THE RECALL OF MEMORIES AS A FUNCTION OF REPRESSING AND SENSITIZING DEFENSES AND BODY POSITION

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY

Ira P. Weinstein

1966

This is to certify that the

thesis entitled

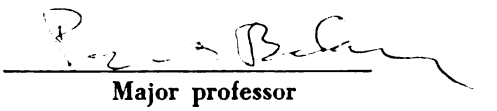
THE RECALL OF MEMORIES AS A FUNCTION OF REPRESSING AND SENSITIZING DEFENSES AND BODY POSITION

presented by

Ira P. Weinstein

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Psychology



Major professor

Date July 28, 1966

ABSTRACT

THE RECALL OF MEMORIES AS A FUNCTION OF REPRESSING AND SENSITIZING DEFENSES AND BODY POSITION

by Ira P. Weinstein

The present study was designed to investigate the relationships between the represser-sensitizer defense mode, body position, and the recall of memories. Subjects representing three levels on the represser-sensitizer dimension were selected. The groups corresponding to these levels are referred to as the represser defense group, the middle defense group, and the sensitizer defense group. The subjects recalled memories in either a sitting up (SU) position or a lying down (LD) position.

A total of 108 male undergraduate subjects participated in the experiment; there were 36 repressers, 36 "middles," and 36 sensitizers. Selection was based on scores received on the Byrne Repression-Sensitization Scale. Each defense type group was divided in half; 18 subjects were assigned to the SU position, and 18 subjects were assigned to the LD position. Therefore, there were 54 subjects in the LD group and 54 subjects in the SU group.

Subjects were asked to either sit up or lie down, depending upon the group to which they had been assigned.

They were then instructed to recall situations in their lives in which they had felt ". . . nervous, frightened, or scared." After the recall period subjects were asked to estimate their age at the time that each recalled event had occurred. The number of memories reported and the approximate age at the time of the remembered events constituted the basic data.

Repressers have been described as people who tend to use avoidance, denial, repression and forgetting as primary modes of adaptation when faced with threat and anxiety. Sensitizers on the other hand have a tendency to approach rather than avoid anxiety. Their primary defense mechanisms are intellectualization and obsessional type defenses.

Several investigators have demonstrated that the recall of memories seems to be affected by the position of the subject's body when he is involved in the recall task. For example, previous research indicates that subjects in a LD position tend to recall somewhat earlier memories than subjects in the SU position.

It was, therefore, hypothesized that:

I. Sensitizers would recall a greater number of anxiety memories than would repressers.

II. Sensitizers would recall chronologically earlier memories of anxiety than would repressers.

III. Subjects in a supine position would recall a greater number of anxiety memories than those in an upright position.

IV. Subjects in a supine position would recall chronologically earlier memories of anxiety than those in an upright position.

Contrary to hypotheses I and II repressers reported a greater number and generally earlier memories than sensitizers. These differences were not significant; however, an analysis of the age of the earliest two memories showed that the age of earliest memories was lower for repressers than for sensitizers. The results bearing on hypotheses I and II were explained in terms of the task subjects had to perform and the sampling procedures employed in the study. Hypothesis III was not supported by the data. All of the data regarding body position and age of memories was in support of hypothesis IV, although these results were not statistically significant. The suggestion was made that a LD position might sometimes be used during non-analytic psychotherapy to facilitate the access to primary process material. The data regarding hypotheses III and IV were interpreted to mean that body position has a greater effect on the age of memories recalled rather than the number of memories recalled. Suggestions were made for further research utilizing different procedures and samples.

THE RECALL OF MEMORIES AS A FUNCTION OF REPRESSING AND SENSITIZING DEFENSES AND BODY POSITION

By

Ira P. Weinstein

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1966

DEDICATION

to the memory of my father

ACKNOWLEDGMENTS

The author wishes to express his appreciation to Dr. Paul Bakan for serving as chairman of the dissertation committee. His encouragement, suggestions, criticisms, and sense of humor helped to make this not only a learning experience but also a most enjoyable endeavor. Thanks are extended to the other committee members Drs. Bill Kell, Mary Leichty, and Norm Abeles not only for their help with this project but also for the unique contribution each has made to my career and me as a person.

To Dr. Art Seagull who has given me the gift of his friendship and personal interest goes a very special thank you.

Appreciation is expressed to the Psychology Department for generously providing equipment and facilities for this research. Gratitude is felt toward the students who served as subjects for this experiment.

The author is most of all indebted to his wife Fran, who served as an assistant on this study. Her understanding, patience, and unyielding faith in him are also acknowledged as a major force behind this research and what will follow.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

It has been shown that people differing in primary modes of psychological defense show differences in the way in which they deal with anxiety arousing stimuli or situations. The defense types studied in this experiment are called repressers, whose major defenses are repression and denial, sensitizers, whose major defenses are intellectualization, ruminative worrying and obsessive behaviors, and middles, whose defenses are somewhere between the other two groups (Byrne, 1964). Subjects were asked to recall these memories while either sitting up or lying down.

The types of memories subjects were asked to recall had to do with situations in their lives in which they had felt, ". . . nervous, frightened, or scared." This is the kind of material that is so often said to be heavily defended against psychologically (Freud, 1959). Repressers therefore, were expected to perform differently than sensitizers and middles on this type of recall task which it was thought would elicit psychological defense. The number of memories produced per subject and the chronological age of these memories were the key performance variables which were expected to differentiate repressors and sensitizers.

The recall of memories seems to be influenced by at least one factor other than psychological defense. Some

writers (Freud, 1938; Berdach, 1965) feel that the body position of a person, i.e., whether he is lying down or sitting up influences the ease of recall for memories. The effects of these two body positions on the recall of memories were also studied.

It is possible that body position may interact with the type of defense a person characteristically uses. The interaction of psychological defense and body position in relationship to the recall of anxiety memories was also investigated.

Utilizing the above variables and operations an attempt was made to empirically demonstrate that:

1. . . . there is a relationship between represser, sensitizer, and middle type defenses and the recalling of anxiety-laden memories and that. . .
2. . . . the recall of anxiety memories of repressors, sensitizers, and middles can be influenced by body position.

Repression

Freud first began thinking of the concept of repression when he noticed a resistance in his patients to recall painful memories (Freud, 1924; Breuer and Freud, 1936). As for the foundations of repression he said, ". . . the essence of repression lies simply in the function of

rejecting and keeping something out of consciousness" (Freud, 1959, p. 80); its motive and purpose was seen as ". . . simply the avoidance of 'pain'" (ibid, p. 92). It was Ernest Jones who stated in his formulation of Freud's concept of repression, that there were in fact individual differences among the ways people used this defense. He said, ". . . the capacity to forget painful experiences is only of a certain strength, which differs greatly in different people, and is not always successful in achieving its aim . . ." (Mackinnon and Dukes, 1962, p. 664). As for the dynamics of repression Freud was very clear in his final formulation; it is anxiety that activates repression (Freud, 1936).

In a paper on repression Freud (1959) divided the process into three phases: primal repression, repression proper, and return of the repressed. This division has served as a model for the scientific exploration of the repression concept. Primal (archaic) repression has as its purpose the denial of entrance into consciousness of " . . . some ideas attached to instinctual strivings which are unacceptable to the ego. This type of repression is commonly attributed to childhood . . ."(Stewart, 1962, p. 93). This is really the repression of the primary process material spanning the period from the birth trauma to about age five or six and including the childhood traumas. All later repression is based on the events of childhood

repression. Later events that are associated with these instances are treated similarly by the ego.

> Repression proper concerns mental derivatives of the repressed instinct-presentation, or such trains of thought as, originating elsewhere, have come into associative connection with it. On account of this association, these ideas experience the same fate as that which underwent primal repression (Freud, 1959, pp. 86-87).

The return of the repressed is actually a failure or miscarriage of repression. Fenichel (1945) describes it as follows:

> The repressed pushes toward consciousness and motility; it consists of impulses seeking outlets. In this seeking activity it tends to produce "derivatives," that is, to displace its cathexes onto associatively connected ideas that are less objectionable to the conscious ego (p. 17).

Freud's initial trichotomy of repression has been reformulated in the context of present day psychology. Mackinnon and Dukes (1962) discuss the notion that in the case of primal repression, where one finds a denial of entry of material into consciousness, one would also expect to find an inhibition of perception, i.e., ". . . a failure to perceive anxiety arousing stimuli presented to the subject. . ." (ibid., p. 685). The research in this area has come to be known as the study of perceptual defense. In repression proper or after-expulsion from consciousness one would expect to find an inhibition of memory, i.e., ". . . a failure to remember ego-wounding or anxiety provoking experiences of which the subject was once fully aware" (ibid., p. 685). Inhibition of response would be expected

to be the result of the failure or miscarriage of repression; ". . . symptoms or compromise formations in thought and action resulting from the unresolved conflict between repressed and repressing forces" (ibid, p. 685), is the expected finding.

In light of the above, one could look for repression experimentally by investigating disturbances in perception, memory, and thought and action. It is, therefore, suggested that possibly when subjects are asked to recall instances of extreme anxiety in their lives the degree to which repression is operative might be evidenced by the amount of blocking on this task.

Repression-Sensitization

The repression-sensitization dimension of defense categorization had its origin in the late 1940's with the research then being undertaken in the area of perceptual adaptation; now known as vigilance and perceptual defense. Bruner and Postman (1947) were the first to notice individual differences in subjects when they were shown threatening or anxiety-provoking words tachistoscopically. For some subjects the greater the anxiety, the greater the "perceptual defense" or slower the recognition time. There seemed to be a repression operative for this type of material. In contrast, there were other subjects who had a faster recognition time for the anxiety-provoking words. A sensitizing process is suggested for this group. Consequently, an

approach-avoidance dimension in relation to the perception of threat emerged from these types of studies. Donn Byrne (1961; 1964) presents a rather extensive review of the research that was conducted on perceptual defense. In these studies subjects were differentiated as to their primary defense modes and then tested for perceptual threshold differences for threatening versus non-threatening stimuli. In general the results reported are that those subjects who have the most difficulty perceiving the threatening material also give evidence of blocking, repression, and avoiding when responding to conflictful stimuli in other situations. It is also shown that those who perceive threatening stimuli as accurately or more accurately than neutral stimuli respond to other anxiety provoking situations with intellectualization, sensitization, and general approach behavior.

Byrne (1964) points out that other reponse measures besides perceptual threshold also yield the same kind of data concerning the response to threatening stimuli. He states, "An examination of the perceptual studies and the subsequent work suggests rather strongly the presence of an approach-avoidance sort of dimension with respect to threatening stimuli" (p. 173). In an effort to develop an easy to administer and objective method of measuring the repression-sensitization (R-S) dimension investigators turned to the MMPI as early as 1955 (Byrne, 1964). The

first major effort in this direction was made by Altrocchi, et al. (1960). Byrne (1961) refined the Altrocchi R-S scale, and it is the Bryne scale, which has undergone subsequent revision and refinement as late as 1963 (see Byrne, 1963), that was used in the present study. This scale has proven to be both reliable (Byrne, 1963) and valid (Tempone, 1963; Byrne, 1961, 1963, 1964a, 1964b, 1965; Byrne and Sheffield, 1965; O'Connell and Peterson, 1964).

Since the R-S scale originated from the discovery of differential recognition thresholds for threatening versus non-threatening stimuli, it should follow that this scale is capable of differentiating subjects as to their perceptual defense behavior. Tempone (1962) did just such a study and found the above hypothesized relationship to exist. The establishment of the existence of this relationship serves to point up the importance and relevance for the present study of Byrne's (1961) review of recall studies carried out with people who were classified as repressors on perceptual tasks. His findings can be summarized as follows; people classified as repressers on perceptual tasks tend to: remember success better than failure in a scrambled sentence task; forget an anxiety arousing Blacky picture; prefer avoidance and forgetting defenses on a defense inquiry; and respond to a sentence completion test with blocking, avoidance, denial and cliches. Sensitizers, on the other hand, tend to: recall failures and material

associated with painful shock; recall incompleted tasks; and respond to a sentence-completion task with admission of inadequacy and failure, rationalization, intellectualization and humor.

As for the recall of anxiety-laden situations for subjects measured by the R-S scale itself, Gossett (1964), found that those people with low R-S scores (repressers) could not recall nonsense syllables associated with threat and failure as easily as high scorers (sensitizers). Byrne and Sheffield (1965) found that repressers report a far lesser awareness of anxiety in a threatening situation than do sensitizers. Byrne (1963) concludes that both the perceptual and the R-S scale studies lead one to believe that repressers have a poorer memory for anxiety provoking situations than do sensitizers.

There has been on research attempt to relate the R-S scale to the recall of memories from one's own life. As can be seen above the only recall investigated has been for events that were part of a planned experimental procedure. However, there has been some research carried out with the recalling of dreams that has employed several of the MMPI scales that also comprise the R-S scale. Dream recall has also been related to the general dimension of repression-sensitization as measured by means other than the MMPI. Freud (1938) reports that the failure to recall dreams is just another example of the operation of

repression. There is implied the notion that the greater the general forgetting of dreams the greater is the repression in the patient. R. A. Schonbar (1959) reports that research indicates that everyone dreams even though some people report that they do not. She hypothesizes that the phenomenon of dreaming takes place because the anxiety that these thoughts would evoke in a conscious state would be too much to bear. Her major finding in support of this hypothesis was a positive relationship between manifest anxiety and the frequency of content and contentless dream recall. These findings are interpreted in terms of an approach toward anxiety provoking or conflictful situations for the high anxiety subjects and a strong repressive or avoidance factor being operative for the low anxiety non-recallers of dreams or dreaming itself. Lachmann, et al. (1962) found similar results. Byrne and Sheffield (1965) report that repressers tend to respond to anxiety situations with significantly less verbalized anxiety than do sensitizers. It seems possible to conclude that low-anxiety non-recallers of dreams or dreaming and repressers as defined by Byrne might be drawn from the same population.

Singer and Schonbar (1961) using a repression scale derived from the MMPI found that those people who report a high frequency of daydreaming also report a high frequency of night dreaming and that these frequencies correlate negatively with repression. C. T. Tart (1962), after dividing

his subjects into two groups, repressers and sensitizers, on the basis of their MMPI scores, found that repressers recall far fewer of their dreams than do sensitizers. Further evidence for the relationship between repression and dream recall comes from Goldin (1964). In describing Witkin's work on cognitive style, Goldin states that,

> The field dependent individual does not articulate the field in an analytic manner but is dominated by a global approach to experience. It was hypothesized (by Witkin) that such individuals would use predominantly primitive defenses such as repression and denial . . . (Witkin) reports that field dependent individuals are significantly poorer in dream recall than field analytic individuals. To the extent that dream recall is an adequate index of repressive trends, the authors conclude that field dependency and repression are associated (p. 370).

In summarizing, it appears that repressers are people who tend to use avoidance, denial, repression, and forgetting as primary modes of adaptation when faced with threat and anxiety. In fact, when asked to recall situations where they have experienced threat or anxiety it seems as if they have a great deal of difficulty doing this. Sensitizers, on the other hand, seem very much alerted to threat and respond with manifest anxiety. Their primary defense modes are intellectualization and obsessional type defenses. Their tendency is to approach rather than avoid anxiety. Evidence indicates that their recall for anxiety provoking or threatening laboratory situations is fairly good.

From the above emerges the first major hypothesis of this study: "Repressers will recall fewer memories dealing with situations in their lives where they have felt 'nervous, frightened, or scared,' than will sensitizers."

The number of memories dealing with anxiety that a subject can recall has been hypothesized above to be related to the absence of repression as a major defense mode. Another characteristic of these memories that was under investigation in this study is their age, i.e., how old the subject was (approximately) when the event related in the memory actually occurred.

Freud maintained that the etiology of neurosis was in repressed childhood memories. He saw the major task of psychoanalysis to be the alleviation of neurotic symptoms by bringing these memories into consciousness with their accompanying affect. As was noted earlier the basic element of what is repressed is primary process material (see p. 3). It is through the primary process mode that the pre-language infant experiences the world according to Freud. Since primary process material can be conceived of as the foundation of all repression, one would expect a paucity of recall of anxiety laden events of childhood among those who use repression as a major defense. It is not surprising, therefore, when Freud reports (1958) that, "It is only from the sixth or seventh year onwards--in many cases only after the tenth year--that our lives can

be reproduced in memory as a connected chain of events." This statement can be interpreted to mean that primary process material and those events occurring closer in time to this material tend generally to be repressed. However, Freud reports data collected by others (V. and C. Henri), as well as observations made by himself, indicating that some people find it easy to recall and relate childhood memories while others find it almost impossible to recall such memories. Implied is the notion that most people fall into a middle category on this dimension. The study by the Henris also demonstrated that there is a positive correlation between recalling earliest memories and recalling memories in general. They report that the content of first memories of childhood center around occasions of fear, shame, physical pain, illnesses, death, fires, and birth of siblings--all anxiety provoking situations.

Taking the Freudian viewpoint one can say in summary that early memories are closely related to primary process material, and it is this material that is the basic content of repression. This leads us to the next hypothesis of the present investigation which is an attempt to explain the individual differences in childhood memory recall that Freud and others have noted. It is believed that perhaps these individual differences can be explained in terms of primary defense modes. Those people who use represser

type defenses were expected to delete memories from their awareness that were most closely associated with primary process material, i.e., childhood anxiety memories. On the other hand, those who use sensitizing defenses were expected to approach the primary process/anxiety-laden material of childhood much more readily than the repressers.

Therefore, it was hypothesized that, "Sensitizers will recall chronologically earlier memories of anxiety than repressers."

Body Position

Freud felt that there was much effort involved in the process of repression. He said that, "A constant expenditure of energy, . . . , is entailed in maintaining a repression . . ."(Freud, 1959, p. 90). According to Freudian theory this energy expenditure, in the form of anti-cathexes, leads to a good deal of tension both muscular and psychological. In order to facilitate the uncovering of what was repressed Freud chose to have his patients lie down on a couch while he sat behind them. He adopted this position so as to relieve, ". . . muscular tension and every distracting sense impression which might disturb the concentration of the attention upon his (the patient's) own mental affairs" (Hitschman, 1917, p. 195). Several current writings have also taken the position that the lying down posture has as one of its major attributes the relaxation of the patient (Munroe, 1955; Rosner, 1962). This

relaxation is seen as important for the progress of the analysis of what has been repressed. These writers feel that the physically relaxed patient has greater access to r epressed material (ibid).

The differential effects of the lying down position and the sitting up position on the free recall of memories was recently explored by Elsie Berdach (1965). She found that generally there were no significant differences in the number of memories her subjects recalled as a function of body position. Some very specific relationships between age category, number of memories recalled, and body position were found.

There has been much concern with the whole issue of muscular relaxation and its effects on psychic processes. The prevailing opinion seems to be that, "Psychic tension and relief cannot be without a somatic representation . . ." (Reich, 1949, p. 313). Reich reports that,

> One finds very often that the state of muscular tension is different before the solution of an acute repression and afterwards. When patients are in acute resistance, that is, when they try to keep an idea or an impulse from consciousness, they often feel a tension, say, in the head, the thighs or buttocks. After having overcome the resistance, they suddenly feel relaxed (Reich, 1949, p. 343).

He feels there is a clear cut relationship between "relaxed musculature" and "free-flowing psychic activity" or the relative absence of repression. Sandor Ferenczi noted that, "As analysis progresses release of mental tensions may be

accompanied by relief of muscular tensions . . ." (Ferenczi, 1950, p. 281). He goes on to say that as a result of these observations he has sometimes found it, ". . . useful to advise relaxation exercises, and that with this kind of relaxation one can overcome the physical inhibitions and resistances to assocations" (in Lowen, 1958).

In a sense then Freud and his colleagues and followers have been considering the body in the therapeutic situation since the beginning of the psychoanalytic movement. This has led to the more purposeful use of relaxation techniques as part of the therapeutic process today. Lowen, a follower of Reich, feels as Reich does that a muscular reorganization is necessary if a psychic reorganization is to take place. Trygve Braatøy, a contemporary analyst, claims that relaxation leads to emotional spontaneity and the lifting of repression. He advocates the use of the couch in psychotherapy for the purpose of creating a relaxed atmosphere that will enable the patient to, ". . . release memories of and reactions to mental danger . . ." (Braatøy, 1954, p. 193). Braatøy, discusses, as supporting evidence for the idea of greater accessibility to repressed material in the lying down position, the fact that the EEG of a lying down patient is more relaxed (less alert) than that of a sitting up patient whose EEG is much more confused because of irrelevant potential fluctuations from peripheral muscle contractions.

The first experiments using relaxation as a psychotherapy were reported in 1938 by Edmund Jacobson (1938). He trained his subjects (clinical patients) in a technique of progressive relaxation which involved the training of the body musculature to relax so as to be able to overcome both physical and psychic tensions. There is implied in his writings a relationship between body tensions and imagery and recall. Building upon Jacobson's work Joseph Wolpe developed the conditioning therapy technique known as reciprocal inhibition which in many of its facets uses muscle relaxation. Wolpe feels that, ". . . deep muscle relaxation has autonomic effects antagonistic to those of anxiety" (Wolpe, 1958, p. 35).

If we can assume from the above that muscle tension is a physical representation of the psychic process of repression, and that this body tension, and concomitantly the repression also, can be relieved somewhat by lying down and relaxing, then, the following hypothesis of the present study should be verified: "Subjects who try to recall anxiety memories in a lying down position should be able to recall more of them than those subjects who attempt this task in a sitting up position."

In her recent study Berdach (1965) reports differences in the age of memories recalled in a free recall situation as a functon of body position. She found that lying down subjects reported significantly more childhood

memories (from birth to age 3) than sitting up subjects; significantly more of the former subjects recalled such memories; and that the mean age for memories recalled was earlier for the supine group than for the upright group, although this trend was not statistically significant.

In her discussion of these results Berdach refers to Freud's notion that the relaxation of sleep allows the unconscious to become active in the dream-work which is always permeated with at least disguised primary process material. She further states that,

> It can readily be seen that some similarity exists between the lying down position when awake and the lying down position when asleep in terms of similar muscle tensions of the body when in the reclining position. These body tensions and motor discharges into the interior of the body in turn seem related to phenomena of primary process ideation occurring. It seems that in the awake condition when lying down a change in the muscle tensions allows for the unconscious elements of the psyche to become conscious in the form of recalling the earliest experiences of childhood, originally experienced on the primary process level . . . . It seems that in both instances of lying-down, when either awake or asleep, the relaxation of the muscles and the change in muscle tension facilitates occurrence of primary process material (Berdach, pp. 21-22).

Morgan and Bakan (1965) found that subjects lying down in a horizontal position reported significantly more sensory deprivation hallucinations (SDH) than those subjects in a sitting up position. All subjects were sensorily deprived. These data were interpreted in light of the fact that the horizontal position closely approximates sleep. Therefore, dreams and SDH's are somewhat equated by the

authors. Whether dreams and SDH's are similar in terms of possessing primary process characteristics remains to be demonstrated.

The final hypothesis of the present study concerns itself with body position and the age of memories; it is stated as follows: "Subjects in a supine position will recall chronologically earlier memories of anxiety than those in an upright position."

Hypotheses

I. Sensitizers will recall a greater number of anxiety memories than will repressors.

II. Sensitizers will recall chronologically earlier memories of anxiety than repressers.

III. Subjects in a supine position will recall a greater number of anxiety memories than those in an upright position.

IV. Subjects in a supine position will recall chronologically earlier memories of anxiety than those in an upright position.

METHOD

Experimental Conditions and Design

Essentially two experimental conditions were utilized in this investigation. One consisted of having S recall anxiety memories while in an upright position seated in a chair (SU). A second condition consisted of having S recall anxiety memories while in a supine, reclining position on a bed (LD).

Before being assigned to one of the above two conditions a subject was classified as to his primary defense mode as indicated by his score on the R-S scale. He could be classified in one of the following three ways: Represser, Sensitizer, or Middle (someone who scored between the extreme points of the scale).

Subjects

There were a total of 108 male Ss who participated in the experiment. Thirty-six of these were classified as Repressers, 36 as Sensitizers, and 36 as Middles. This division of Ss was made on the basis of scores received on the revised Byrne R-S scale (Byrne, 1963).

The scale was administered to 439 introductory psychology students (Norms appear in Appendix A). This group consisted of 286 males and 153 females. One hundred and eight males were selected from this pool to serve as subjects.

The bottom 14% of the male distribution yielded the 36 Represser Ss (M = 19.56, range = 4-27). The 36 Sensitizers were selected from the top 14% of the distribution (M = 81.42, range = 66-110). Eighteen subjects above and below the median comprised the Middle group (M = 49.14, range = 46-52).

The age range for Ss was 18-27. The mean ages for the three groups was as follows: Repressers = 19.33, Sensitizers = 18.72, and Middles = 19.06. There were no significant differences in age between these groups [t (R vs S) = 1.85; t(R vs M = .82; t(M vs S) = 1.26].

Each of the three groups of 36 Ss classified by defense type was divided in half. Eighteen subjects in each group were assigned to the LD position and 18 Ss were assigned to the SU condition. Therefore, of the 108 Ss participating in the experiment 54 were in the LD group and 54 were in the SU group.

Administration

The revised R-S scale (see Appendix B) consists of 182 items drawn from the following MMPI sub-scales: D, Pt, Welsh Anxiety, L, K, and Hy denial. Of these 182 items 127 are scored and 55 are buffer items. Scores can, therefore, range from 0-127. Those Ss scoring high are classified as sensitizers while those scoring low are classified as repressers.

The R-S scale was titled the Health and Opinion Survey for this investigation. It was administered to a large group of introductory psychology students by their instructor with the following instruction:

> You are being handed a survey that is being conducted by some members of the psychology department. We would like your cooperation in helping us to develop this questionnaire so that it may be of some usefulness in the years to come.
>
> You will notice that there are two answer sheets in your survey booklet--this is because there are 182 survey items and only 172 items per answer sheet. Therefore you will have to answer items 1-172 on one answer sheet and use the second answer sheet for the last 10 items (items 173-182) of the survey.
>
> Please fill out the top line of both answer sheets--this includes your name, the date, your student number and your sex. Also fill in the IBM student number box at the right on both answer sheets. It is not necessary to fill out the rest of the information requested on the answer sheet.
>
> We need your names and student number at this time because in developing a questionnaire it is often helpful to retest people at a later time to be sure that the items are reliable. After we are satisfied that the questionnaire is reliable all identifying information will be removed from the answer sheets.
>
> All of you participating today will be given one hour of research credit.
>
> Thank you for your cooperation.
>
> If you have any questions please ask the proctors who will be walking around the room.

Procedure

Ss were first tested (see above) and then called at a later time to participate in the experiment. They had never seen or heard from E previous to the time that the experiment was run and had no reason to associate E with

the previously administered R-S scale. E examined the distribution of test scores (respondents not identified) and established the previously mentioned cutoff points for the defense groups (see p. 20). An assistant then identified who the Ss were but told E only which body position to administer to which S. In other words E did not know to which defense type group the S he was working with belonged.

S was contacted by E on the telephone and asked to participate in an ". . . interesting experiment that has to do with the recalling of memories." S was instructed to appear at a room in the Psychology Research Building. E would introduce himself to S at this time and acquaint S with the room and discuss the Research Building itself in an effort to relax S.

The dimensions of the experimental room were 8' 9" x 12' 3". The room was temperature controlled (set at 72°), soundproof and windowless. If the S was to be treated in an LD condition a bed with a pillow on it was set up in the room and S was instructed to lie down. E sat behind the head of the bed so that S could not observe him.

In the case of SU Ss the bed was folded up and stored in a corner of the room. Ss treated under this condition sat with their backs to E. In this way S could not see E without turning himself or his chair completely around.

In the LD condition the microphone from the tape recorder was placed on a small stand near the head of the bed. The tape recorder itself was placed out of sight. In the SD condition also only the microphone was visible to S.

After S was situated either on the bed or in the chair one of two sets of instructions were read to him depending on which treatment group he belonged to. Below are the instructions:

> This is an experiment in memory recall. What I would like for you to do is to sit in the chair (lie on the bed), relax, and tell me any memories that come into your mind that have to do with specific situations in your life in which you have felt nervous, frightened, or scared. Do not be general but relate specific incidents. I'll give you some examples--to say that as a very small child you were afraid of the dark would be a very general statement and not what I am looking for--but to describe a particular time when you can recall being afraid of the dark, like a particular night you slept at your grandmother's house, is the type of thing I had in mind. (Another example)
>
> To say that you get nervous before exams would be a very general statement and not appropriate. However, to describe being anxious or nervous before a particular exam--let's say the college boards or last week's natural science quiz would be more specific and what I am looking for. Your memories may deal with any and all periods of your life ranging from infancy to the present.
>
> Try to be somewhat brief in your descriptions, there is no need to go into great detail, there does not have to be any particular order to the way in which you tell me your memories, there is no right or wrong way of doing this, just say what comes to your mind.
>
> Why don't you try one now to see if you have the idea ----------. That's fine!
>
> You will have plenty of time, 25 minutes, to do this. I might add here that there is no magic number of memories you are expected to recall, this varies quite a bit with individuals, so do not

be concerned about silences or for that matter the lack of silences.

I am going to be sitting over here and listening, what you say is being recorded so that we can go over the tape afterwards together. After the experiment is over the tape will be erased. Try not to pay any attention to me. I will tell you when the time is up.

Now to summarize, you are to sit in the chair (lie on the bed), relax, and tell me briefly any memories that you can recall that have to do with specific situations (do not be general) in which you have felt nervous, frightened or scared.

Do you have any questions?

The next time that I speak it will be to let you know that the time is up.

O.K. begin.

After the instructions were read E turned on the tape recorder. No other comments were made by E until the end of the recall session. The session lasted (from instructions to the closing of the recall period) approximately 30 minutes, E would signify its conclusions by saying, "O.K., that's fine." At this time E turned off the tape recorder. He then told S that they would now go over the memories together.

While seated behind S, E was writing down brief notes on each memory that S was reporting. At the conclusion of the recall period, with S facing E, E presented the cues noted above and asked S to approximate as accurately as he could how old he was at the time the event reported had occurred. If E's notes were not descriptive enough so as to enable S to recall the memory E then played the tape.

At the conclusion of the tape review period E asked S for any reactions he might have had to the experiment or for any questions he might have.

Before he left, S was given a slip indicating that he had participated in an experiment and was thanked for his cooperation.

Rating of Memories

E and an assistant listened to the tape recordings made of all memories and judged whether or not the memories were acceptable for the experiment. The operational definition that the judges used in their decisions of what was an anxiety memory follows: "An anxiety memory is the recall of any past experience(s) that is reported by the subject during which he felt nervous, frightened or scared."

Excluded from this definition are any accounts of: (1) feelings that S was experiencing at the moment; (2) anxiety that might be experienced in the future; (3) experiences that did not have to do with anxiety; (4) situations that the subject related more than once (these were tabulated as only one memory).

There was a total of 1836 memories reported, 90 of these memories were discarded leaving a usable total of 1746 memories. In order for a memory to be discarded one of two conditions had to exist, either both judged had to agree that it was a discardable memory or both judges had to disagree. The judges agreed on the fact that 68 of the 90 memories discarded were not appropriate for this investigation. The judges disagreed on only 22 memories. When the total of 1836 memories is considered there was

interjudge agreement of 98.76%. Since only those memories that the judges agreed upon were used as data for the study there was 100% agreement on all memories reported as results.

Some memories that Ss reported were rather general, and therefore, could not be identified as to age, these memories were still included as data. Where Ss gave a span of years for a particular memory the mean age of these years was used as the age of the memory. If the age span exceeded five years no age was recorded in the data for this memory.

RESULTS

Number of Memories

The total number of memories recalled was not affected by either the body position or by characteristic mode of psychological defense. Table 1 presents the results of the analysis of variance performed on these data. None of the F values are statistically significant.

These data lead one to conclude that the number of memories a subject reported was not affected by either the fact that he was sitting up or lying down or whether he was a represser, sensitizer or a member of the moddle group. Therefore, Hypothesis I: "Sensitizers will recall a greater number of anxiety memories than will repressers"; and Hypothesis III: "Subjects in a supine position will recall a greater number of anxiety memories than those in an upright position," were not verified.

TABLE 1.--Analysis of variance of number of memories reported.

Source of Variance	SS	d.f.	MS	F
Body Position (BP)	42.81	1	42.81	.62
Defense Type (DT)	125.71	2	62.86	.91
BP x DT	240.34	2	120.17	1.89
Within : Error	7072.14	102	69.33	
Total	7481.00	107		

In Table 2 the means and standard deviations of all sub-groups are presented. The average number of memories per subject gave 16.17 with a standard deviation of 8.38 memories. Table 2 also indicates that there were small differences in the directions opposite to both Hypotheses I and III, i.e., repressers tended to give slightly more memories than sensitizers and SU Ss tended to give slightly more memories than LD Ss.

TABLE 2.--Means and standard deviations for number of memories reported.

Body Position[b]		Defense Type[a]			
		R	S	M	Total
LD	M	17.22	14.33	15.06	15.44
	SD	9.10	11.90	5.69	9.15
SU	M	17.83	17.83	14.72	16.80
	SD	7.88	8.48	6.08	7.55
Total	M	17.53	16.08	14.89	16.17
	SD	8.39	10.34	5.81	8.38

[a]Throughout the Results R = repressor, S = sensitizer, M = middle group.

[b]Throughout the Results SU = sitting up, LD = lying down.

Age of All Memories

Hypotheses II and IV dealt with the possible differential effects of body position and defense type on the age of memories recalled. Hypothesis II states, "Sensitizers will recall chronologically earlier memories of anxiety than

will repressers." Hypothesis IV states, "Subjects in a supine position will recall chronologically earlier memories of anxiety than those in an upright position." An analysis of variance of these data is summarized in Table 3. No significant differential effects of body position or defense type on age of memories recalled was found.

TABLE 3.--Analysis of variance of age of all memories.

Source of Variance	SS	d.f.	MS	F[a]
Body Position (BP)	1.81	1	1.81	.38
Defense Type (DT)	2.40	2	1.20	.25
BP x DT	11.35	2	5.68	1.20
Within : Error	481.36	102	4.72	

[a]No F values significant.

Table 4 clearly presents the means and standard deviations for all groups. It can be seen in Table 4 that the average S recalled memories from a period in his life when he was 13.97 years old with a standard deivation of 2.12 years. It will also be noticed that repressers gave somewhat earlier memories than sensitizers which is opposite from what Hypothesis II predicts. There was also a tendency for LD Ss to give slightly earlier memories than SU Ss, a finding consistent with Hypothesis IV.

TABLE 4.--Means and standard deviations for age of all memories reported.

Body Position		Defense Type			
		R	S	M	Total
LD	M	13.91	13.60	14.03	13.84
	SD	1.78	2.63	1.73	2.05
SU	M	13.78	14.77	13.76	14.10
	SD	2.41	1.97	2.16	2.20
Total	M	13.85	14.18	13.89	13.97
	SD	2.09	2.47	1.93	2.12

Age of Earliest Memory

The mean ages of the earliest memories recalled are presented in Table 5. As can be seen by the individual t-tests, also presented in Table 5, the earliest memory was not differentially affected by any of the treatment conditions. The mean age of the earliest memory that all Ss recalled was 5.89 years with a standard deviation of 2.90 years. Although no prediction was made concerning the age of the earliest memory the finding that LD Ss have an earlier earliest memory than do SU Ss, is somewhat consistent with Hypothesis IV of the present study. Repressers seem to report an earliest memory that is a bit earlier than that reported by sensitizers. This latter result can be seen as contrary to what was predicted in Hypothesis II.

TABLE 5.--Age of earliest memory recalled.

	LD	SU	t[a]
Mean	5.46	6.31	1.55
Standard Deviation	2.06	3.51	
	S	R	t
Mean	6.25	5.22	1.51
Standard Deviation	3.42	2.24	
	S	M	t
Mean	6.25	6.19	.08
Standard Deviation	3.42	2.88	
	R	M	t
Mean	5.22	6.19	1.59
Standard Deviation	2.24	2.88	

[a]No t value is significant

Age of Earliest Two Memories

The mean ages of the earliest two memories recalled by Ss was also compared so as to give a more reliable measure of recall of early memories than what was presented in Table 5. Table 6 presents the comparisons of the means of the subjects' first two memories cumulated. It can be seen that repressers gave significantly earlier memories than sensitizers when the earliest two memories are added together. One should also note that LD Ss give earlier memories than SU Ss. Again, Hypothesis IV gains some support. Repressers and sensitizers continue to behave in a fashion opposite to what was predicted in Hypothesis II.

TABLE 6.--Cumulative age of earliest two memories recalled.

	LD	SU	t
Mean	13.15	15.00	1.65
Standard Deviation	4.18	7.05	
	R	S	t
Mean	12.56	15.22	2.44*
Standard Deviation	4.67	6.52	
	R	M	t
Mean	12.56	14.44	1.48
Standard Deviation	4.67	6.03	
	S	M	t
Mean	15.22	14.44	
Standard Deviation	6.52	6.03	.53

*$p < .02$.

Distribution of Memories Over Time

It was of interest to investigate when, during the 25 minute recall period Ss reported their memories. Table 7 presents a summary of this analysis. One can see that in the first five minute period of recall all Ss gave approximately a minimum of 80% more memories than in any other time period. There was a decrease in the number of memories reported over time with each succeeding time period having fewer memories than the time period preceeding it. The first five minute period has more than twice as many memories as the last five minute period for all groups.

TABLE 7.--Number of memories reported in five minute segments.

Subject Group	Time Period				
	First	Second	Third	Fourth	Fifth
R	208	121	109	98	95
S	188	122	94	95	80
M	193	121	92	73	57
LD	289	175	142	119	114
SU	300	189	153	147	118
Mean number of memories per period	5.45	3.37	2.73	2.46	2.15

Statistical tests of the differences between time periods also proved to be significant (see table 8).

TABLE 8.--Analysis of variance of number of memories per five minute segment.

Source of Variation	SS	d.f.	MS	F
Time Periods	752.95	4	188.24	141.53*
Subjects	1582.20	107	14.79	
Ss x Time Periods	567.45	428	1.33	
Total	2902.60	539		

*$p < .01$.

Summary of the Data

None of the four hypotheses of the study were verified statistically. Trends both supporting and opposite to these hypotheses were found. As an example of this it was discovered that repressers and SU Ss tended to give a slightly greater number of memories than did sensitizers and LD Ss. These findings are opposite to what was predicted in Hypotheses I and III. When the age of all memories; earliest memory; and earliest two memories were considered, repressers report earlier memories than do sensitizers. This difference was statistically significant in the case of the earliest two memories. These results are opposite of what one would expect on the basis of Hypothesis II. LD Ss report generally earlier memories, as well as an earlier earliest memory and earlier earliest two memories than do SU Ss. These results lend some support to Hypothesis IV.

Figure I, II, and III indicate the frequency of all memories recalled by all Ss and thereby summarize the data of the study. Upon close scrutiny some of the trends indicated above are visible on these figures. The lack of significant differences is clearly demonstrated by the striking similarity of all the curves.

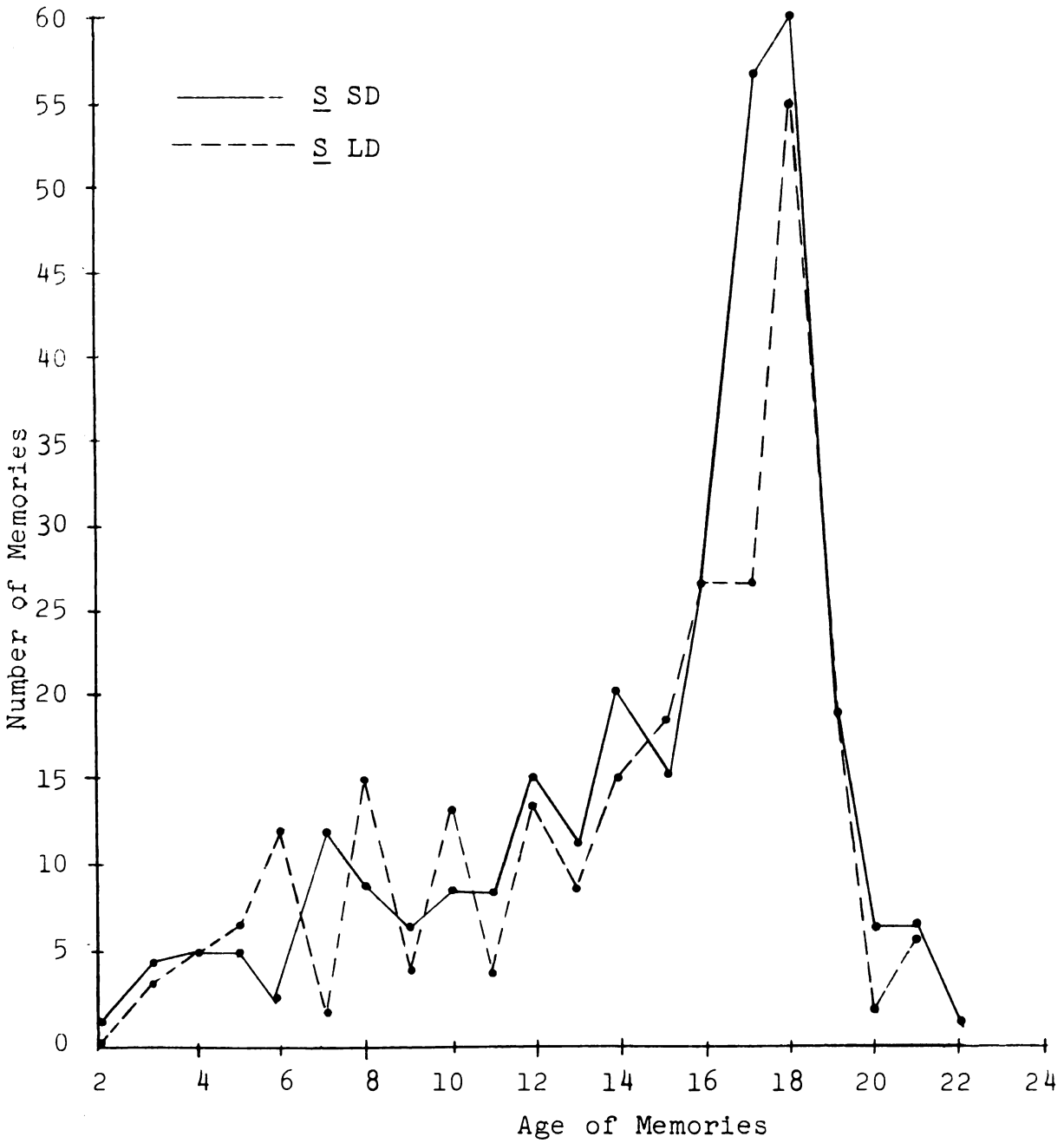


Figure 1.--Frequency distribution of number and age of memories for sensitizers.

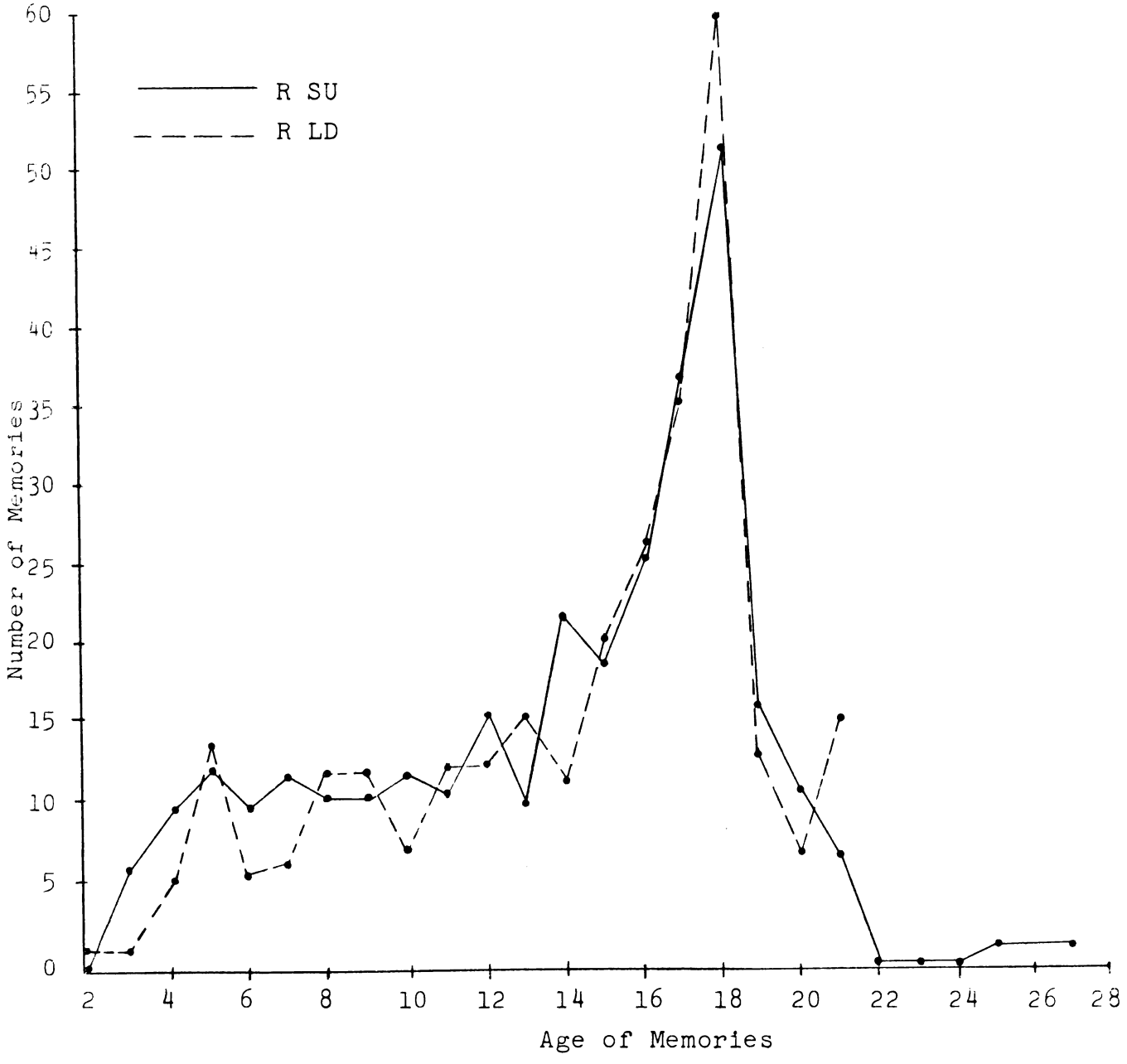


Figure 3.--Frequency distribution of number and age of memories for repressors.

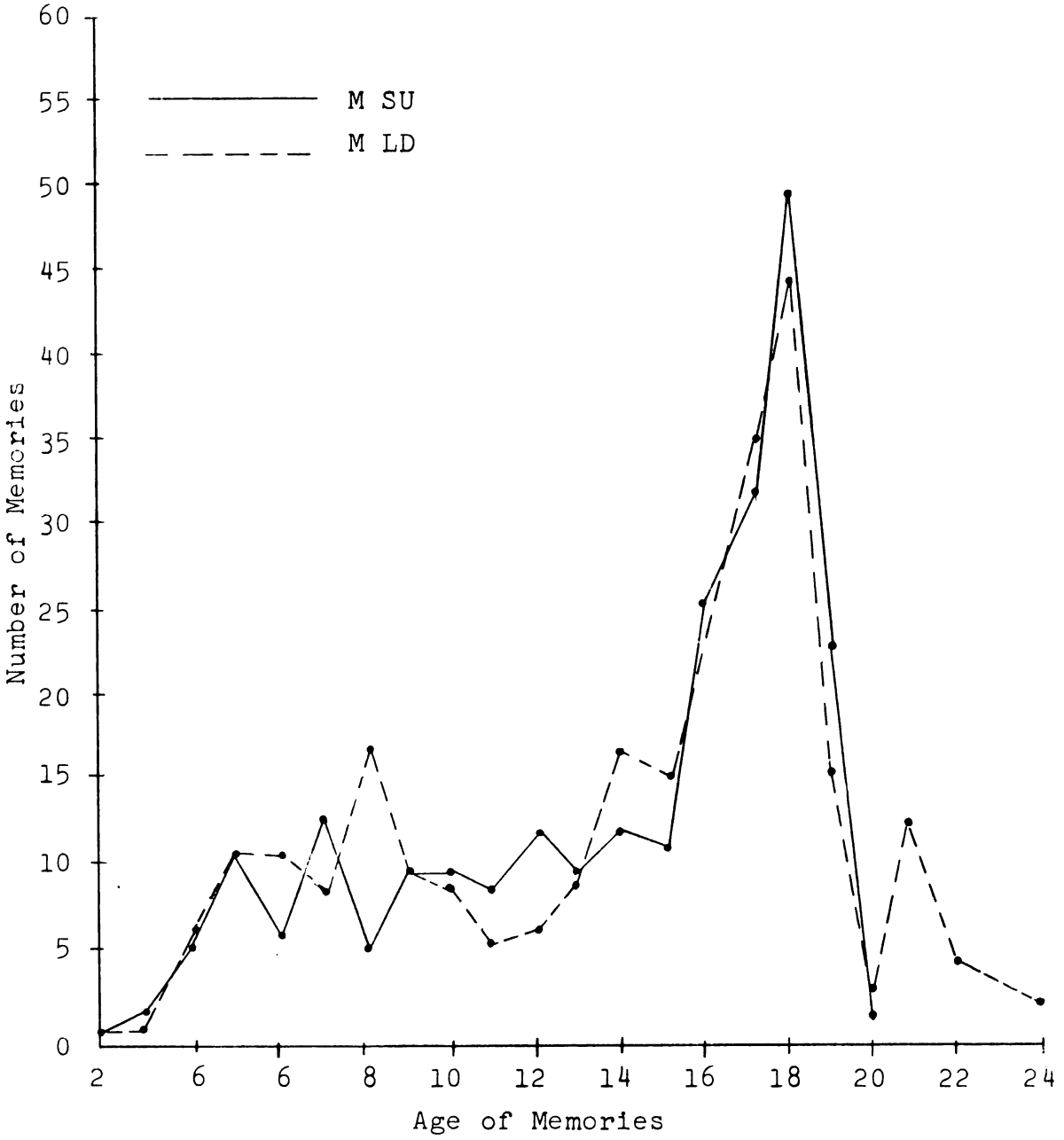


Figure 3.--Frequency of number and age of memories for middle group.

Qualitative Impressions

E did not observe any differences in the way the SU, LD, R, S, or M subjects approached the task. This qualitative similarity coincides with the quantitative likenesses reported above.

Almost all Ss embarked upon the task with an above average degree of manifest anxiety. Heavy breathing, prespiration, dryness of the mouth and throat and slight trembling were evident to some degree in almost every subject. In the case of most subjects this anxiety state dissipated when the subject began reporting his memories. A few Ss, across groups, maintained a high level of anxiety throughout the session.

The general set of the Ss could best be described as task or problem oriented. Subjects generally expressed the feeling that what was demanded of them in this situation was quite difficult. Most Ss approached the task in what appeared to be the following manner: (1) First they would relate an incident that occurred in the last three or four years that had elicited some anxiety in them. (2) Secondly, in the fashion of psychoanalytic free-association, they would usually report a series of memories from this same period in their lives dealing with the same content areas. (3) The above pattern was generally repeated for each S throughout the 25 minute recall period.

As was shown in the quantitative section this pattern of responding led Ss to report many memories from the present period of their lives.

A look at the content of the memories is quite consistent with the time period from which they came. All Ss were young college students, therefore, as one would expect, most memories related to their academic pursuits or associated events; parent-child struggles typical of the adolescent period; and social problems such as dating and meeting people, etc. Very few Ss presented any material that seemed to be very affect-laden; in fact, an attempted content analysis of the taped recall sessions was abandoned because of the similarity of content and affect that seemed to exist between and within Ss.

At the conclusion of the experiment most Ss said they felt concerned that they would not be able to fill the time with the memories requiested, i.e., the demand characteristics of the task seemed to weigh heavily upon them. In relation to this many Ss wished to be assured they had helped E in his research, this seemed to be important to them.

DISCUSSION

Repression--Sensitization

The major purpose of the present investigation was to study the effects of repressing and sensitizing defenses on the recall of anxiety memories. Previous research (Byrne, 1964a) has demonstrated that sensitizers tend to approach anxiety arousing stimuli and that repressers tend to avoid or deny these kinds of stimuli when presented. It was hypothesized that sensitizers would be able to recall more and earlier memories of anxiety situations than would repressers.

In research carried out with the Repression-Sensitization (R-S) Scale the approach anxiety/avoid anxiety dimension has always been investigated under a set of conditions whereby subjects were presented with a series of anxiety arousing stimuli under the control of the experimenter. Subjects' responses to these stimuli served as the dependent variables. The present study was an effort to stimulate a more realistic and less contrived stimulus environment. Subjects were requested to respond to self-produced stimuli. The predictions made concerning their behavior were based upon the assumption that subjects would differ in the quantity and quality of their responses because of the differences in primary modes of psychological

defense they characteristically employed under stress. Repressers were expected to show more blocking and thereby have their memory recall impaired. This group was expected to report fewer memories and memories from a later period in their lives than sensitizers. Sensitizers were expected to perform in just the opposite manner on both of these variables, i.e., number and age of memories. The overall statistical analyses of the study reveals that there are no significant differences between repressers and sensitizers for number of memories if the total of all memories reported are considered. There were, however, trends indicating possible differences between these groups as well as a secondary analysis that demonstrated a statistically significant difference between them.

In first looking at the overall similarity of performance between subjects one might consider the set from which subjects operated.

The instructions given to all subjects were in effect saying, "Respond to these instructions by presenting yourself with anxiety-arousing stimuli and then respond again by reporting these stimuli (memories)." This type of self-presentation of stimuli was equated with the kind of situation Byrne (1964a) reports where subjects' reactions to externally presented stimulation led to differences of an approach-avoidance nature. One can restate Byrne's major notion as follows, "When presented with threatening stimuli,

originating external to the subject, repressers exhibit general avoidance behavior and sensitizers exhibit approach behavior." Important here is the fact that stimuli must be impinging upon the subject, and that these stimuli must be produced by someone or something other than the subject. Unless a subject perceives a threat at some level there is no need for his calling upon his arsenal of psychological defenses.

It is suspected that in the present study subjects were inadvertantly placed in a rather paradoxical position when one considers the role of psychological defenses. To ask subjects to recall situations in their lives in which they have felt ". . . nervous, frightened, or scared," we were in effect asking subjects to abandon all defense and present themselves with the very same type of stimuli that often leads to the need for psychological defense of all types.

This was not a situation where subjects could be observed coping with unavoidable stimuli by either trying to approach them or attempting to deny or avoid them. Instead there existed in the experimental situation the opportunity for all subjects to avoid the presentation of threatening stimuli. This is a far more basic self-protective defense than any intended to be studied herein. Psychological ego-defense becomes necessary only when the basic efforts made to avoid pain have failed and the

individual must, therefore, cope with a hostile (to his ego) environment. The absence of differential performance between subjects can be explained by the fact that psychological defense itself, as we normally think of it, was not elicited, i.e., essentially normal subjects will not voluntarily expose themselves to threat when it can be so easily avoided as was the case in the free recall situation in the present study. The most striking example of this general avoidance of pain by all subjects was the tendency for them to contain themselves to rather mundane content areas for their memories, and to choose memories mostly from the present and far from the earlier periods in their lives more closely associated with the threatening primary processes. In the previous work in this area subjects could not escape the threatening stimuli and had to use their psychological defense repertoire to defend themselves from the effects of these stimuli. Therefore, the differential behaviors previously reported for repressers and sensitizers must be thoughtof in only this latter context, i.e., reactions to unavoidable threat.

Consequently, it is believed that in the present study, with little or nothing to defend against, all subjects, no matter what primary mode of defense they usually employed under stress, failed to perform differentially. The problem for future researchers remains one of how to better measure the differential recall of one's life as it is affected by repression and sensitization.

One way of doing this might be to shift the emphasis of recall from anxiety to some area such as shame, i.e., ask subjects to report ". . . memories of when you have felt ashamed." It would be much more difficult for subjects to present "filler" memories of this type than it was for them to produce large quantities of memories dealing with various degrees of anxiety. It would seem that the range of the experience of anxiety is far greater than is the range of the experience of shame. However, experiences of shame are, of course, the content of what is repressed also; therefore, repressers should have more difficulty recalling them than should sensitizers. Results might be less confounded by extraneous memories with shame as the content area for memories to be recalled rather than anxiety. Another approach to this problem might be to perform a replication of Berdach's (1965) study with the addition of the repression-sensitization variable. In this way subjects would be asked only to recall life memories with no concern at all for content. Differences in the age of memories recalled should be more clearly observable in such a design. A content analysis of the memories might prove to be of more value with this method than it was in the present study.

One must also consider the results regarding the repression-sensitization dimension reported here in lieu of the population sampled for this research. The results

reported here are generalizable only to normal, 18 year old-college freshmen, middle class-males. This is, to say the least, a very restrictive sample. In a patient population, where psychopathology is often the result of the exacerbation of defensiveness significant results regarding repression-sensitization and the recall of life memories might be more easily forthcoming than it was in the present study. Also, where older people are involved (a more adult population), differences in the age of memories might become more clear since this group tends to be much less present and future oriented than does the 18 year old. The great number of contemporary memories given by the subjects in this study might be primarily the result of the subjects' own chronological age.

Although the results were not statistically significant it was found thet repressers recported slightly more and earlier memories than did sensitizers. As a result of further analyses it was discovered that the earliest memory given by repressers was earlier than that given by sensitizers. This difference was not statistically significant either, but was of a greater magnitude than the differences reported above. When the earliest two memories of subjects were added together it was found that repressers gave significantly earlier memories ($p < .02$) than did sensitizers. These results gain added significance when one considers the fact that repressers were 7.3 months older than sensitizers. Therefore, they had to dig back farther into their

past for these earlier memories than did sensitizers. These paradoxical findings become understandable when one considers the dynamic forces operative in repression and the forces operative in the experimental situation. Repressers can be viewed as being people who are under a great deal of pressure to keep their unconscious from becoming conscious. In this study even more pressure was exerted on the unconscious boundaries, perhaps to the point, where some breakthrough occurred in terms of their being a great number of memories and quite early memories being reported by repressers, i.e., the repression might have failed somewhat. Sensitizers, on the other hand, who usually approach anxiety might have performed in this experiment in a way more consistent with their everyday functioning. The additional pressure of the experiment does not precipitate any significant breakthrough for them but just a continuance of their normal level of coping with stress. An alternative explanation might be that there is a greater effort involved for sensitizers than for repressers in going all the way back in their lives to recall memories. When repressers do this it might be possible for them to report screen memories that do not have the real affect or meaning that is involved attached to them. Freud (1958), in discussing screen memories sees them as being the result of traumatic experiences. If screen memories are in fact a result of repression, one would expect to find

this response little used by sensitizers. If sensitizers were to recall a very early memory we would expect this memory to have more meaning to him than if it were just a screen memory. This might prove to be a very painful experience, and in the present study, as discussed earlier, real pain could be, and was, easily avoided. In retrospect, one might always expect repressers to be able to recall their infancy and childhood with greater frequency but with less emotional accuracy than sensitizers simply because the psychological cost is so much less for them.

Body Position

It was predicted in the present study that LD subjects would report a greater number and earlier memories than would the SU subjects. It was believed that the trends in the Berdach study could perhaps become statistically significant results if some of the personality variables involved, such as defense style, were controlled. As was mentioned earlier Berdach (1965) found that subjects in the LD position recalled a greater number of memories in the 0-3 years category than did the SU subjects. There were no significant differences between the total number of memories the SU and LD subjects recalled. She also found that the mean age for all memories recalled was earlier for the LD group than it was for the SU group. This difference was not statistically significant. Morgan and

Bakan (1965) found that the LD subjects reported significantly more sensory deprivation hallucinations than those subjects in a SU position.

It was hypothesized in the present study that if differences on the body position variable in previous studies were being minimized by the personality variables of repression and sensitization such effects would be clearly visible and easily analyzed in the design presented in this study. Most important, however, was the nature of the memories subjects were requested to recall. If the LD position does in fact serve to relax subjects' psychological controls and defensiveness (Berdach, 1965; Morgan and Bakan, 1965) subjects asked to deal only with memories that are usually heavily defended against should be most markedly affected by the body position variable.

The differences reported concerning body position were not significant. The direction of the differences supports the hypothesis that lying down subjects would report earlier memories than sitting up subjects. This was the case for the mean age of all memories, earliest memory, and earliest two memories. These findings corroborate the data reported by Berdach (1965) and by Morgan and Bakan (1965). Primary process material, in the form of earlier memories seems to be more easily brought to consciousness in the lying down position than in the sitting up position. In an effort to understand why these

results were not statistically significant one must think in retrospect of the contradictory situation concerning body position that confronted the subjects. They were given lengthy and detailed instructions and also the task they were assigned was a difficult and threatening one. It would seem that some of the relaxing effects that the LD position itself might have had upon a subject were more than likely negated by the concentration and tension necessary to meet the remaining demand characteristics of the task at hand. Relaxation, although requested, seems difficult to have attained in any body position when an overview is taken of the amount of concentration and vigilance required of the subjects.

In any event, these suggestive findings do have some possible implications for psychotherapy. For example, many investigators (Wolpe, 1958; Braatøy, 1954; Jacobson, 1938; et al.) have shown that subjects can be taught to relax their muscles in almost any body position. However, the inherent relaxing effect of lying down can be utilized and observed by the psychotherapist and/or experimenter without having to go through the intensive relaxation training mentioned by the above investigators. The true value of such an abbreviated relaxation technique for clinical work might be tested by a study designed after the research recently reported by Gurney and Stollak (1965). In this type of study volunteer subjects come and report

to a tape recorder for one hour a week for a prescribed number of weeks. They may talk about anything they wish or nothing at all. It has been found that the material reported is often quite personal and meaningful to the subject and also that many subjects wish to continue this speaking to the tape recorder after the agreed upon number of hours has expired. It would be most interesting to note the differential effects of body position on subjects in this "simulated therapy" situation. The content of what is said; the number of different areas discussed; the age periods from which content arises; etc., could all be possible ways to analyze data collected in such a study.

Berdach (1965) best sums up these results concerning body position. In discussing similar findings she states,

> This seems to clarify in what way lying-down affects the "mental affairs" which Freud talks about. It is not related to the amount of material recalled per se, but rather to the quality of the experience, allowing primary process material to be brought to consciousness (p. 29-30).

Distribution of Memories Over Time

The differences reported with regard to the number of memories given in different five minute segments of the recall period proved to be quite interesting. Subjects gave the most memories in the first five minutes of the session and gave fewer and fewer memories in succeeding five minute periods. When the experimental procedure is reviewed it is found that the subjects were told by the

experimenter to," . . . begin,"at the conclusion of the instruction period. It seems as if subjects felt compelled to report memories in this beginning period, as if started by a gun at a foot race. As time passed subjects seemed to discover that silences were quite permissible being that no disapproval came from the experimenter for these silent periods. Also, with the passage of time subjects might have remembered that the instructions they were given stated that they were permitted to remain silent.

The superfluous content of the memories referred to earlier might be a result of the subjects' somewhat obsessive need to fill the allocated time with speech. Most people are not used to sitting in a room for 25 minutes with another person and remaining silent. Therefore, if subjects were carefully choosing their memories so as to avoid real threat and anxiety, as was suggested earlier, it should have proved more difficult for them to think of "things to say" that were appropriate as time wore on. Such seemed to be the case. If subjects could have free-associated and were not told to "Begin!" the decline in items over time might have been considerably less. Berdach (1965), who used similar instructions for starting the recall period found the same type of decline over time (20 minutes) in the number of memories reported as did the present study.

In both Berdach's study and the present one subjects could begin thinking of their first set of memories while the instructions were being given. This really makes the first five minute period considerably longer than five minutes when you consider that instructions might take three to five minutes to present. It seems then that the decline in memories over time might partially be the result of the first five minute period being favored by a set to start reporting memories immediately as well as extra time to think of these memories. This decline in memories can also be explained as an increasing difficulty for the subjects' selective processes to operate and produce only non-threatening memories, i.e., this pool of innocuous memories was exhausted over time.

SUMMARY

The present study was designed to investigate the relationships between the represser-sensitizer defense mode, body position, and the recall of memories. Subjects representing three levels on the represser-sensitizer dimension were selected. The groups corresponding to these levels are referred to as the represser defense group, the middle defense group, and the sensitizer defense group. The subjects recalled memories in either a sitting up (SU) position or a lying down (LD) position.

A total of 108 male undergraduate subjects participated in the experiment; there were 36 repressers, 36 "middles," and 36 sensitizers. Selection was based on scores received on the Byrne Repression-Sensitization Scale. Each defense type group was divided in half; 18 subjects were assigned to the SU position, and 18 subjects were assigned to the LD position. Therefore, there were 54 subjects in the LD group and 54 subjects in the SU group.

Subjects were asked to either sit up or lie down, depending upon the group to which they had been assigned. They were then instructed to recall situations in their lives in which they had felt ". . . nervous, frightened, or scared." After the recall period subjects were asked to estimate their age at the time that each recalled event

had occurred. The number of memories reported and the approximate age at the time of the remembered events constituted the basic data.

Repressers have been described as people who tend to use avoidance, denial, repression and forgetting as primary modes of adaptation when faced with threat and anxiety. Sensitizers on the other hand have a tendency to approach rather than avoid anxiety. Their primary defense mechanisms are intellectualization and obsessional type defenses.

Several investigators have demonstrated that the recall of memories seems to be affected by the position of the subject's body when he is involved in the recall task. For example, previous research indicates that subjects in a LD position tend to recall somewhat earlier memories than subjects in the SU position.

It was, therefore, hypothesized that:

I. Sensitizers would recall a greater number of anxiety memories than would repressers.

II. Sensitizers would recall chronologically earlier memories of anxiety than would repressers.

III. Subjects in a supine position would recall a greater number of anxiety memories than those in an upright position.

IV. Subjects in a supine position would recall chronologically earlier memories of anxiety than those in an upright position.

Contrary to hypotheses I and II repressers reported a greater number and generally earlier memories than sensitizers. These differences were not significant; however, an analysis of the age of the earliest two memories showed that the age of earliest memories was lower for repressers than for sensitizers. The results bearing on hypotheses I and II were explained in terms of the task subjects had to perform and the sampling procedures employed in the study. Hypothesis III was not supported by the data. All of the data regarding body position and age of memories was in support of hypothesis IV, although these results were not statistically significant. The suggestion was made that a LD position might sometimes be used during non-analytic psychotherapy to facilitate the access to primary process material. The data regarding hypotheses III and IV were interpreted to mean that body position has a greater effect on the age of memories recalled rather than the number of memories recalled. Suggestions were made for further research utilizing different procedures and samples.

BIBLIOGRAPHY

BIBLIOGRAPHY

Altrocchi, J., Parsons, O. A., and Dickoff, H. "Changes in Self-ideal Discrepancy in Repressers and Sensitizers," Journal of Abnormal and Social Psychology, 1960, 67-72.

Berdach, Elsie. Body Position and Memory Recall. Unpublished Master's thesis, Michigan State University, 1965.

Braatøy, Trygve. Fundamentals of Psychoanalytic Techniques. New York: John Wiley and Sons, Inc., 1954.

Breuer, J. and Freud, S. "Studies in Hysteria," Nervous and Mental Disorders Monographs, 1936, No. 61.

Bruner, J. S. and Postman, L. "Emotional Selectivity in Perception and Reaction," Journal of Personality, 1964, 16:69-77.

Byrne, Donn. "The Repression-Sensitization Scale: Rationale, Reliability, and Validity," Journal of Personality, 1961, 29:333-349.

_____. "Repression-Sensitization as a Dimension of Personality." In B. A. Maher (ed.), Progress in Experimental Personality Research. New York: Academic Press, 1964, 169-220.

_____. "Childrearing Antecedents of Repression-Sensitization," Child Development, 1964, 35:1033-1039.

Byrne, D., Barry, J., and Nelson, D. "Relation of the Revised Repression-Sensitization Scale to Measures of Self-Description," Psychological Reports, 1963, 13:323-334.

Byrne, D., Golightly, C., and Sheffield, J. "The Repression-Sensitization Scale as a Measure of Adjustment: Relationship with the CPI," Journal of Consulting. In press.

Byrne, Donn and Sheffield, John. "Response to Sexually Arousing Stimuli as a Function of Repressing and Sensitizing Defenses," Journal of Abnormal Psychology, 1965, 70:114-118.

Child, I. L. "The Relationship Between Measures of Infantile Amnesia and of Neuroticism," Journal of Abnormal and Social Psychology, 1960, 35:453-456.

Daly, Edward J. "Repression." Unpublished paper, Michigan State University, 1965.

Dudycha, G. J. and Dudycha, M. M. "Childhood Memories: A Review of the Literature," Psychological Bulletin, 1941, 38:668-682.

Ferenczi, Sandor. Further Contributions to the Theory and Technique of Psychoanalysis. London: Hogarth Press Ltd., 1950.

Freud, Sigmund. "On the History of the Psycho-Analytic Movement," cited in Collected Papers, I. London: Hogarth, 1924, 287-359.

_____. The Problem of Anxiety. W. W. Norton and Co., 1936.

_____. The Basic Writings of Sigmund Freud. Translated and edited by A. A. Brill. New York: The Modern Library, 1938.

_____. In Complete Psychological Works of Sigmund Freud, XII (1911-1912). London: Hogarth Press and the Institute of Psychoanalysis, 1958, Papers "Resistance and Anticathexis," "Formulations of the Two Principles of Mental Functioning," "Remembering, Repeating, and Working Through," "On Screen Memories."

_____. "Repression," In Collected Papers, Vol. 4. New York: Basic Books, Inc., 1959, 84-97.

Fromm-Reichmann, Freida. Principles of Intensive Psychotherapy. Chicago, Illinois: The University Press, 1950.

Golden, P. C. "Experimental Investigation of Selective Memory and the Concept of Repression and Defense: A Theoretical Synthesis," Journal of Abnormal and Social Psychology, 1964, 69:365-380.

Gurney, Bernard, Jr. and Stollak, Gary E. "Problems in Living, Psychotherapy Process Research, and an Autoanalytic Method," Journal of Consulting Psychology, 1965, 29:581-586.

Hitschman, Edward. Freud's Theories of the Neurosis. New York: Noffat, Yard and Company, 1917.

Jacobson, A., Kales, A., Lehmann, D., and Hoedemaker, F. S. "Muscle Tonus in Human Subjects During Sleep and Dreaming," Experimental Neurology, 1964, 10:418-424.

Jacobson, Edmund. Progressive Relaxation. Chicago, Illinois: University of Chicago Press, 1938.

Kahana, R. J., et al. "Value of Early Memories in Psychotherapy," Psychiatric Quarterly, 1953, 27:73-82.

Lachmann, Frank, Lapkin, Benjamin, and Handlman, Norman S. "The Recall of Dreams: Its Relation to Repression and Cognative Control," Journal of Abnormal and Social Psychology, 1962, 64:160-162.

Lieberman, Martha G. "Childhood Memories as a Projective Technique," Journal of Projective Techniques, 1957, 21:32-36.

Lowen, Alexander. Physical Dynamics of Character Structure. New York: Grune and Stratton, 1958.

Mackinnon, Donald W. and Dukes, William F. "Repression," In Leo Postman, Psychology in the Making. New York: Alfred A. Knopf, 1962, 662-744.

Madison, P. Freud's Concept of Repression and Defense: It's Theoretical and Observational Language. Minneapolis, Minnesota: University of Minnesota Press, 1961.

Morgan, Robert F. and Bakan, Paul. "Sensory Deprivation and Other Sleep Behavior as a Function of Position, Method of Report, and Anxiety," Perceptual and Motor Skills, 1965, 20:19-25.

Munroe, Ruth. Schools of Psychoanalytic Thought. New York: Holt, Rinehart and Winston, 1953, 301-303.

O'Connell, W. and Peterson, P. "Humor and Repression," Journal of Existential Psychiatry, 1964, 4:309-316.

Reich, Wilhelm. Character Analysis. Translated by Theodore P. Wolfe, M.D. Third edition. New York: Noonday Press, 1949.

Rosner, Joseph. All About Psychoanalysis. New York: The Crowell-Collier Press, 1962.

Schonbar, R. A. "Some Manifest Characteristics of Recallers and Non-recallers of Dreams," Journal of Consulting Psychology, 1959, 23:414-418.

Singer, J. and Schonbar, R. A. "Correlates of Daydreaming: A Dimension of Self-Awareness," Journal of Consulting Psychology, 1961, 25:1-6.

Stewart, Horace F., Jr. "Repression: Experimental Studies Since 1943," Psychoanalytic Review, 1962, 49:93-99.

Tart, C. T. "Frequency of Dream Recall and Some Personality Measures," Journal of Consulting Psychology, 1962, 26:467-470.

Tempone, V. J. "Differential Thresholds of Repressers and Sensitizers as a Function of a Success and Failure Experience," Dissertation Abstracts, 1962.

Winthrop, Henry. "Written Descriptions of Earliest Memories: Repeat Reliability and Other Findings," Psychological Report, 1958, 4:320.

Wolpe, Joseph. Psychotherapy by Reciprocol Inhibition. Stanford, California: Stanford University Press, 1958.

APPENDICES

APPENDIX A

NORMS FOR R-S SCALE ADMINISTERED TO 286 MALE INTRODUCTORY PSYCHOLOGY STUDENTS

NORMS FOR R-S SCALE ADMINISTERED TO 286 MALE INTRODUCTORY PSYCHOLOGY STUDENTS

Scores	Frequency
100-110	3
90-99	6
80-89	9
70-79	14
60-69	22
50-59	52
40-49	66
30-39	59
20-29	40
10-19	12
0-9	3
	286

Median = 49.48
Mean = 45.69
Standard Deviation = 18.99

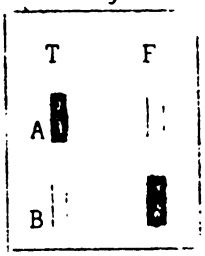
APPENDIX B

HEALTH AND OPINION SURVEY

HEALTH AND OPINION SURVEY

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

Section of answer sheet correctly marked



You are to mark your answers on the answer sheet you have. Look at the example of the answer sheet shown at the right. If a statement is TRUE or MOSTLY TRUE, as applied to you, blacken between the lines in the column headed T. (See A at the right.) If a statement is FALSE or NOT USUALLY TRUE, as applied to you, blacken between the lines in the column headed F. (See B at the right.) If a statement does not apply to you or if it is something that you don't know about, make no mark on the answer sheet.

Remember to give YOUR OWN opinion of yourself. Do not leave any blank spaces if you can avoid it.

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

Remember, try to make some answer to every statement.
NOW OPEN THE BOOKLET AND GO AHEAD.

DO NOT MAKE ANY MARKS ON THIS BOOKLET

1. I have a good appetite.
2. I wake up fresh and rested most mornings.
3. I am easily awakened by noise.
4. I like to read newspaper articles on crime.
5. My hands and feet are usually warm enough.
6. My daily life is full of things that keep me interested.
7. I am about as able to work as I ever was.
8. There seems to be a lump in my throat much of the time.
9. I enjoy detective or mystery stories.
10. Once in a while I think of things too bad to talk about.
11. I am very seldom troubled by constipation.
12. At times I have fits of laughing and crying that I cannot control.
13. I am troubled by attacks of nausea and vomitting.
14. I feel that it is certainly best to keep my mouth shut when I'm in trouble.
15. At times I feel like swearing.
16. I find it hard to keep my mind on a task or job.
17. I seldom worry about my health.
18. At times I feel like smashing things.
19. I have had periods of days, weeks, or months when I couldn't take care of things because I couldn't "get going".
20. My sleep is fitful and disturbed.
21. Much of the time my head seems to hurt all over.
22. I do not always tell the truth.
23. My judgment is better than it ever was.
24. Once a week or oftener I feel suddenly hot all over, without apparent cause.
25. I am in just as good physical health as most of my friends.
26. I prefer to pass by school friends, or people I know but have not seen for a long time, unless they speak to me first.
27. I am almost never bothered by pains over the heart or in my chest.
28. I am a good mixer.
29. Everything is turning out just like the prophets of the Bible said it would.
30. I do not read every editorial in the newspaper every day.
31. I sometimes keep on at a thing until others lose their patience with me.
32. I wish I could be as happy as others seem to be.
33. I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others.
34. I get angry sometimes.
35. Most of the time I feel blue.

GO ON TO THE NEXT PAGE

36. I sometimes tease animals.

37. I am certainly lacking in self-confidence.

38. I usually feel that life is worth while.

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

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

41. I think most people would lie to get ahead.

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

43. I go to church almost every week.

44. I have very few quarrels with members of my family.

45. I believe in the second coming of Christ.

46. My hardest battles are with myself.

47. I have little or no trouble with my muscles twitching or jumping.

48. I don't seem to care what happens to me.

49. Sometimes when I am not feeling well, I am cross.

50. Much of the time I feel as if I have done something wrong or evil.

51. I am happy most of the time.

52. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.

53. Often I feel as if there were a tight band about my head.

54. My table manners are not quite as good at home as when I am out in company.

55. I seem to be about as capable and smart as most others around me.

56. Most people will use somewhat unfair means to gain profit or an advantage rather than to lose it.

57. The sight of blood neither frightens me nor makes me sick.

58. Often I can't understand why I have been so cross and grouchy.

59. I have never vomited blood or coughed up blood.

60. I do not worry about catching diseases.

61. At times my thoughts have raced ahead faster than I could speak them.

62. If I could get into a movie without paying and be sure I was not seen I would probably do it.

63. I commonly wonder what hidden reason another person may have for doing something nice for me.

64. I believe that my home life is as pleasant as that of most people I know.

65. Criticism or scolding hurts me terribly.

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

67. I certainly feel useless at times.

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

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

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

71. I would rather win than lose in a game.

GO ON TO THE NEXT PAGE

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

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

74. I have never had a fit or convulsion

75. I am neither gaining nor losing weight.

76. I cry easily.

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

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

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

80. I do not tire quickly.

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

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

83. What others think of me does not bother me.

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

85. I frequently have to fight against showing that I am bashful.

86. I have never had a fainting spell.

87. I seldom or never have dizzy spells.

88. My memory seems to be all right.

89. I am worried about sex matters.

90. I find it hard to make talk when I meet new people.

91. I am afraid of losing my mind.

92. I am against giving money to beggars.

93. I frequently notice my hand shakes when I try to do something.

94. I can read a long while without tiring my eyes.

95. I feel weak all over much of the time.

96. I have very few headaches.

97. Sometimes, when embarrassed, I break out in a sweat which annoys me greatly.

98. I have had no difficulty in keeping my balance in walking.

99. I do not have spells of hay fever or asthma.

100. I do not like everyone I know.

101. I wish I were not so shy.

102. I enjoy many different kinds of play and recreation.

103. I like to flirt.

104. In walking I am very careful to step over sidewalk cracks.

105. I frequently find myself worrying about something.

106. I gossip a little at times.

107. I hardly ever notice my heart pounding and I am seldom short of breath.

108. I have at times stood in the way of people who were trying to do something, not because it amounted to much but because of the principle of the thing.

109. I get mad easily and then get over it soon.

110. I brood a great deal.

GO ON TO THE NEXT PAGE

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

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

113. I believe I am no more nervous than most others.

114. I have a few or no pains.

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

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

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

118. I have difficulty in starting to do things.

119. I sweat very easily even on cool days.

120. It is safer to trust nobody.

121. Once a week or oftener I become very excited.

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

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

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

125. At times I am all full of energy.

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

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

128. I drink an unusually large amount of water every day.

129. Once in a while I laugh at a dirty joke.

130. I am always disgusted with the law when a criminal is freed through the arguments of a smart lawyer.

131. I work under a great deal of tension.

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

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

134. Life is a strain for me much of the time.

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

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

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

138. I am easily embarrassed.

139. I worry over money and business.

140. I almost never dream.

141. I easily become impatient with people.

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

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

144. I forget right away what people say to me.

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

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

147. I often feel as if things were not real.

GO ON TO THE NEXT PAGE

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

149. I have strange and peculiar thoughts.

150. I get anxious and upset when I have to make a short trip away from home.

151. I have been afraid of things or people that I knew could not hurt me.

152. I have no dread of going into a room by myself where other people have already gathered and are talking.

153. I have more trouble concentrating than others seem to have.

154. I have several times given up doing a thing because I thought too little of my ability.

155. Bad words, often terrible words, come into my mind and I cannot get rid of them.

156. Sometimes some unimportant thought will run through my mind and bother me for days.

157. Almost every day something happens to frighten me.

158. I am inclined to take things hard.

159. I am more sensitive than most other people.

160. At periods my mind seems to work more slowly than usual.

161. I very seldom have spells of the blues.

162. I wish I could get over worrying about things I have said that may have injured other people's feelings.

163. People often disappoint me.

164. I feel unable to tell anyone all about myself.

165. My plans have frequently seemed so full of difficulties that I have had to give them up.

166. Often, even though everything is going fine for me, I feel that I don't care about anything.

167. I have sometimes felt that difficulties were piling up so high that I could not overcome them.

168. I often think, "I wish I were a child again."

169. I have often met people who were supposed to be experts who were no better than I.

170. It makes me feel like a failure when I hear of the success of someone I know well.

171. I am apt to take disappointments so keenly that I can't put them out of my mind.

172. At times I think I am no good at all.

173. I worry quite a bit over possible misfortunes.

174. I am apt to pass up something I want to do because others feel that I am not going about it in the right way.

175. I find it hard to set aside a task that I have undertaken, even for a short time.

176. I have several times had a change of heart about my life work.

177. I must admit that I have at times been worried beyond reason over something that really did not matter.

178. I like to let people know where I stand on things.

179. I have a daydream life about which I do not tell other people.

GO ON TO THE NEXT PAGE

180. I have often felt guilty because I have pretended to feel more sorry about something than I really was.

181. I feel tired a good deal of the time.

182. I sometimes feel that I am about to go to pieces.

APPENDIX C

SUBJECT DATA

ORDER AND AGE OF MEMORIES FOR SENSITIZERS (LD)

Subject	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	8																																																								
2	16	18	18	5																																																						
3	14	14	15	18	13	9	18																																																			
4	18	10	16	15	5	12	10																																																			
5	8	x	12	10	10	18	11	6																																																			
6	10	16	6	5	6	13	4	6	15																																																		
7	17	17	18	16	12	17	5	18	10																																																		
8	18	8	18	18	4	15	11	7	19	6																																																	
9	18	5	12	18	x	x	18	14	18	18																																																	
10	11	8	12	18	18	14	15	18	16	17	15																																															
11	4	6	16	10	18	18	18	18	x	18	14	18	12	13	8																																											
12	17	17	17	18	18	18	18	18	18	12	18	10	18	18	15	6																																									
13	17	14	14	18	19	19	17	17	15	16	19	15	19	19	18	18	18																																								
14	17	18	17	16	19	9	14	19	7	16	15	8	18	19	19	18	19	18																																							
15	20	21	21	19	19	17	19	21	21	12	21	6	20	5	19	19	8	18																																							
16	3	6	18	8	9	8	13	18	6	10	15	16	12	13	8	12	16	17	17																																							
17	13	16	16	13	14	15	10	15	18	16	6	4	5	4	3	3	14	14	17	16	8	16	16																																			
18	17	6	14	18	16	16	15	18	16	17	16	x	17	14	19	x	8	17	17	16	19	18	x	x	17	18	18	15	14	8	16	11	17	12	12	16	16	17	9	10	8	14	18	10	10	12	15	17	13	8	16	17	15	15	18	18

ORDER AND AGE OF MEMORIES FOR SENSITIZERS (SU)

Subject	Memory																																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	18	18	17	17	17																																			
2	19	20	17	21	22	7	18	18	21																															
3	18	18	x	x	x	14	18	18	x	18																														
4	17	12	8	10	16	4	4	14	7	17																														
5	5	18	17	x	17	11	x	14	17	18	x	x																												
6	17	17	16	17	17	9	19	19	15	x	13	16	15																											
7	4	16	14	14	13	21	17	14	20	19	15	7	16	20	9																									
8	19	3	18	18	x	17	16	15	8	8	10	x	21	21	21																									
9	x	7	9	x	x	x	19	17	20	20	8	7	6	6	x	16																								
10	16	14	16	14	x	18	17	15	6	9	10	4	11	16	12	16																								
11	2	5	5	11	18	15	12	18	19	19	4	17	3	14	15	19	19																							
12	14	x	15	13	17	13	16	18	18	14	13	19	19	18	12	19	13	14	14																					
13	19	8	19	7	12	12	x	10	x	x	5	12	x	x	x	19	17	14	19	11	7																			
14	13	x	8	18	5	7	12	14	18	x	7	16	17	17	18	18	18	18	11	18	12	14	17																	
15	18	17	7	11	18	18	8	18	18	13	18	18	16	18	10	18	12	10	18	18	18	18	16	16	13	17														
16	17	10	18	15	18	17	16	17	17	17	17	15	17	16	12	17	16	13	18	17	17	17	17	3	14	16	17													
17	17	7	17	12	17	17	16	15	15	x	16	17	3	15	15	14	10	16	17	17	17	7	17	13	12	12	11	17												
18	18	18	18	17	18	x	8	9	18	18	16	17	18	15	x	18	16	18	18	18	9	12	16	18	17	18	17	16	18	17	11	18	18	18	17	18	14	17	17

ORDER AND AGE OF MEMORIES FOR REPRESSERS (LD)

Subject	Memory																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1	21	x	5	5	21																											
2	10	16	18	13	5	11																										
3	2	6	14	16	5	13	16																									
4	9	17	11	19	18	19	16																									
5	17	18	16	10	15	12	16	17																								
6	4	12	8	9	8	12	15	18																								
7	17	17	6	18	17	18	18	9	7	8																						
8	8	13	18	16	x	16	17	18	16	5	11	17	18	7	18	18																
9	13	17	18	11	14	16	19	17	8	18	16	5	18	18	17	x	18															
10	21	19	10	9	18	14	5	21	20	13	20	20	16	17	13	16	16	20	20	11												
11	5	18	18	x	16	14	18	18	14	8	11	18	18	18	17	18	18	x	18	18	18											
12	18	18	12	15	3	4	18	19	18	17	x	15	15	13	17	17	18	17	19	14	14											
13	20	8	4	18	21	21	18	21	6	11	21	21	21	21	21	21	21	7	16	20	21	12	13									
14	16	15	6	5	18	18	17	18	18	18	18	18	16	17	17	13	16	18	18	18	17	4	15	17	x	12						
15	16	18	19	13	16	15	15	11	13	18	5	8	12	12	9	10	12	13	15	9	15	18	9	15	13	12						
16	8	10	14	x	x	x	8	15	x	x	x	x	17	x	17	14	10	15	x	10	17	x	14	x	8	8	16						
17	18	17	5	11	12	17	15	9	18	12	12	6	17	17	9	5	7	x	9	11	17	18	14	18	15	11	18	18	5	18	x	x
18	19	11	19	19	17	16	18	16	19	7	19	9	15	13	16	17	5	11	16	15	17	17	16	7	19	4	13	18	18	15	15	x

ORDER AND AGE OF MEMORIES FOR REPRESSERS (SU)

Subject	Memory																																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
1	11	11	12	13	13	16	25	27																													
2	3	3	4	5	6	8	8	9	11																												
3	5	10	16	17	15	19	17	8	18																												
4	18	12	17	16	19	20	20	12	16	20																											
5	18	18	18	18	18	17	7	6	8	18	18	5																									
6	19	17	18	17	18	18	16	17	4	18	15	16																									
7	3	16	18	21	21	14	18	14	8	18	8	18	16	18	12																						
8	4	x	11	15	14	7	10	17	14	5	11	16	8	13	9	4	5																				
9	20	x	18	17	5	6	15	20	20	18	14	x	7	6	4	20	5																				
10	3	7	19	19	8	19	17	16	13	17	7	16	18	10	x	17	18																				
11	15	16	15	19	8	9	16	15	5	17	15	9	14	19	11	13	17																				
12	14	7	x	x	14	17	17	x	17	18	18	18	12	15	16	18	18	17																			
13	20	13	10	6	6	18	19	x	x	x	19	x	14	14	15	19	5	18																			
14	18	10	16	9	17	18	4	7	7	14	17	16	11	6	18	12	12	10	12	18	17	4															
15	14	21	7	21	21	14	17	21	5	9	9	20	14	7	5	10	14	14	x	21	20	x	15	15	19	20											
16	3	4	16	9	16	17	11	19	16	14	17	9	17	17	15	19	7	19	19	16	18	12	16	10	x	x	13	15	3								
17	14	17	18	12	17	18	12	12	13	6	18	15	10	10	12	18	18	16	16	11	10	18	15	13	x	14	12	18	11								
18	6	14	18	18	5	9	7	13	18	18	18	18	8	16	5	14	17	15	18	14	17	10	17	17	17	17	17	17	15	17	16	4	18	18	18	x	16

ORDER AND AGE OF MEMORIES FOR MIDDLES (LD)

Subject	Memory																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	8	18	17	5	5																				
2	14	18	18	14	8	6	6	19																	
3	6	14	19	17	17	21	20	18	18																
4	19	9	11	x	13	7	9	13	15	14															
5	17	5	17	18	18	7	11	x	15	18	18	17													
6	9	16	18	5	17	16	16	8	5	18	16	18													
7	18	16	17	8	5	8	18	14	9	x	5	18													
8	17	18	16	16	18	18	17	17	16	17	18	16	7	18											
9	16	17	17	16	18	18	18	5	17	17	18	18	15	18											
10	19	22	11	8	12	14	22	18	18	17	6	21	6	4	16										
11	4	8	17	14	9	5	13	17	18	14	6	18	8	16	6										
12	15	23	17	19	20	22	21	21	19	22	23	4	7	8	8										
13	9	17	17	12	x	12	x	8	15	18	17	8	x	17	16	16	13	18							
14	14	12	19	10	14	17	18	8	10	19	10	19	14	7	19	19	18	15							
15	18	13	14	16	17	17	18	18	14	12	9	10	5	18	11	5	7	12	15	18	17	x			
16	9	11	19	7	6	18	16	14	17	18	14	14	16	8	4	16	14	13	9	17	16	18	8		
17	8	x	x	16	14	17	17	16	15	15	15	6	15	15	10	10	16	18	17	15	15	15	18	13	
18	3	21	21	19	21	21	21	7	2	19	21	21	19	10	13	16	16	17	6	20	10	8	21	21	4

ORDER AND AGE OF MEMORIES FOR MIDDLES (SU)

Subject	Memory																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	19	20	21	22	23	24	25	26	27
1	9	17	7	15																						
2	5	x	9	10	10	9	14	14																		
3	16	18	18	12	7	5	7	12	18	12																
4	19	8	10	17	19	4	3	5	19	5																
5	18	18	14	16	15	14	19	19	11	12																
6	13	15	16	12	14	11	16	17	20	11																
7	19	18	19	18	19	16	16	18	18	14	18	17														
8	7	17	8	17	14	18	18	18	18	10	16	x														
9	19	12	8	16	19	13	12	17	11	12	6	19	10													
10	19	11	18	18	16	15	19	18	17	17	19	19	13	17	13											
11	16	17	9	17	7	16	5	18	8	17	8	18	16	16	17											
12	18	9	18	16	13	14	16	18	15	17	14	15	15	10	18	x										
13	18	17	18	16	x	x	16	14	13	18	17	16	17	18	18	18										
14	2	4	10	19	18	6	12	7	5	5	7	9	7	6	17	14	13	12	6	9						
15	x	14	10	15	7	18	16	17	x	13	17	9	12	17	x	x	12	11	15	18	x					
16	18	17	18	x	x	18	19	x	x	14	x	11	x	x	13	x	x	x	x	19	7	x				
17	16	18	18	17	18	10	7	17	18	17	18	6	6	15	17	16	18	5	16	11	9	4	17	17		
18	19	16	19	17	7	18	19	18	15	16	4	3	7	5	5	4	5	19	18	18	16	18	17	18	18	17

MEAN AGE OF EACH SUBJECT'S MEMORIES DEFENSE TYPE/BODY POSITON AND MEAN AGE

Subject	R/LD	R/SU	S/LD	S/SU	M/LD	M/SU
1	13.00	16.00	8.00	17.40	10.60	12.00
2	12.17	6.33	14.25	18.11	12.88	10.14
3	10.19	13.88	12.29	17.33	15.56	12.50
4	14.14	17.00	14.42	10.90	12.22	10.90
5	15.12	14.08	10.71	14.62	14.64	15.60
6	10.75	16.25	9.00	15.83	13.50	14.50
7	13.09	14.87	14.44	13.60	12.36	17.50
8	14.40	10.19	12.40	15.36	16.36	14.65
9	15.19	13.00	16.37	12.27	16.29	13.38
10	15.95	13.94	14.73	12.93	14.27	16.60
11	15.84	13.71	13.64	12.65	11.53	13.67
12	15.05	15.73	16.00	15.78	16.60	14.49
13	16.70	13.90	17.18	12.73	14.20	16.71
14	15.32	12.41	15.89	13.90	14.56	9.65
15	13.12	14.71	17.00	15.38	13.52	13.94
16	12.56	13.59	11.84	15.59	13.13	13.81
17	13.07	14.07	11.83	13.96	14.36	13.81
18	14.60	14.44	14.76	16.51	15.92	13.85
Mean	13.91	13.78	13.60	14.77	14.03	13.76

AGE OF EACH SUBJECT'S EARLIEST MEMORY DEFENSE TYPE/BODY POSITION AND AGE OF EARLIEST MEMORY

Subject	R/LD	R/SU	S/LD	S/SU	M/LD	M/SU
1	5	11	8	17	5	7
2	5	3	5	7	6	5
3	2	5	5	14	4	5
4	9	12	9	4	7	3
5	10	5	6	5	5	11
6	4	4	4	9	5	11
7	6	3	5	4	5	14
8	5	4	4	3	7	7
9	5	4	5	6	5	6
10	5	3	8	4	4	11
11	5	5	4	2	4	5
12	3	7	6	12	4	9
13	4	5	14	5	8	13
14	5	4	7	5	7	2
15	5	5	5	7	5	7
16	8	3	3	3	4	7
17	5	6	3	3	6	4
18	4	4	6	8	2	3
Mean	5.28	5.17	5.94	6.56	5.17	7.22

APPENDIX D

NUMBER AND AGE OF ALL MEMORIES RECALLED

THE NUMBER AND AGE OF ALL MEMORIES RECALLED DEFENSE TYPE/BODY POSITION AND FREQUENCY

Age	S/SU	S/LD	R/SU	R/LD	M/SU	M/LD
2	1	0	0	1	1	1
3	4	3	6	1	2	1
4	5	5	9	5	5	6
5	5	7	13	14	11	11
6	3	12	9	5	6	10
7	12	2	12	6	13	8
8	8	15	10	12	5	17
9	6	4	10	12	9	9
10	8	13	12	7	9	8
11	8	4	10	13	8	5
12	15	13	15	13	12	6
13	11	8	9	15	9	8
14	19	15	22	11	12	17
15	15	18	18	20	11	15
16	27	27	25	26	25	25
17	57	27	37	35	32	34
18	59	54	52	60	49	44
19	18	18	16	23	23	15
20	6	2	11	7	1	3
21	6	5	7	15		13
22	1		0			4
23			0			2
24			0			
25			1			
26			0			
27			1			
Total	294	252	305	291	243	262