words for high prejudiced female subjects.

^dt=2.92, $p < .01$ between racially connotative words and their control words for average prejudiced female subjects.

() = Standard Deviation

TABLE 11

DISTANCE MEANS OF EGO ALIEN WORDS AND THEIR CONTROL WORDS
BETWEEN HIGH PREJUDICED, AVERAGE PREJUDICED, AND LOW PREJUDICED
GROUPS FOR MALES AND FEMALES

	<u>MALES</u>			<u>FEMALES</u>		
	Ego alien Words	Control Words	Ego Alien Words	Control Words	Ego Alien Words	Control Words
High Prejudiced	6.00 (4.19)	0.45 ^a (2.45)	5.95 (4.06)	2.45 (3.72)		
Average Prejudiced	0.61 (2.71)	-1.00 (3.12)	2.45 (3.32)	-1.40 ^b (3.19)		
Low Prejudiced	1.65 (2.65)	-1.50 (2.64)	4.65 (3.74)	0.40 ^c (2.31)		

a_t=2.71, p<.05 between ego alien words and their control words for high prejudiced male subjects.

b_t=2.90, p<.01 between ego alien words and their control words for average prejudiced female subjects.

c_t=2.26, p<.05 between ego alien words and their control words for low prejudiced female subjects.

() = Standard Deviation

starting position -- near or far -- on the depth perception of the racially connotative words versus their control words and the ego alien words versus their control words for the high prejudiced, average prejudiced, and low prejudiced groups.

As expected, a significant difference in the depth perception of racially connotative words versus their control words was found for the high prejudiced groups at both the near and far starting positions, as indicated by Table 10. However, no significant difference was found for the depth perception of ego alien words versus their control words for either the near or far starting positions. The difference did approach significance for both starting positions though.

For the average prejudiced groups, similar results were evident in comparing ego alien words and their control words. As with the high prejudiced group, no significant differences could be found for either starting position. In addition, only the near starting position difference approached significance. The comparison of the racially connotative words and their control words by starting position for the average prejudiced group produces more confusion. Whereas, Table 11 clearly points to a very significant difference ($p < .01$) between

TABLE 12

DISTANCE MEANS OF RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS AND EGO ALIEN WORDS AND THEIR CONTROL WORDS BETWEEN NEAR AND FAR STARTING POSITIONS FOR THE HIGH PREJUDICED GROUP

	RACIALLY CONNOTATIVE WORDS	CONTROL WORDS	EGO ALIEN WORDS	CONTROL WORDS
Near Starting Position	-4.80 (4.22)	-9.30 ^a (4.01)	-4.00 (3.97)	-5.08 (4.28)
Far Starting Position	14.83 (5.03)	9.28 ^b (4.55)	9.93 (4.36)	6.45 (3.88)

^at=2.19, p<.05 between racially connotative words and their control words for the near starting position for the high prejudiced group.

^bt=2.37, p<.05 between racially connotative words and their control words for the far starting position for the high prejudiced group

() = Standard Deviation

TABLE 13

DISTANCE MEANS OF RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS AND EGO ALIEN WORDS AND THEIR CONTROL WORDS BETWEEN NEAR AND FAR STARTING POSITIONS FOR THE AVERAGE PREJUDICED GROUP

	RACIALLY CONNOTATIVE WORDS	CONTROL WORDS	EGO ALIEN WORDS	CONTROL WORDS
Near Starting Position	-2.90 (3.40)	-10.25 ^a (4.67)	-4.03 (3.51)	-5.08 (3.88)
Far Starting Position	8.63 (4.29)	6.43 (4.04)	4.65 (3.62)	4.38 (3.65)

^at=3.24, p<.01 between racially connotative words and their control words for the near starting position for the average prejudiced group.

() = Standard Deviation

TABLE 14

DISTANCE MEANS OF RACIALLY CONNOTATIVE WORDS AND THEIR CONTROL WORDS AND EGO ALIEN WORDS AND THEIR CONTROL WORDS BETWEEN NEAR AND FAR STARTING POSITIONS FOR THE LOW PREJUDICED GROUP

	RACIALLY CONNOTATIVE WORDS	CONTROL WORDS	EGO ALIEN WORDS	CONTROL WORDS
Near Starting Position	-3.30 (3.58)	-5.45 (4.11)	-0.43 (2.93)	-3.68 ^a (3.60)
Far Starting Position	4.48 (3.78)	4.78 (3.64)	2.90 (3.51)	3.20 (3.71)

at=2.56, $p < .05$ between ego alien words and their control words for the near starting position for the low prejudiced group.

() = Standard Deviation

the depth perception of racially connotative words and their control words for the near starting position, no significant difference for the far starting position could be found. Perhaps, the difference in the perception of racially connotative words versus control words lessens as the "apparent" distance of the words becomes greater. When the luminescent marker is placed at the far starting position (two feet further than the placement of words at the near starting position), the effect of the racially connotative words may be reduced. It should be noted, however, that the difference did approach significance.

The fact that the difference was only significant for the near starting position may have theoretical implications as well. This finding adds credence to the perceptual defense position, in that defense against racially connotative words was stronger when the stimulus was apparently nearer to the subject.

No significant differences were found between the depth perception of racially connotative words and their control words for the near or far starting positions for the low prejudiced group. Table 12 indicates the anticipated result. However, a significant difference was discovered between the ego alien words and their control words for the near starting position but not for the far starting position.

In fact, the difference for the far starting position did not approach significance.

When individual results are examined with respect to differences in the perception of racially connotative and control words across groups, the differences are accentuated. Appendix 6 displays the performances of subject A (from the high prejudiced group) and subject B (from the low prejudiced group). Close comparison of the two performances exhibits the large difference in distance between each of the racially connotative words versus the perceptually similar control words for subject A and the small or lack of difference in distance between each of the racially connotative words versus the perceptually similar control words for subject B. For example, a difference of three and one-half inches was found between subject A's perception of the word "nigger" and the word "bigger" at the far starting position, while a difference of only one-fourth of one inch was found in subject B's performance.

The direction of the difference is also significant, in that the racially connotative words were always perceived at a greater distance by subject A than the control words, in comparison to subject B where no consistent pattern was evident.

In summary, the predicted differences in the depth

perception of racially connotative words versus their control words for the high prejudiced and average prejudiced groups were found. Differences in the depth perception of racially connotative words between the three groups were also found. However, hypotheses concerning the depth perception of ego alien words versus their control words as well as the depth perception of ego alien words between groups had mixed results, failing to confirm some hypotheses. When male/female differences were explored, no significant differences were found among the three groups between racially connotative words and their control words, but once again, mixed results were found with respect to the ego alien words and their control words. Similar results were also found when near and far starting positions were compared. Anticipated results occurred in all but one comparison of the racially connotative words and their control words. However, comparisons of the near and far starting positions with respect to ego alien words and their control words failed to substantiate the hypothesis. Finally, when individual performances of high and low prejudiced subjects on the depth perception instrument were compared as illustrated in Appendix 6, the differences become clearer.

CHAPTER VI SUMMARY AND CONCLUSIONS

The major purpose of this study was to investigate whether or not personal attitudes influence perceptual processes. In particular, the problem to which this paper was addressed was whether or not racial attitude affects visual depth perception. If an effect could be documented, in which direction would the effect lie? Perceptual defense would be supported if high prejudiced individuals perceived racially connotative words at a significantly greater distance than control words while the opposite result would lend support to the perceptual sensitization viewpoint. If no effect were found, the result would support the duality position.

Twelve hypotheses were generated to deal with this problem. Of greatest concern was an examination of visual depth perception of racially-connotative words and their control words among high prejudiced, average prejudiced, and low prejudiced subjects. For control purposes, visual depth perception of ego alien words and their control words for the three groups was also examined. In addition, hypotheses dealing with gender and starting position (near or far) were also generated and examined.

The Sample

The sample consisted of 84 Caucasian freshman and sophomore high school students who were randomly selected from the master role of an Alachua County, Florida high school.

Treatment of the Data

The first phase of the experiment consisted of the completion of the racial attitude survey and an accompanying information data sheet. Twelve subjects were dropped from the experiment because of a failure to successfully complete the attitude survey and/or the data sheet. From the results of the attitude survey, three groups were formed which comprised the subjects for the second phase of the study. Those subjects who scored one standard deviation or more below the mean comprised the low prejudiced group while those whose scores on the racial attitude survey fell one standard deviation or more above the mean comprised the high prejudiced group. A random selection of those whose scores clustered around the mean (between +1 and -1 S.D.'s) on the attitude survey comprised the average prejudiced group. The subjects from these three groups then individually completed the second part of the experiment -- the depth perception black box.

Results

As predicted, the differences in the depth perception of racially connotative words versus their control words were found for the high prejudiced and low prejudiced groups. Differences in the depth perception of racially connotative words between the three groups were also found. In all instances, the high prejudiced group perceived the racially connotative words at a greater distance than did the average prejudiced group. A similar difference in distance was found between the average prejudiced group and low prejudiced group, with the average prejudiced group perceiving the racially connotative words at a further distance than did the low prejudiced group.

Unlike the positive results attained from the hypothesis which investigated the racially connotative words, one of those hypotheses examining ego alien words and their control words failed to reach significance. No significant difference was found between ego alien words and their control words for the average prejudiced group, although the difference did approach significance. Significant differences between the ego alien words and their control words were found for the high prejudiced and low prejudiced group. As predicted no significant differences were found in the depth perception of ego alien words or their control words among the three groups.

In examining male/female differences, no differences were found in the depth perception of racially connotative words versus their control words; however, a difference in the depth perception of ego alien words versus their control words did appear. Whereas high prejudiced males perceived ego alien words at a significantly further distance than control words, a similar finding did not result for high prejudiced females. However, for the average and low prejudiced subjects, the opposite finding was evident. Average prejudiced and low prejudiced females perceived the ego alien words at a significantly further distance than the control words, but no significant difference was found for average prejudiced and low prejudiced males.

In relationship to starting position (near versus far), no significant difference was found between near versus far starting position in the depth perception of racially connotative words for the three groups although the difference approached significance. However, differences between near versus far starting position were evident for the ego alien words and their control words for the low prejudiced group.

Conclusions

The major conclusion that can be drawn from this study is that racial prejudice (as a personal attitude) influences

visual depth perception. Of particular interest is the finding that the depth perception of racially connotative words varies conversely with the prejudice level of the individual, i.e. the more prejudiced an individual, the further back that individual is likely to perceive a racially connotative word. In conjunction with this finding, the highly prejudiced individual was found to perceive the racially connotative words at a significantly further distance than the control words. These two findings offer support for the theoretical formulations which espouse only a perceptual defense argument to the problem, rather than a sensitization or duality persuasion. Therefore, the evidence from this study offers support for both the learning theory as well as phenomenological points of view.

The learning theory account of the perceptual defense phenomenon, as described previously in the literature review, adheres to a stimulus-response model. Anxiety is considered to be a punisher, so a response which elicits anxiety is less likely to occur again in the future. In the tachistoscopic experiments, the word or picture presented served as the stimulus while the verbal statement, galvanic skin response, etc. of the subject was the response. Within this dynamic, stimulus generalization is added, so that a response learned to one stimulus may also be elicited by other stimuli which

resemble the original stimulus. If anxiety is thought of as a learned response to a conflict-stimulus word presented tachistoscopically the response may generalize and be elicited by another stimulus, such as a neutral word which physically resembles the conflict stimulus. In the experiment conducted for the purposes of this study, a neutral word resembling the conflict-stimulus except for a change in one letter was employed to test for any generalization effect. None was evident, so the learning theory position needs to be questioned.

In contrast, the findings of the present study appear to add more credence to the phenomenological position of Snygg and Combs. Their theory has purported that values and attitudes exert a selective effect on perception, which in turn, markedly affects behavior. When threatened, there appears to be a narrowing of the perceptive field to the object of threat (tunnel vision) as well protection of the perceptions the individual already holds. Within this paradigm, anxiety is seen as a state of being threatened. Under this state of anxiety (threat), the individual reacts by defending against the anxiety-provoking stimulus. The object of threat cannot be clearly and precisely differentiated, resulting in less clear perception. In the present experiment, Snygg and Combs' concept translates into defense

against the anxiety-provoking stimulus, in this instance, the racially connotative words. As a protection of the self concept against these words, it seems that the more prejudiced individual tends to "push" the racially connotative words further back. In other words, the threat produces a psychological defense against the anxiety-provoking stimuli resulting in a concrete behavioral change -- viewing the racially connotative words at a further distance than the control words.

The findings of this experiment also offer support to the study conducted by Sensening, Jones, and Varney (1973). Employing a different modality than that utilized in the present study, the authors found evidence of perceptual defense by highly prejudiced individuals in the comparison of photographs of black and white subjects. It would be a reasonable generalization to state that the more prejudiced the individual the more likely he or she is to perceptually defend against racially connotative words.

A second conclusion generated from this study is to diminish the results of previous studies which failed to control for methodological inadequacies. The present dissertation demonstrated that the methodological problems cited by Minard as well as by this author could be remedied. Among the methodological problems addressed and dealt with

in the present research were the use of a continuous response scale, the deemphasis of verbalization in the response, the avoidance of unexpected stimuli, the use of emotion arousing stimuli, the categorization of stimuli by their emotion-arousing properties and the categorization of "different" personality subjects (on the basis of prejudiced levels). The utilization of this improved methodology may have played a role in clearing up or at least improving the state of the past theoretical confusion in perceptual defense/sensitization research. When methodological problems are diminished, as is the case in this study, then the results of the research indicate the presence of only one process in perceptual defense/sensitization. Perceptual sensitization or the dual paradigm of defense and sensitization are not indicated, while perceptual defense is readily demonstrated.

Recommendations for Further Study

There is an important need to continue perceptual defense/sensitization studies which employ refined methodologies to control for the inadequacies in previous research. Replication of this present study would prove to be a worthwhile endeavor, to substantiate the present findings.

A number of refinements of the present study would

serve to improve the validity. First, increasing the size of the population would magnify the likelihood of attaining significance. However, according to James R. Barrell (Personal communication, 1975), the smaller the sample size, the greater is the opportunity to find true differences.

Secondly, using different populations such as college students, middle-aged adults, young children, rural or urban populace, or populations of different income groups or socioeconomic status would serve to substantiate the present findings or amend the present research.

It would also be interesting to modify the present study to view the effect of racial prejudice on the visual depth perception of Negroes. By simply changing the racially connotative words from "nigger" and "black" to "honkey" and "whitey" for example, an experimenter would be able to determine if highly prejudiced Negroes employed perceptual defense or if highly prejudiced Negroes instead utilized perceptual sensitization or both defense and sensitization.

Beyond the scope of confining research to racial prejudice and its influence on visual depth perception, investigating the influence of other measurable modalities (i.e. anxiety, depression, and anger) on visual depth

perception would be a logical point to continue the vein of this present study. In addition, experimentation employing different methodologies than the one used in this dissertation might be explored to measure not only the influence of racial prejudice on visual depth perception, but also the influence of numerous values, attitudes, and psychological processes on other forms of perception (i.e. figure-ground discrimination, auditory perception, etc.) One might for example vary the stimulus from the racially laden words to educationally laden words, to test if those students with the poorest academic records or those students who misbehave most often defend more against the educationally laden words than those students who perform well academically or those who are well-behaved. Some insight into the dynamics of the student's misbehavior or poor academic performance might be gained from such research.

From a practical point of view, the depth perception box, in and of itself, seems to have value. Although a great deal of investigation is still needed on the validity and reliability of such an instrument, it is interesting to speculate on the possible utility of the depth perception box. As a means of identification, the instrument has many possibilities. For example, utilizing stimuli which relate to homosexuality (i.e. gay, queer, etc.) might be a

means of identifying latent homosexuals. Similarly, using stimuli which relate to education might be a means of identifying at an early stage those students who have built up defenses against education. If later research shows that those who defend against educationally-laden words tend to perform poorer academically, the depth perception box may be able to identify these students before they become hopeless. In the present study, discovering the highly prejudiced students via use of the depth perception box may be useful to school personnel. From this present study, for example, those students identified as highly prejudiced were selected (along with a random selection of other students) for participation in counseling groups. In turn, the counselor spent a good proportion of her time dealing with prejudice in the group setting.

As mentioned previously, much work needs to be completed on the reliability and validity of the instrument as well as on the influence of various attitudes, values, and psychological processes upon various forms of perception. However, the results of the present study are encouraging and point the way to an innovative and rewarding direction in perceptual defense/sensitization research.

APPENDIXES

APPENDIX 1
STIMULI EMPLOYED

Ego Alien Words

PIG

SLOB

Control Words

PIN

SLOT

Racially Connotative Words

NIGGER

COON

BLACK

Control Words

BIGGER

SOON

SLACK

APPENDIX 2

SELECTION OF RACIALLY CONNOTATIVE STIMULI

DIRECTIONS: Below is a list of ten words. Your task is to select the three words which you consider to be racially connotative (those words which best describe the Negro race). Place a check by those three words and those three words only.

COLORED _____

MAMMY _____

JIG _____

BLACK _____

UNCLE TOM _____

NIGGER _____

COON _____

DARKEY _____

BOONA _____

JUNGLE BUNNY _____

APPENDIX 3

ORAL STATEMENT TO SUBJECTS
COMPLETING THE SOCIAL SITUATIONS QUESTIONNAIRE

"I would like to thank all of you in advance for participating today. Each of you will receive one questionnaire, one answer sheet, one identification sheet, and one pencil. (Materials are handed out.) Does everyone have these materials?

O.K., please place your complete phone number, all seven digits, in the area of your answer sheet marked I.D. number. Leave no spaces in the number and blacken the corresponding space below each box. Any questions or problems so far?

Now, pick up the identification sheet and fill-in all the spaces--phone number, class in school, and sex. Any questions so far?

Now, refer to the questionnaire. You will notice a set of directions at the top of each page--please follow the directions as I read them aloud. (Read directions). Are there any questions?

If you have any questions as you go along, please raise your hand and I will come to your assistance.

Remember, only mark one answer for each question. Take as much time as you need and hand in your materials here (indicate) when you have finished. If there are no more questions you may begin."

APPENDIX 4

MODIFIED SOCIAL SITUATIONS QUESTIONNAIRE

THIS TEST IS A STUDY OF WHAT DIFFERENT PEOPLE WILL DO IN DIFFERENT SITUATIONS. A SITUATION IS GIVEN FOLLOWED BY FOUR POSSIBLE ACTIONS THAT YOU MIGHT TAKE. AFTER READING THE SITUATION, PICK OUT THAT RESPONSE WHICH YOU THINK YOU WOULD MAKE, EVEN THOUGH IT MIGHT NOT BE EXACTLY WHAT YOU WOULD PROBABLY MAKE. REMEMBER THAT THERE IS NO RIGHT OR WRONG ANSWER, FOR DIFFERENT PEOPLE WILL NATURALLY ANSWER DIFFERENTLY.

1. Imagine yourself as a private who has just been drafted into the Army. After a few days you discover that most of the men in your barracks are quite prejudiced against Negroes. One day, the commander of your outfit comes around looking for volunteers for a mixed Negro-white battalion. You know that anybody who joined would be looked down on and called a "Nigger-lover" by many of the boys in your barracks. Under these conditions,
 - 1 I would definitely volunteer.
 - 2 I would probably volunteer.
 - 3 I probably would not volunteer.
 - 4 I definitely would not volunteer and would disapprove of anyone who did.

2. Imagine that you are walking around town one Halloween Night with a large group of your friends (boys and girls). As you come to one street corner you see four or five Negro girls across the street. Someone in your crowd yells to them, "Hey girls, what are you all wearing the dark masks for?" Everyone in your crowd laughs and passes it off as a joke, not meaning any harm to the girls. You know that if you criticize the fellow who yelled, your friends will probably scoff at you and say you shouldn't be so sensitive over a harmless little joke like that. Under these conditions,
 - 1 I would definitely bawl him out for what he said.
 - 2 I would probably say that it wasn't a good joke.
 - 3 I probably wouldn't say anything, but would feel a little uneasy about it.
 - 4 I definitely would say nothing and would think that it was a harmless joke.

3. Imagine that you are in a class that has four or five Negro boys and girls in it. You notice that one of your teachers always seems to be picking on them and criticizing their work more so than she does the white boys and girls. For example, if two boys are unprepared or are fooling around, she will usually punish the Negro boy more. A few of the

other kids in the class have also noticed this. Under these conditions,

- 1 _____ I would go directly to the principal and tell him what was going on.
- 2 _____ I would try to persuade the kids that we should do something about this.
- 3 _____ I would keep quiet and feel that how the teacher runs the class is her own business.
- 4 _____ I would feel that the Negro kids should just be more careful about how they act in class.

4. Imagine that as you are sitting at home one day, a neighbor comes in to ask your parents to sign a petition which would prevent Negroes from buying or renting land on your block. He explains that it would not hurt the Negroes because there are plenty of other good places in town to live. This move would not only save your section just for white people, but would also make your land worth more money. Your folks are just about to sign the petition. Under these conditions,

- 1 _____ I would insist that they were wrong and try to persuade them not to sign the petition.
- 2 _____ I would probably tell my parents that I didn't think that they were doing the right thing.
- 3 _____ I would probably keep quiet because it wouldn't make much difference to me one way or the other.
- 4 _____ I would definitely approve.

5. Imagine that you are trying to form a new social club (e.g. fraternity or sorority) among your friends at school. After five or six of you have gotten the club started, one of them proposes that B, a fairly well-liked Negro you know, be asked to join. Most of the others seem to be very much against this proposal, not because they don't like B, but because they don't want to have any Negroes in the club at all. Under these conditions,

- 1 _____ I would say that if they were going to automatically rule out all Negroes that I wouldn't want to be in the club.
- 2 _____ I would probably say that future members should be judged by their own personal merits, and not by whether they are Negroes or not; but I would go along with any decision the majority made.
- 3 _____ I would probably wait and see what the majority thought about it and then go along with them.
- 4 _____ I would side with those who were against admitting any Negroes at all to the club.

6. Imagine that you are at a drug store waiting to make a phone call. As you are standing there, you notice a Negro woman coming up to the counter, followed in a few seconds by a white woman. As the clerk starts to wait on the Negro woman the white woman says in a snobbish voice, "would you mind waiting on me first--I'm in a hurry. This black woman can wait." The clerk doesn't know quite what to do. Under these conditions,

1 _____ I would definitely speak up and criticize the white woman for what she said.

2 _____ I would definitely remind the clerk that the other woman was first.

3 _____ I would feel that I shouldn't interfere.

4 _____ If the clerk hesitated, I would say that since the white woman was in a hurry, he should wait on her first.

7. Imagine that you are walking down the street with a fellow you know pretty well. On the way down the street he accidentally bumps into a negro boy coming the other way. Immediately he becomes angry and says, "Listen, Darkey, who do you think you're bumping? I'm not going to let any Nigger push me around--" and is just about to start a fight with him, but the negro boy runs away. Under these conditions,

1 _____ I would definitely criticize him for becoming angry over the accident, just because the fellow was a Negro.

2 _____ I would probably say something about the Negro boy having just as much right to walk down the street as he did.

3 _____ I would probably say that he was making a mountain out of a molehill and let it go.

4 _____ I wouldn't criticize him for what he did.

8. Imagine that your mother has just been asked to give a tea for the P.T.A. In it all the mothers of the children in your class would be invited to spend the afternoon at your house. Your mother at first seemed to be pretty happy about being able to do this, but when she found out that there were three or four Negro mothers who would have to be invited, she decided to call up and say that she couldn't give the party after all. Under these conditions,

1 _____ I would insist that she was wrong, and that the Negro mothers were no different from the white mothers.

2 _____ I probably would tell her that I couldn't see why she wouldn't want to give the party just because there would be some Negro women present.

3 _____ I would probably keep quiet, not wanting to make an issue of the matter.

4 _____ I would agree with her and say that she should call up and say that she couldn't give the party.

9. Imagine that you are planning to go out to a show with three other fellows and your dates. The day before you go out, one of the fellows calls you and asks you if it would be all right if Sam Johnson (a Negro whom you do not know) could come along with his date. You're pretty sure that the other kids in the party would not like this. Under these conditions,

1 _____ I would definitely say that it would be O.K. and would try to convince the others that this was a good idea.

2 _____ I would probably say that it would be O.K. with me.

3 _____ I would probably say I would rather not, because of how the other kids in the party would feel about it.

4 _____ I would definitely say "no" or else get out of the party.

10. Imagine that, coming back from a trip, you have a large suitcase to carry, so you decide to take a cab home. Waiting on the corner for a cab, you glance across the street and see a well-dressed black man also waiting for a cab. After a few minutes, a cab comes by and both of you whistle for it. The cab goes right by the Negro, turns around and comes back to pick you up. When the driver opens the door, he remarks, "I really saw that colored fellow first, but I always go by the rule that whites come first." Under these conditions,

1 _____ I would definitely tell the cabbie that he had done the wrong thing.

2 _____ Although I didn't like what he said, I would probably get into the cab without saying anything.

3 _____ I would think that the cabbie was a pretty good guy and that he had done the right thing.

4 _____ I would probably get into the cab and mind my own business.

11. Imagine that you are visiting a friend of yours out of town. You decide to go swimming at a local swimming pool. Getting into line to pay your admission, you notice a young black boy in line just in front of you. As he gets up to the booth to get his ticket, the woman in the booth tells him that they don't allow Negroes in the pool. Under these conditions,

- 1 _____ I would complain to the woman about this policy.
- 2 _____ I would voice a complaint to my friend making sure that the woman would hear.
- 3 _____ I wouldn't say anything about it then, but might make a criticism to my friend later.
- 4 _____ I would say nothing, feeling it is the right of the pool owners to reject Negroes if they want.

12. Imagine that you are graduating from high school, and your aunt who lives here in town, is giving a party for you and your friends. A week before the party, you call her up and ask her if it would be all right if a black friend of yours comes to the party. Your aunt says that she would rather not give the party if a Negro is going to come. You know that you can't change her mind. Under these conditions,

- 1 _____ I would tell my aunt she was taking a poor attitude, and that if my friend couldn't come, I would rather not have the party at all.
- 2 _____ I would probably try to get out of this party and go to some other party where my friend could come.
- 3 _____ I would apologize and say that we would leave my friend out of the party.
- 4 _____ I can't answer this question, because I never would have invited a Negro to my party in the first place.

13. Imagine that you have a 19 year old brother who has been going pretty steadily with an attractive Negro girl for the past month or so. Although your parents admit that she is a very nice girl, they have been trying to force your brother to stop taking her out, because they are afraid that they might get serious about each other. They don't mind him having her as a friend, but they don't want him to date her or call her "his girl". One night, during an argument, when your brother is present, your parents ask you what you think. Under the conditions,

- 1 _____ I would disagree with my parents and say that, as long as she was a nice girl, it was O.K.
- 2 _____ I would probably try to keep out of it, saying that my brother should make up his own mind.
- 3 _____ I would probably tend to side with my parents.
- 4 _____ I would definitely side with my parents, saying that this could only lead to a disgrace to the family.

4. Imagine that as you are walking downtown one day, you see five or six boys, who are about five years younger than you, teasing a little Negro boy, calling him "Black boy," etc., and threatening to hurt him. The little fellow starts to cry, breaks away from the white boys and runs up to you asking you to make them leave him alone. Under these conditions,

1 _____ I would stop them from teasing him, and try to show them why they shouldn't pick on a boy just because of his race.

2 _____ I would stop them from teasing him, and make sure that the Negro got away safely, but wouldn't say anything much.

3 _____ I would try to keep out of it if I could, unless I was sure they were going to hurt him.

4 _____ I would definitely stay out of it and let the black boy take care of himself.

5. Imagine that as you are coming home from school one day, you saw one of your friends in a serious argument with a black girl. You don't know what has caused the argument but as you draw nearer, you hear her insulting the Negro girl by calling her various names ("dirty Nigger," etc.). You know that if you interfere and criticize her for her name calling, she will think you are taking the black girl's side. On the other hand, unless you do say something it appears that she might hurt the Negro girl, who is a little smaller. Under these conditions,

1 _____ I would definitely butt in and tell my friend that no matter what the other girl had done, she had no right to call her names like that.

2 _____ I would probably butt in and tell my friend she was wrong for name calling.

3 _____ I would probably say nothing or else just try to break up the fight.

4 _____ I would definitely say nothing.

APPENDIX 5
IDENTIFICATION SHEET

IDENTIFICATION SHEET

SEX

Male _____

Female _____

GRADE IN SCHOOL

Ninth _____

Tenth _____

PHONE NUMBER: _____

APPENDIX 6

EXPERIMENT RECORDING SHEET
AND
EXAMPLES OF INDIVIDUAL RESPONSES
OF HIGH AND LOW PREJUDICED SUBJECTS

SUBJECT A (HIGH PREJUDICED GROUP)

WORD	STARTING POSITION	DISTANCE FROM CENTER POINT (INCHES)
Soon	Close	-1.50
Slot	Close	-1.00
Slob	Far	4.50
Nigger	Close	0.75
Bigger	Far	2.00
Nigger	Far	5.25
Black	Far	2.50
Slot	Far	2.25
Slack	Far	-0.25
Coon	Close	0.25
Pig	Close	0.25
Bigger	Close	0.00
Pin	Far	3.25
Pig	Far	5.50
Slack	Close	0.00
Soon	Far	3.00
Pin	Close	1.00
Coon	Far	3.25
Black	Close	1.00
Slob	Close	0.00

SUBJECT B (LOW PREJUDICED GROUP)

WORD	STARTING POSITION	DISTANCE FROM CENTER POINT (INCHES)
Soon	Close	-0.50
Slot	Close	-2.00
Slob	Far	-1.25
Nigger	Close	-0.50
Bigger	Far	0.75
Nigger	Far	0.50
Black	Far	0.00
Slot	Far	0.00
Slack	Far	1.00
Coon	Close	-0.50
Pig	Close	0.00
Bigger	Close	0.00
Pin	Far	0.00
Pig	Far	1.25
Slack	Close	-0.75
Soon	Far	0.25
Pin	Close	-1.00
Coon	Far	1.25
Black	Close	-1.00
Slob	Close	-1.25

LIST OF REFERENCES

- Allen, J. The effects of repression-sensitization, race, and levels of threat on extensions of personal space. Dissertation Abstracts International. 1972, 33 (4-B), 1777.
- Bartley, S. H. Principles of Perception, New York: Harper and Row, 1969.
- Beier, E. G. and Cowen, E. L. A further investigation of the influence of "threat-expectancy" on perception. Journal of Personality, 1953, 22, 254-257.
- Berger, C. Grouping, number, and spacing of letter as determinants of word recognition. Journal of General Psychology, 1956, 55, 215-228.
- Blackwell, H. R. The influence of data collecting procedures upon psychophysical measurement of two sensory functions. Journal of Experimental Psychology, 1952, 44, 306-315.
- Blum, G. S. An experimental reunion of psychoanalytic theory with perceptual vigilance and defense. Journal of Abnormal and Social Psychology, 1954, 49, 94-98.
- Blum, G. S. Perceptual defense revisited. Journal of Abnormal and Social Psychology, 1955, 51, 24-29.
- Bootzin, R. R. and Natsoulas, T. Evidence for perceptual defense uncontaminated by response bias. Journal of Personality and Social Psychology, 1965, 1, 461-468.
- Bootzin, R. R., and Stephens, M. W. Individual differences and perceptual defense in the absence of response bias. Journal of Personality and Social Psychology, 1967, 6, 408-412.
- Broadbent, D. E. Perception and Communication. London: Pergamon Press, 1958.
- Broadbent, D. E. Word frequency effect and response bias. Psychological Review, 1967, 74, 1-15.
- Brown, C. R., and Rubenstein, H. Test of response bias explanation of the word frequency effect. Science, 1961, 133, 280-281.

- Brown, W. P. Conceptions of perceptual defense, British Journal of Psychology Monograph Supplement, 1961, No. 351
- Bruner, J. S. and Postman, L. Tension and tension-release as organizing factors in perception. Journal of Personality, 1947^a, 15, 300-308.
- Bruner, J. S. and Postman, L. Emotional selectivity in perception and reaction. Journal of Personality 1947^b, 16, 69-77.
- Bruner, J. S. and Postman, L. An approach to social perception. In W. Dennis (Ed.), Current Trends in Social Psychology, Pittsburg: University of Pittsburg Press, 1948.
- Bruner, J. S. and Postman, L. Perception, cognition and behavior. Journal of Personality, 1949, 18, 14-31.
- Byrne, D. and Sheffield, J. Response to sexually arousing stimuli as a function of repressing and sensitizing defenses. (cited by) D. Byrne, Repression-sensitization as a dimension of personality. In B. Maher (Ed.) Progress in Experimental Personality Research II, New York: Academic Press, 1964.
- Cable, D. G. Perceptual defense or set: a re-examination. Psychonomic Science, 1969, 16, 331-332.
- Campbell, E. T. Ethnocentric and other altruistic motives. In D. Levine (Ed.), Nebraska Symposium on Motivation, Lincoln: University of Nebraska Press, 1965.
- Carpenter, B., Wiener, M., and Carpenter, Janeth T. Predicability of perceptual defense behavior. Journal of Abnormal and Social Psychology, 1956, 58, 75-80.
- Chapman, C. R., and Feather, B. W. Modification of perception by classical conditioning procedures. Journal of Experimental Psychology, 1972, 93, 338-342.
- Combs, A. W. and Snygg, D. Individual behavior: A perceptual approach to behavior. (Rev. ed.), New York: Harper and Row, 1959.
- Cowen, E. L. and Beier, E. G. The influence of "threat-expectancy" on perception. Journal of Personality, 1950, 19, 85-94.

- Cowen, E. L. and Obrist, P. A. Perceptual reactivity to threat and neutral words under varying experimental conditions. Journal of Abnormal and Social Psychology, 1958, 56, 305-310.
- Daston, P. G. Perception of homosexual words in paranoid schizophrenia. Journal of Perceptual and Motor Skills, 1956, 6, 45-55.
- Davis, J. M. Personality, perceptual defense, and stereoscopic perception. Journal of Abnormal and Social Psychology, 1959, 58, 398-402.
- Dorfman, D. D. Recognition of taboo words as a function of a priori probability. Journal of Personality and Social Psychology, 1967, 7, 1-10.
- Dulany, D. E. Avoidance learning of perceptual defense and vigilance. Journal of Abnormal and Social Psychology, 1957, 55, 333-338.
- Ehrlich, H. J. The Social Psychology of Prejudice: A Systematic Theoretical Review and Propositional Inventory of the American Social Psychological Study of Prejudice. New York: John Wiley and Sons, 1973.
- Erdelyi, M. H. A new look at the new look: perceptual defense and vigilance. Psychological Review, 1974, 81, 1-25.
- Eriksen, C. W. Perceptual defense as a function of unacceptable needs. Journal of Abnormal and Social Psychology, 1951, 46, 557-564.
- Eriksen, C. W. Defense against ego-threat in memory and perception. Journal of Abnormal and Social Psychology, 1952, 47, 430-435.
- Eriksen, C. W. The case for perceptual defense. Psychological Review, 1954, 61, 175-182.
- Eriksen, C. W. and Browne, C. T. An experimental and theoretical analysis of perceptual defense. Journal of Abnormal and Social Psychology, 1956, 52, 224-230.

- Eriksen, C. W. Perception and personality. In J. M. Wepman and R. W. Heine (Eds.), Concepts of Personality. Chicago: Aldine, 1963.
- Fergus, R. H. Perception. New York: McGraw-Hill, 1966.
- Forrest, D., Gordon, N., and Taylor, A. Generalization of perceptual defense. Journal of Personality and Social Psychology, 1965, 2, 137-141.
- Freeman, J. T. Set or perceptual defense? Journal of Experimental Psychology, 1954, 48, 283-288.
- Freeman, J. T. Set versus perceptual defense: A confirmation. Journal of Abnormal and Social Psychology, 1955, 51, 710-712.
- Fulkerson, S. C. The interaction of frequency, emotional tone, and set in visual recognition. Journal of Experimental Psychology, 1957, 54, 188-194.
- Garner, W. R., Hake, H. W., and Eriksen, C. W. Operationism and the concept of perception. Psychological Review, 1956, 63, 149-159.
- Goldiamond, I. Indicators of perception. I. Subliminal perception, subception, unconscious perception: An analysis in terms of psychophysical indicator methodology. Psychological Bulletin, 1958, 55, 373-411.
- Goldiamond, I. and Hawkins, W. F. Vexierversuch: The log relationship between word-frequency and recognition obtained in the absence of stimulus words. Journal of Experimental Psychology, 1958, 56, 457-463.
- Goldstein, M. J. A test of the response probability theory of perceptual defense. Journal of Experimental Psychology, 1962, 63, 23-28.
- Gordon, J. E. Distance judgments of threat-related and neutral words. Journal of Perceptual and Motor Skills, 1957, 7, 316.
- Greenbaum, M. Manifest anxiety and tachistoscopic recognition of facial photographs. Journal of Perceptual and Motor Skills, 1956, 6, 245-248.

- Hamersma, R. J., Paige, J., and Jordan, J. Construction of a Guttman facet designed cross-cultural attitude-behavior scale toward racial-ethnic interaction. Educational and Psychological Measurement, 1973, 33, 565-576.
- Hochberg, J. E., Haber, S. L., and Ryan, T. A. Perceptual defense as an interference phenomenon. Journal of Perceptual and Motor Skills, 1955, 5, 15-17.
- Howes, D. H. A statistical theory of the phenomenon of subception. Psychological Review, 1954, 61, 98-110.
- Howes, D. H. On the interpretation of word frequency as a variable affecting speed of recognition. Journal of Experimental Psychology, 1954, 48, 106-112.
- Howes, D. H. and Solomon, R. L. A note on McGinnies' "Emotionality and perceptual defense." Psychological Review, 1950, 57, 229-234.
- Howes, D. H. and Solomon, R. L. Visual duration threshold as a function of word-probability. Journal of Experimental Psychology, 1951, 41, 401-410.
- Howie, D. Perceptual defense. Psychological Review, 1952, 59, 308-315.
- Jones, E. E., and Gerard, H. B. Foundations of Social Psychology, New York: John Wiley and Sons, 1967.
- Kates, S. L. and Klein, L. S. Authoritarian beliefs and perceptual recognition of emotionally charged words. American Psychologist, 1954, 9, 403-404.
- Kempler, B., and Wiener, M. Personality perception: Characteristic response to available part-cues. Journal of Personality, 1964, 32, 57-74.
- Kleinman, M. S. Psychogenic deafness and perceptual defense. Journal of Abnormal and Social Psychology, 1957, 54, 335-338.
- Kogan, J. and Downey, R. C. The Measurement of prejudice. Psychological Review, 1954, 61, 1-9.
- Kurland, S. H. The lack of generality in defense mechanisms as indicated in auditory perception. Journal of Abnormal and Social Psychology, 1954, 49, 173-177.

- Lacy, O. W., Lewinger, N., and Adamson, J. F. Foreknowledge as a factor affecting perceptual defense and alertness. Journal of Experimental Psychology, 1953, 45, 169-174.
- Lazarus, R. S., Eriksen, C. W., and Fonda, C.P. Personality dynamics and auditory perceptual recognition. Journal of Personality, 1951, 19, 471-482.
- Lazarus, R. S. and McCleary, R. A. Autonomic discrimination without awareness: A study of subception. Psychological Review, 1951, 58, 113-122.
- Levy, L. H. Perceptual defense in tactual perception. Journal of Personality, 1958, 26, 467-478.
- Luchins, A. S. On an approach to social perception. Journal of Personality, 1950, 19, 64-84.
- Lysak, W. The effects of punishment upon syllable recognition thresholds. Journal of Experimental Psychology, 1954, 47, 343-350.
- Mathews, Ann, and Wertheimer, M. A pure measure of perceptual defense uncontaminated by response suppression. Journal of Abnormal and Social Psychology, 1958, 57, 373-376.
- Malpass, R., and Kravitz, J. Recognition of faces of own and other race. Journal of Personality and Social Psychology, 1969, 13, 330-334.
- McClelland, D. C. and Atkinson, J. W. The projective expression of needs: I. The effect of different intensities of the hunger drive on perception. Journal of Psychology, 1948, 25, 205-222.
- McGinnies, E. Emotionality and perceptual defense. Psychological Review, 1949, 56, 244-251.
- McGinnies, E. and Sherman, H. Generalization of perceptual defense. Journal of Abnormal and Social Psychology, 1952, 47, 81-85.
- Melville, J. R. Word-length as a factor in differential recognition. American Journal of Psychology, 1957, 70, 316-318.

- Minard, J. G. Response-bias interpretation of "perceptual defense." Psychological Review, 1965, 72, 74-88.
- Mishkin, M. and Forgays, D. G. Word recognition as a function of retinal locus. Journal of Experimental Psychology, 1952, 43, 43-48
- Neisser, U. Cognitive Psychology. New York: Appleton-Century-Crofts, 1967.
- Nelson, S. E. Psychosexual conflicts and defenses in visual perception. Journal of Abnormal and Social Psychology, 1955, 51, 427-433.
- Orbach, J. Retinal locus as a factor in recognition of visually perceived words. American Journal of Psychology, 1952, 65, 555-562.
- Porzemy, J. M. Perceptual defense in depth perception Dissertation Abstracts International, 1969, 29 (4-B), 9836.
- Postman, L. Towards a general theory of cognition. In J. H. Rohrer and M. Sherif (Eds.) Social Psychology at the Crossroads. New York: Harper and Bros., 1951.
- Postman, L. On the problem of perceptual defense. Psychological Review, 1953, 60, 298-306.
- Postman, L., Bronson, W. C., and Gropper, G. L. Is there a mechanism of perceptual defense? Journal of Abnormal and Social Psychology, 1953, 48, 215-224.
- Postman, L. and Bruner, J. S. Perception under stress. Psychological Review, 1948, 55, 314-323.
- Postman, L. Bruner, J. S., and McGinnies, E. Personal values as selective factors in perception. Journal of Abnormal and Social Psychology, 1948, 43, 142-154.
- Postman, L. and Leytham, G. Perceptual selectivity and ambivalence of stimuli. Journal of Personality, 1951, 19, 390-405.
- Postman, L. and Solomon, R. L. Perceptual sensitivity to completed and incompleting tasks. Journal of Personality, 1950, 18, 347-357.

- Pustell, R. E. The experimental induction of perceptual vigilance and defense. Journal of Personality, 1957, 25, 425-438.
- Rodgers, C. R. Client-centered therapy. Boston: Houghton Mifflin, 1951.
- Ruiz, R. A., and Krause, H. H. Perceptual defense versus response suppression. Journal of Psychology, 1968, 69, 33-37.
- Sales, B. D., and Haber, R. N. A different look at perceptual defense for taboo words. Perception and Psychophysics, 1968, 3, 156-160.
- Sauber, R. S. Locus of control and task categorization: A study using the perceptual defense paradigm. Journal of Social Psychology, 1971, 85, 311-312.
- Sensening, J., Jones, R., and Varney, L. Inspection of faces of own and other race as a function of subject's prejudice. Representative Research in Social Psychology, 1973, 4, 85-92.
- Shaw, R. E. and Wright, J. K. Measurement of Social Attitudes. Boston: Houghton Mifflin, 1967.
- Solomon, R. L. and Howes, D. S. Word frequency, personal values, and visual duration thresholds. Psychological Review, 1951, 58, 256-270.
- Spence, D. P. A new look at vigilance and defense. Journal of Abnormal and Social Psychology, 1957, 54, 103-108.
- Spielberger, C. D. The effects of stuttering behavior and response set on recognition thresholds. Journal of Personality, 1956, 25, 33-45.
- Steelman, V. The influence of attitude upon remembering pictorial material. Archives of Psychology, 1940-41, 5, 36.
- Van de Castle, R. L. Perceptual defense in a binocular-rivalry situation. Journal of Personality, 1960, 28, 448-462.
- Vanderplas, J. A. and Blake, R. R. Selective sensitization in auditory perception. Journal of Personality, 1949, 18, 252-266.

- Whittaker, E. M., Gilchrist, J. C., and Fischer, J. W. Perceptual defense or response suppression. Journal of Abnormal and Social Psychology, 1952, 47, 732-733.
- Wiener, M. Word frequency or motivation in perceptual defense. Journal of Abnormal and Social Psychology, 1955, 51, 214-218.
- Wiener, M., Carpenter, Janet T., and Carpenter, B. Some determinants of conformity behavior. Journal of Social Psychology, 1957, 45, 289-297.
- Wiener, M. and Schiller, P. H. Subliminal perception or perception of partial cues. Journal of Abnormal and Social Psychology, 1960, 61, 124-137.
- Wispe, L. G. and Drambarean, N. C. Physiological need, word frequency, and visual duration thresholds. Journal of Experimental Psychology, 1953, 46, 25-31.
- Wolman, B. Dictionary of Behavioral Science, New York: McGraw Hill, 1972.
- Zajonc, R. B., and Nieuwenhuyse, B. Relationship between word frequency and recognition: perceptual process or response bias? Journal of Experimental Psychology. 1964, 67, 276-285.
- Zigler, E., and Yopse, L. Perceptual defense and the problem of response suppression. Journal of Personality, 1960, 28, 220-239.
- Zuckerman, M. The effect of frustration on the perception of neutral and aggressive words. Journal of Personality. 1955, 23, 407-422.

BIOGRAPHICAL SKETCH

Mark Lloyd Goldstein was born February 13, 1948, at Chicago, Illinois. He was graduated from Niles West High School in June of 1965. From September, 1965 until June, 1970 he attended the University of Wisconsin at Madison. In 1970, he received the Bachelor of Arts degree with Distinction in Journalism. In February, 1971, he enrolled in the College of Education at Northern Illinois University, where he received the Master of Science in Education degree in Educational Psychology in June, 1972. Then, in September, 1972, he enrolled in the doctoral program in Foundations of Education at the University of Florida. For nearly two years he received financial assistance through first a research assistantship and later a teaching assistantship in the Foundations of Education department at the University of Florida. In March, 1974, he was employed by the Marion County Board of Education in Ocala, Florida. He resigned this position in July, 1974 to accept a position as a school psychologist with the Alachua County Board of Education. In July, 1975, he became employed by the South Metro Children's Center in Atlanta, Georgia as a child psychologist; he is presently coordinator of clinical services at that agency.

Mark Lloyd Goldstein is married to the former Janis Patricia Kaplan. He is a member of Kappa Delta Pi, Phi Delta Kappa, and Phi Kappa Phi honorary societies, and is also an active member of the Southeastern Psychological Association, the Council for Exceptional Children, and the American Association of Psychiatric Services for Children.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Dr. Barry Guinagh, Chairman
Associate Professor of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Dr. Hannelore Wass, Co-Chairman
Associate Professor of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Dr. Robert Ziller
Professor of Psychology

This dissertation was submitted to the Dean of the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

June, 1976

B. L. Sharf & M. C. Better

Dean, College of Education

Dean, Graduate School

RU 2. 70 6.17.1.

11599 sec. 71m 31 (114)

29