Repression and the absence of retrieval cues

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REPRESSION AND THE ABSENCE OF RETRIEVAL CUES

Iowa State University

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Repression and the absence of retrieval cues

by

Clifford Arthur Levin

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CHAPTER I. INTRODUCTION

The concept of repression is integral to Freudian theory. Repression is the main defense mechanism described by Freud and was frequently considered to be synonymous with the word defense (e.g., Madison, 1961, p. 17). Basically, Freud believed: "The essence of repression lies simply in the function of rejecting and keeping something out of consciousness," (Freud, 1915, p. 86). This "something" that is repressed is the "instinct-presentation" which are ideas (thoughts) and affectations associated with an instinct, whose presence in consciousness results in pain. The pain is a product of awareness and satisfaction of an instinct that is incompatible with learned perceptions of one's self, or in Freudian terminology (Freud, 1915, p. 84) the pain develops through the awareness of ego threatening ideas or memories. Thus a person confronted with an anxious situation (an ego threatening event) will tend not to remember that event.

Repression is not a loss of memory due to simply decay or interference, but rather a purposeful, selective "forgetting." Highly anxious material is taken from consciousness, and placed in an unconscious memory store (the unconscious). In this way the person is protected from experiencing pain. The material appears to be forgotten but, in theory, remains in the unconscious where it has limited access to conscious
memory. Later in this paper the unconscious will be further delineated in terms of Atkinson and Shiffrin's (1971) conception of it as a memory store without adequate retrieval cues (cues that aid in the recall of repressed memories).

Once in the unconscious, the repressed memory continuously exerts pressure towards conscious expression. According to Freud, it typically is successful in emerging in the form of neurotic symptoms, dreams, jokes, and slips of the tongue. Thus, in psychoanalysis, the major emphasis is on the retrieval of these repressed memories in an attempt to eliminate neurotic symptoms that are a direct manifestation of repressed memories. Only by bringing the memories into consciousness can the therapist help the client to eliminate the underlying cause of his inhibiting, and sometimes crippling, symptomology.

Even in the more contemporary psychotherapies, repression is a central concept. For example, the Gestalt therapist emphasizes the need to bring the client to his impasse, the blocking point of memory. The client has blocked from awareness painful memories and thus limits access to important information that is essential for making constructive decisions. This is a direct translation of the Freudian concept of repression. The process is repeatedly present in almost all forms of psychotherapy which emphasize "insight."

The purpose of this paper is to investigate this purported
ubiquitous process of repression. The intent is to: (1) clearly define the concept of repression, (2) present some of the major findings in repression research and some alternative hypotheses that have been suggested to account for these experimental findings, and (3) describe a study by the present author that was designed to control for alternative hypotheses while demonstrating and further elucidating the repression process via the use of retrieval cues.

Repression Defined

As described above, repression is a defense mechanism purported by Freud to account for the loss from consciousness (working memory) of ego threatening memories. The repression process protects an individual from experiencing severe anxiety, in contrast to just unpleasant feelings, (Rapaport, 1942, p. 42) by compartmentalizing highly threatening memories into the unconscious, a memory store where information is difficult to retrieve. This is an unconscious, automatic process in the sense that the repressor is unaware that any transfer of information is taking place (Dollard and Miller, 1950, p. 220).

Freud describes two types of repression, primal repression and repression proper (Brenner, 1957). Primal repression refers to the process of shunting information directly into the unconscious without the material ever being present in conscious memory. This type of defense is traditionally
characterized as a protective mechanism from early, traumatic, childhood experiences. For example, a child that is exposed to an unexplainable, hence threatening situation, like an aggressive sexual scene between his or her parents, immediately relegates the memory of this event to the unconscious where it remains protected from working memory. Research with this type of repression has been widely explored under the rubric of perceptual defense. Briefly the basic paradigm of the perceptual defense literature involves the tachistoscopic presentation, of brief duration, of low valued or taboo words and high valued or nonanxious words. The most common finding is that the threshold of perception is higher for words associated with anxious material. This result has been presented as evidence for primal repression. A review of the perceptual defense literature has been presented elsewhere (Eriksen and Pierce, 1968) and will not be described in detail here.

The second type of repression, repression power, refers to the process of transferring material, that was once in conscious memory, to the unconscious, due to its anxiety laden content. Madison (1961, p. 20) refers to this process as a manipulation of conscious memory. That is, a person exposed to an anxious situation will subsequently manipulate the memory of this situation in order to reduce or eliminate the anxiety involved.

Brenner (1957) presented three main characteristics of
repression proper: (1) it involves motivated selective forgetting, (2) it is under unconscious control, and (3) the repressed information is not lost but instead remains in the unconscious.

It is apparent that both types of repressions share the basic characteristics of defense from anxiety and involve placing anxiety-provoking memories into the unconscious. In fact, it is difficult to clearly distinguish repression proper from primal repression. The basis for distinction that is traditionally used is that repression proper involves taking information from conscious memory and placing it into the unconscious, while primal repression, theoretically, avoids consciousness entirely and anxious "memories" are directly placed into the unconscious. This distinction is dubious since even with primal repression, information must receive some degree of conscious processing in order for its threatening nature to be recognized. The information in both types of repression must be in consciousness for some period of time, (although it may be argued that it is a much shorter period of time for repression proper) and thus the distinction between the two types of repression was even recognized by Freud when he stated that repression proper was not possible unless childhood (primal) repression had occurred with similar material at an earlier period of life (Madison, 1961, p. 93). This implies, that not only does it share basic characteristics, repression proper involves even the same memories as the
ones that were placed in the unconscious during primal repression.

The experimental literature reviewed in the present paper will basically focus on the "repression proper literature", however, some mention will be made of relevant primal repression literature, given the above justification explicating the similarities between the two types of repression. Basically most of the contemporary research described followed a standard format. Typically, situations were devised to motivate people to selectively "forget" material that was associated with threat and retain information that was not. Recall tests were used to demonstrate lower retention of threat-associated material (material presented contiguous to threat). Some of the more thorough investigators (e.g., Flavell, 1955) also demonstrated the availability of the material once the threat value was removed. In a sense what is being measured by these experiments is the level of retention or the memory of the individual. In theory, the retention level is only being used as a reflection of the emotions involved in a given situation (Rapaport, 1942, p. 102). Another way of looking at this is to ask the question: In what way does an intense emotional state (e.g., an anxious state) affect a person's memory of a given event? The experiments described below are examples of attempts to answer this question.
Experimental Demonstrations of Repression

Historically there have been two major waves of research attempting to demonstrate the process of repression. Rapaport (1942) presents research that describes the earlier wave (early 1900s). He outlines the many association experiments of Jung (pages 45-51) in which reaction time (RT) was recorded to indicate how long it took participants in his experiments to think of a response or free associate to each word that was provided. Long RTs were used as indicators of what Jung labeled as complexes or repressed memories of painful events. Rapaport astutely points out (page 51) that while Jung's association experiments do provide some indirect evidence for the effects of emotions on memory, the results provide inconclusive support for repression theory since long RTs were not directly traced but rather assumed to involve "complexes".

The other research detailed by Rapaport proved to be equally nonconclusive. Much of the experimentation involved the differential recall of pleasant and unpleasant stimuli in an attempt to tie directly an emotional factor (unpleasantness) to material that could potentially be recalled. These experiments typically used very few participants, had insufficient controls, had poor connections to any theoretical base, and often did not control for learning of material. Rapaport concluded, after reviewing this literature, that at this point very little experimental evidence exists to validate the
presumed multitude of qualitative clinical indications of a Freudian repression mechanism.

The contemporary wave of repression research began in the early 1950s. Holmes (1974) reviewed extensively a large section of this more recent literature and concluded his review with the following cogent statement:

it appears that either new research must be conducted which support the concept of repression, or the concept of repression must be discarded and the variety of concepts related to or dependent upon the concept of repression will have to be reevaluated or reinterpreted. In view of the amount and consistency of the data accumulated to this point, and pending new data supporting the concept of repression, the continued use of repression as an explanation for behavior does not seem justifiable.

It is clear that Holmes, as with Rapaport after his review of the earlier literature, believes that there is a lack of experimental support for the concept of repression.

Although Holmes' conclusion will strike the typical clinician as somewhat extreme, it does point out the need for experimental support of the repression theory. It is possible that repression does not exist but a possible alternative to explain the lack of experimental evidence is that the literature to date has misrepresented in the laboratory what Freud had observed on his couch. That is, perhaps some important elements of the repression notion have been altered from its clinical form in the transposition to the rigorous experimental conditions of the laboratory. What follows is a somewhat
detailed review and analysis of some of the contemporary repression literature. The analysis includes comments as to how the author perceives repression theory has been misrepresented and suggests procedural changes which might be made to test more accurately a repression theory.

The prototype design for the recent experimental research on repression was presented by Zeller (1950). Zeller presented two experiments which he felt demonstrated the process of repression. In experiment I, participants were required to learn a list of nonsense syllables. Three days later each relearned the syllables to criterion and were then divided into two groups. Both groups were given a psychomotor task. The task was structured such that all the participants in the control group performed well and were given positive feedback. In contrast, the task for the experimental group was designed such that they were all forced to fail. The hypothesis was that the experimental group would find the task ego threatening and would repress the associated syllables. This was in fact what resulted in the subsequent test. The experimental group took significantly longer to reach criterion than did the control group. Zeller then had the participants retake the psychomotor task and this time structured the task such that all were successful. The participants were then retested for retention of the syllables and the results indicated that both groups performed equally well. Thus Zeller had demonstrated
both repression and the removal of repression with the lifting of the ego threatening situation.

In his second experiment, Zeller added two experimental groups to his basic paradigm to determine how specific were the effects of repression. The first additional group was told that it had failed only the motor task and had done well on the nonsense syllable test. The second group was told that it had done poorly on both tasks. Thus the three experimental groups represented situations with failure either explicitly associated with motor task (positive feedback on the nonsense syllable test) or failure explicitly assigned to both tasks, or failure on the motor task with no specific reference to the performance with the nonsense syllables. The results clearly demonstrated that a memory deficit resulted only when the threat was associated specifically with the memory task and did not result when the memory task was separated from the threat as with the group given positive feedback on syllable retention. Thus, Zeller concluded that he had not only experimentally demonstrated repression, but demonstrated further that repression was restricted to memory explicitly associated with a threatening situation.

Flavell (1955) presented evidence that gave further experimental support for the process of repression. Flavell had participants learn a list of nonsense syllables and then give word associations for each syllable. In the second session,
the syllables and the associations were read aloud. The experimental group was informed that a professor of psychology was to rate each association as "normal" or "abnormal." This manipulation was devised to associate the syllables with a threat to personal adjustment. It had the added benefit of associating only half the words with the threat and the other half with no threat at all. In this way specificity of the effects of ego threat could be tested. The control group had the syllables and the words read aloud to it but no ratings of normalcy were given.

The results generally supported the findings of Zeller. The participants with the threat associated with syllables performed significantly poorer on the subsequent recall test than did participants in the control group. An examination of the recall of the experimental group in terms of syllables with and without threat showed no differences in retention for the two types of words. Flavell, unlike Zeller, concluded that repression had a general effect of lower retention for all syllables and did not exclusively interfere with syllables directly associated with threat.

Flavell further demonstrated that the effects of repression could be eliminated by removing the threat. In the last phase of his experiment Flavell exposed the deception that the ratings of normal and abnormal for word associations were contrived. He then tested the participants for retention and
found no differences between retention level for the control and experimental groups. He concluded that repressed material could be recovered once the threat associated with the memory was dispelled.

At this point it appears that syllables associated with ego threat have a tendency not to be recalled. It also appears to be an unconscious inhibition of recall, for people apparently try, but are unable, to recall the words. The question remains as to what is the actual process involved with the inhibition of the memory. Can the process accurately be called repression? The answer to this question is complex. The experiments of Zeller and Flavell clearly approximate the process of repression in that threat-associated information was lost and subsequently recovered. What these studies fail to demonstrate is how this process works. How did the information that was "repressed" become available once the threat association was removed? This aspect will be further explored later in this paper.

Another related point is that perhaps an alternative process could provide a more parsimonious explanation for these repression-like findings. For example, one possibility is that the information associated with threat was simply interfered with, rather than repressed. That is, the threat may have distracted the participant's attention and consequently interfered with the learning or relearning of the nonsense syllables.
Thus, an alternate explanation of forgetting in the Zeller and Flavell studies is interference or response competition. This would imply that once the threat was removed as in Flavell's experiment, the competing response (thinking about the threat) was no longer potentially interfering.

Support for the interference explanation of the previous repression-like findings was presented by D'Zurilla (1965). D'Zurilla utilized a "test designed to detect homosexual tendencies" as an ego threat that was associated with a list of words that the experimental group had learned. The control group learned the same list but did not have the threat associated with it. This experiment as described so far is similar to previous repression studies; however, D'Zurilla added an interesting addition to his study. At the end of the experiment, a structured interview was given to determine what people were thinking about at different points in the experiment. The results of the memory part of the study were consistent with past studies: Participants who learned words that were later threat associated retained significantly fewer words than control group participants. However, contrary to a repression interpretation, the structured interview revealed that people, instead of avoiding the threatening situation, were actively thinking about the threat, and could remember the threat throughout the experiment. This implies that the threat was interfering with retention, not via the process of repression,
but due to competing response interference.

Holmes (1972) tested the interference hypothesis directly. Holmes had participants learn a list of high frequency nouns and tested their retention. He then administered a multiple choice Rorschach test with the choice items composed of the words from the previously learned list. Three groups were defined in terms of the type of personality feedback that was given following the Rorschach. One group received "ego-threatening" personality feedback by being informed that it was poorly adjusted. A second group was informed that it was highly creative and high on leadership qualities ("ego-enhancing" personality feedback), and a third group (control group) received neutral feedback. According to repression theory, the ego-threatening group should perform poorer on subsequent recall tests than either the control or ego-enhancing groups. This was not the prediction made by Holmes. Holmes reasoned that interference or response competition was responsible for previous repression-like findings and therefore the ego-threatening and ego-enhancing group should perform at an equal level, significantly poorer than the control group. The basic assumption here is that people given non-neutral feedback will be inclined to process feedback information rather than focus on the lists of words. The results conformed to Holmes' prediction. The participants in the threat and enhancement groups performed at the same level. Also, the recall for participants in the neutral group
increased from before feedback to after, while the other groups' recall remained at the same level. Holmes concluded that both the threat and enhancement feedback that was associated with the list of words lowered recall due to response competition and not as a result of repression.

The results of Holmes and D'Zurilla's studies raise considerable doubt as to whether past experimental evidence (e.g., Zeller, 1950; Flavell, 1955) are demonstrations of the process of repression. It does appear that interference effects could more parsimoniously account for the results. However, Holmes (1974) even suggests that the results of his experiment are not conclusively in favor of an interference explanation. It is true that both ego-threat and ego-enhancement groups performed equally and poorer than the control groups, but perhaps two different processes are involved. The ego-enhancement feedback clearly seems to have been a competing response to the list learning, but this does not necessarily indicate that the same process was causing poor performance in the ego-threat group. The repression hypothesis is a less likely explanation, yet remains a viable alternative.

There have been numerous other publications purporting to demonstrate the process of repression under a wide variety of experimental situations (e.g., Penn, 1964; Aborn, 1953; and Truax, 1957). One study by Milliken and Kirchner (1971)
instructed counseling graduate students to identify with a counselor in a videotape simulation of a counselor-client interchange. The client in the videotape role played four different affective states and the identifying counselor was required to recall from each of the four interviews. The results of an objective test showed impairment of recall for interviews associated with "anger" and "minimal effect". That is, the greater the anxiety of the counselors, the poorer was their performance on the recall test.

The authors interpreted these findings in terms of perceptual defense theory. Anxious material was seen as having a higher perceptual threshold than pleasant and neutral material. This implies that primal repression had occurred to avoid the ego-threatening material. An alternative explanation is equally plausible. The participants might have repressed the material after it had already entered consciousness (repression proper) and thus avoided maintaining thinking about the anxious material. A third possibility is an interference explanation as posited by Holmes for the results of his study. The participants may have been attending to their anxious feelings and as a result were unable to process and retain the content of the interview. If this was the case, it is confusing as to why the pleasant affective state interview wasn't equally interfering. Perhaps pleasant states are not as strong a competing response as anxious states.
The results remain unclear.

Future research must provide an experimental situation that demonstrates lower recall of threatening information without permitting an interference theory interpretation of the results. The best example of this type of research at present is the Milliken and Kirchner study described above. Unlike most repression studies, the threatening material in this study was also the material to be recalled. Typically, the threat and the material to be recalled are two distinct sets of words, allowing an interference interpretation to be a more viable explanation of lower recall. For example, in the Zeller (1950) experiment, nonsense syllables were associated with an ego-threatening motor task. The material to be repressed and the threatening event were two different events. This led Holmes (1974) to interpret the lower recall of threat-associated syllables as being due to the interference of attending to the memory of the threatening task.

Even in the Holmes (1972) study where the threat and "repressed words" were closely linked (the repressed words were the response words in the threatening Rorschach test), it can be argued that the words were not threatening in themselves and were therefore separate from the threat itself. Only in designs like the Milliken and Kirchner study is it possible to nullify an interference interpretation of the forgetting of threatening material. The forgotten words
were the threat and a repression process is a more likely interpretation of their results. An interference explanation is not probable because the threat itself was repressed and thus could not be indicated as a competing response.

One last point about future research was suggested earlier in that one of the major deficiencies of the studies supporting the concept of repression is the lack of evidence that the "repressed" memories were in fact still in memory (in the unconscious). Zeller and Milliken and Kirchner, all demonstrated that threat-associated words were clearly not recalled as well as words associated with neutral or positive events. This supports the selective forgetting characteristic of repression. However, what these authors failed to demonstrate was that these memory traces were repressed into the unconscious rather than simply forgotten. In order to prove that repression is in operation, it is necessary to demonstrate that the memory traces exist but are simply difficult to retrieve. Flavell did meet this requirement in his experiment by demonstrating the return of information that had been lost. Unfortunately, as described above, an alternate explanation was found to be more parsimonious than one provided by repression theory. What remains unexplored, is how a repression process would work under circumstances where a competing response analysis was not a viable interpretation.
Atkinson and Shiffrin (1971) describe a two-store memory model that explicates the process of retrieval of repressed memory traces. They note that "the Freudian concept of repressed memories can be considered as being an inability of the person to generate an appropriate probe". A probe, as defined by these authors, is a subset of information that is activated from long-term memory (permanent storage) and placed in short-term memory (consciousness or working memory) to be scanned for the desired image. A decision is made after scanning as to whether the desired image has been located. Repression, in this framework, is an active process that inhibits the use of an appropriate probe or retrieval cue with which to locate a memory trace.

The probe theory placed in context with the repression literature indicates that retrieval cues may be used to demonstrate that repressed information is still present in memory. Retrieval cues may take the form of features of the repressed memories that could potentially comprise the memory probe. Examples of the type of features that might be used are: one of the repressed words themselves, or a visual aid depicting a scene from the repressed event. Theoretically the presentation of the repressed word, or visual aid, should help to restore the memory of the words that constitute the threat. This would serve to demonstrate that the repressed words were, in fact, in memory (in the unconscious) but were
not retrievable without cueing.

In conclusion of this review of the repression literature, there exists little clear evidence for the Freudian concept of repression. Most of the studies that have purported to support repression theory have been shown to have a more parsimonious competing response interpretation. Other studies fail to meet some of the major requirements of repression theory like demonstrating the return of information after it has been shown to be lost from memory. The next section describes an experiment that attempts to eliminate the above difficulties. The experiment was designed to create a situation in which competing response was not a viable explanation for the loss of memory. It also was designed to demonstrate the return of information that had been lost from conscious memory.

An Experimental Demonstration of Freudian Repression

The present study was designed to determine whether repression can be experimentally demonstrated in the laboratory. Specifically, can a simulated homosexual or heterosexual encounter elicit a strong enough anxiety reaction to induce the use of repression as a defense? A sexual threat was chosen specifically for this study since sex, according to Freud (Freud, 1901, p. 243), is the only ego threat, threat to self-esteem (Madison, 1961, p. 121), that motivates the
use of repression as a defense.

Two basic methodological innovations were devised in an attempt to avoid the inconclusive results of past repression research. For one, the present design had as synonymous the threat used to invoke anxiety, and the actual target material, whose recollection (or lack or recollection) would be used as a measure of repression. This innovation was utilized to avoid an interference interpretation (e.g., D'Zurilla, 1965 and Holmes, 1974) of repression-like results. Lower recall of threat related words would mean that the threat itself was repressed and preclude the competing response explanation that participants were thinking of the threatening material and could not recall target words.

The second innovation in methodology involves the use of retrieval cues, as suggested by Atkinson and Shiffrin (1971), to demonstrate that losses in recall of threat-associated words (in this case the threat itself) are due to the lack of accessibility of repressed information, as opposed to simple forgetting (decay or interference). Most of the studies (e.g., Zeller, 1950; Truax, 1957) that have purported to demonstrate repression used a relearning procedure to indicate that memories, once lost, could be restored when the initial threat was removed. Repression in this approach was measured by an increase in recall after subsequent presentations with the threat eliminated. This kind of
methodology does not address itself directly to the repression process. Freud (1915, p. 86) states explicitly that ego-threatening information is blocked or removed from consciousness and stored in the unconscious. It is therefore necessary to directly demonstrate the availability of these memories in the memory store as well as demonstrating the loss and gain in recall with the presence and absence of threat. The present design's use of retrieval cues addressed this issue.

Male and female participants were asked to identify with the role of a counselor while observing a videotape of a counseling session with either a male or female counselee. Three levels of threat were the main independent variables and were determined by whether the observed videotape portrayed a direct sexual advance (high threat condition), an indirect sexual advance (medium threat condition) or a situation where there was no sexual advance (low threat condition).

Repression was measured by performance on an open-ended memory test following the videotape presentation. Participants in the high threat condition were expected to use repression as a defense, and have a lower level of performance than participants in either the low or medium threat conditions. A silent presentation of the videotapes was later used to aid in the retrieval of repressed memories. The silent movements of the counselees on the videotapes were expected
to act as retrieval cues and enhance the performance of participants in the high threat condition who previously had done poorly on the open-ended memory test.

Since male and female participants viewed both male and female videotapes it was also possible to address an issue pertaining to sex differences in the use of repression. Males viewing male videotapes and females viewing female tapes were considered to be the more anxiety inducing, homosexual conditions. Males viewing female tapes and females viewing the male tapes were considered to be the less anxiety inducing, heterosexual conditions. The justification for this is based on the assumption that homosexual sexual advances are less socially acceptable and hence more threatening to the participants. In respect to the present topic of repression, participants in the homosexual conditions were expected to repress more of the memory of the videotapes than the participants in the heterosexual conditions. The implicit assumption here is that the larger the anxiety reaction, the greater the likelihood that a repression defense mechanism would be implemented.

Any specific prediction, related to whether males or females repress more under either heterosexual or homosexual conditions, was more difficult to make. Past research has directed little attention to this issue. In fact, all of the repression literature cited above avoided the issue by
either using participants of the same sex (e.g., Milliken and Kirchner, 1971, and D'Zurilla, 1965) or participants were randomly assigned to experimental and control groups without regard to sex (e.g., Flavell, 1955, and Zeller, 1950).

Other investigators, not cited above, were interested in individual differences in repression other than those based on sex. For example, Truax (1957) screened persons by a unique formula based on the HY and Pt scales on the Minnesota Multiphasic Personality Inventory to form two experimental groups, ones that were high on expectancy to repress and ones low on repression expectancy. Eriksen (1952) divided participants into groups based on individual differences in response to neutral and anxiety-provoking words. Also, Witkin et al. (1962) presents empirical and theoretical evidence that field dependent persons, as measured by his two tests, the embedded figures and the rod and frame tests, tend to use repression more than field independent persons.

Only the field dependent-independent approach lends itself in any way to the question of sex differences and even this approach is inconclusive. Maccoby and Jacklin (1974, p. 94) after reviewing the literature on field dependence found a substantial number of studies with no sex differences at all but in those studies where differences did occur, females were more field dependent, lending some credence to a hypothesis that females may be expected to repress more than
males. However, they further add that the sex differences don't typically emerge until adolescence and even then are limited to visual-spatial tasks, essentially negating any general expectancy that females would repress more than males.

The main intent of the present study is to provide experimental evidence for the process of repression, and not to determine whether males or females use repression more under heterosexual or homosexual situations. However, part of the process of demonstrating repression is to show the relationship between anxiety and the use of repression. The relationship, as stated by Dollard and Miller (1950, p. 202), is that the greater the anxiety, the more the likelihood a repressive defense will be implemented. The question of sex differences arises when determining the type of sexual situation where males would be more anxious, or females more anxious, and therefore be more apt to use repression as a defense from this anxiety.

The present study was not designed to specifically test different sexual situations for repressive responses. For example, only one male and one female stimulus person was used for each threatening situation, which does not allow for enough of a sample to induce definite statements about the response of males and females in general to different sexual situations. Rather, an attempt was made to provide many
situations of sexual threat to produce the greatest probability that repression would be demonstrated. It was possible, however, to make some speculative predictions, within the restrictions of the design, as to which sexual situation would produce the most anxiety and as a result provide a more probable structure for a repressive response.

Sears (1965) provides some basis for the prediction that sex anxiety (anxiety reactions to sexual situations) is essentially homosexual for males and heterosexual for females. With respect to the present design, this implies that males would tend to repress more in a homosexual stress situation and females would be more apt to repress in a heterosexual situation. Sears' conclusion is based on a study in which he correlated sex anxiety of male and female parents with the amount of caretaking behavior for male and female offspring. The sex anxiety for each participant was measured by two independent raters who listened to lengthy taped interviews with the parents, and the caretaking behavior was indexed by the average amount of time given to the physical care of each offspring. The results showed zero correlation between both the fathers' and mothers' sex anxiety and amount of caretaking of the daughters, but a significant negative correlation resulted for both the fathers and mothers of sons between parents' sex anxiety and the amount of caretaking. Sears interprets these findings to mean that both male and
female adults are more anxious around a boy's penis, since it is a more blatant sexual object than a girl's genitals.

Maccoby and Jacklin (1974, p. 339) describe the logical consequences of the findings of Sears. They suggest that the father reacts more strongly to early signs of homosexuality in the son than in the daughter since the father's own homosexual feelings are aroused by the son. They also suggest that the mother reacts more strongly to the son, too, simply because homosexuality is more common in males. The extension of both the father's and mother's anxiety is that the male child develops an implicit homosexual anxiety that potentially strongly exists in his adult life. The female child, on the other hand, is protected from this process, at least to a larger extent than is the male child, and is potentially less anxious about homosexuality as an adult.

Neither Sears nor Maccoby and Jacklin attempt to explain Sears' second conclusion that sex anxiety would be essentially heterosexual in females, but the conditioning process responsible for this conclusion seems apparent. Females are trained by their parents from an early age, especially at pubescence, not to trust and to fear males. They are typically punished for spending any time alone with a male and warned of the evil intent of all males, i.e., to seduce a female. Males, in contrast to this type of training, are encouraged to be sexually aggressive (Kagan, 1962, p. 66) and as a result are
probably less fearful of a heterosexual threat. The parents perhaps perceive a larger responsibility to protect the female child and condition her to fear males and the consequences of intimacy with a male.

In summary, different threatening sexual situations were devised to produce the greatest probability that repression would be used by participants to defend from the anxiety elicited by the threats. It was predicted that sexual threat situations, and especially the more direct threats, would produce the most anxiety and the most repressive response as a consequence. It was also predicted that the homosexual conditions, where participants viewed a stimulus person of the same sex, would probably be more threatening, and be more likely to involve the use of repression. Also, it was predicted that the homosexual situation would be more threatening to males than to females and as a result be a more likely situation for repression to be demonstrated.

The actual demonstration of the repression process is the main focus of the experiment and is expected to be demonstrated in two ways. First, recall is expected to be lower for those situations that has the most sexual threat for the participant. This means that participants are repressing more information with the presence of more threat. Secondly, when retrieval cues are provided, in the form of silent presentations of the videotapes, word recall is expected to
greatly increase for those conditions where information has been repressed.
CHAPTER II. METHOD

Subjects

There were 120 volunteers, 60 males and 60 females, who participated in the present experiment. All were students at Iowa State University enrolled in undergraduate courses in psychology, and each received an extra point towards their final grade for their participation.

Videotapes

An actor and an actress were each employed to act out a role of a client in a counseling setting during three separate interviews with a counselor. Each actor was given three scripts, written by the author, to memorize and then portray while being videotaped for a later presentation. The viewers (volunteer participants) of these tapes were later asked to assume the role of the counselor while watching the tapes on a television monitor. The scripts (see Appendix) included the lines that were spoken as well as instructions as to how threatening or intense the actors were to be. The three scripts represented three levels of threat (high, medium and low threat) for the persons viewing the videotape, and the actor/actress portrayed all three threat levels on three separate videotapes (six all together).

All effort was made to maintain consistency across the six videotapes, allowing only the words and intensity of
threat to vary. The format of each tape followed a standard pattern. The tape began with fifteen seconds of silent close-up of the actor's face, and then five seconds of fading back to a camera angle extending from the actor's (actress') knees to the head. Approximately two and one-half minutes of script and nonverbals followed, ending with fifteen seconds of fading into a full-faced, silent close-up. Each tape was approximately three minutes long.

Scripts

The scripts were designed to have a maximum number of standard features. Each script had twelve lines, with each line consisting of an average of six words with two accompanying cues for performing gestures (nonverbals, e.g., "hand to face"). There were twelve nonverbals in total, and each appeared twice per script. The nonverbals were randomly assigned to a line and were in the same pattern for all three scripts.

The theme of each script was a client's expression as to his/her feelings during a counseling session. The actor (actress) expressed these feelings towards a person off camera, presumably the person viewing the tape. The feelings expressed were in the form of: an explicit sexual "come-on" in the high threat condition, an indirect or implied sexual "come-on" in the medium threat condition, and a nonsexual or sexually neutral expression in the low threat condition. Males viewing
the male videotapes, and females viewing the female videotapes represented homosexual threat conditions and males viewing female, and females viewing male videotapes represented heterosexual threat conditions.

To accentuate the threat in the high threat conditions, the scripts were presented with elevated intensity (raised voice) and were aimed more directly toward the viewer. In all presentations the viewer-participant was left alone in a room to view the client on a television monitor and thus the threat feelings were accentuated (e.g., Schachter, 1959). Six experienced counselors rated the tapes as to their level of threat to validate the labels of high, medium and low threat.

In all the sessions described above, the "conversations" were one-sided in the sense that only the client could be seen on the television monitor and the client was also exclusively the one that could be heard. The impression that the counselor was present was maintained by the client's directing all his/her comments toward the camera. The room in which the participants viewed the tapes was in fact a counseling room in a counseling service with a one-way mirror. (The experimenter observed the viewer-counselor through this mirror.) A videotape player was used to play the tape and was present in the room along with the television monitor.
Conditions

Client #1 represents the low-threat condition. The client is receptive to information and pensive. He/she presents the impression of a person thinking out loud. The lines are directed more toward the person him/herself than toward the viewer. The client contemplates and explores how he/she is feeling.

The lines and gestures in the low-threat condition were designed to be nonthreatening to the viewer-counselor. Freud defined a threat (Freud, 1915, p. 84) as occurring when a person's ideal self is overpowered by an alternate conception of self. Client #1 is neither demanding or overpowering. The viewer's ideal conception of him/herself is theoretically protected from any repudiation, and, by definition, is presented with a nonthreatening situation.

Client #2 represents the medium threat condition. The client presents the appearance of a highly tense individual who is afraid of his/her feelings and is having difficulties expressing them. The undertones of the verbalizations are sexual, yet are not expressed directly. For example, the statements: "I need something from you" and "I want something so badly," reflect a desire for the viewer yet does not explicitly state a sexual desire. The sexual intent is implied and is threatening only to the extent that the viewer attends to the sexual implications.
Client #3 represents the high threat condition. The threat is presented directly at the viewer in a highly assaultive, desperate manner. The intentions of this client are obvious. The person is craving and demanding sexual contact with the viewer. For example, he/she states: "I want to touch you," "I need to hold you," and "I want you so badly."

The viewer is treated as an object of the client's sexual cravings and by definition (Freud, 1915, p. 84) is expected to feel highly threatened. In theory, the threat develops from a repudiation of the viewer's ideal conception of self as a sexual being. This ideal conception is left bare and unprotected by the assaultive manner of client #3.

Groups

The participants were divided into experimental groups of males and females. Half of each group watched a female client tape and the other half of each group watched a male client tape. The groups were further divided in terms of whether they saw a high, medium, or low threat tape. Equal numbers of male and females were represented in each condition.

Procedure

The basic procedure was identical for all participants. Each person was invited into the counseling room and was
immediately given a justification for his/her participation in the present experiment. The justification was fabricated to diminish the possibility that people would be thinking about the purpose of the experiment rather than focusing their full attention on the videotape. The following information was presented as an introduction:

"This is a counseling experiment in which you will be asked to assume the role of a counselor listening to a client describe a personal problem. I want to instruct you briefly on what to look for in a counseling situation. This instruction, on how to be a counselor, will be given to all participants in this experiment. The purpose of this study is to see how much this brief education aids a person who is training to be a counselor. If there are no questions, I would like to now read the educational material."

The educational material was designed to help each participant to be better trained to anticipate what they could possibly recall from a counseling simulation. It was also written in such a manner to encourage the participant's awareness of his/her own feelings during "counseling." In this way it was anticipated that each person would more fully experience any feelings of anxiety associated with the threat-laden videotapes. The following was presented as educational material in oral form:

"Most people believe that counseling is an advice-giving process. This is erroneous. In fact, most counselors give little to no advice during a counseling session. Most counseling involves listening to and observing client behavior. In order to get the full meaning as to what the client is saying, the counselor must attend to three kinds of client behavior. Obviously the counselor will listen to
the words the client is saying but a second thing the counselor attends to is the way in which the words are stated. That is, what does the voice sound like or what is the feeling behind the voice? The last thing a counselor can look at is the nonverbal behavior or the gestures made by the client. For example, how is the person sitting in the chair or what is he/she doing with his/her hands and legs? A good counselor observes all these kinds of behaviors of the client.

Most importantly however, a counselor must also attend to his/her own behavior. That is, what do you feel like while listening to the client. By being aware of his or her feelings, the counselor is better able to understand the counseling process and thus be more helpful to the client.

In summary, the counselor attends to three kinds of client behavior: words, the sound of the voice, as well as the gestures of the client. And lastly, the counselor must be aware of his or her own feelings and reactions to the client. In this way an overall picture can be formulated and counseling will be most effective. Do you have any questions?

The participants were then given the following instructions:

"I want you to pretend for a moment that you have just completed a training program to become a counselor. You are now a counselor here at this counseling service. This is your office and you are about to see a student concerning a personal problem that he/she is having. In just a few moments you will be left alone to watch, on the television monitor in front of you, a videotape recording of a counseling session. You will only see the client because I want you to imagine that you are the counselor. All you have to do is listen and watch, the client will do all the talking."

"It is very important that you imagine that you actually are the counselor because following the tape presentation, you will be given questions to answer about your client as if you actually had participated in the counseling session."
At this point, the experimenter turned on the videotape machine and left the room to observe through the one-way mirror in the adjacent room. When the counseling simulation was completed (see Appendix for scripts), the experimenter returned to the counseling office, shut off the videotape equipment and administered what was referred to as a "feeling inventory." The feeling inventory was actually Zuckerman's (1960) affect adjective check list for the measurement of anxiety (see Appendix). This measure was used to determine to what extent participants had an anxiety reaction to each videotape. The participants were then given a free recall test of retention. The test consisted of one sheet of paper with instructions at the top (see Appendix). The test was open-ended to avoid providing retrieval cues for any potentially repressed information. The following were the written instructions for the free recall test:

Recall as many as you can of the twelve sentences you just heard. Try to write the sentences as closely as possible to the original words. Be sure to write the sentence even if you are not sure of the wording. The order of the sentences is not important.

"An ample amount of time was provided (five minutes) to complete the test and to think about the counseling session. This ample time period was designed to let the participants focus on any threatening memories and, according to Madison's (1961) conception of the repression process, manipulate from conscious memory any components of the memory that were
severely ego threatening. Thus, this initial measure was used to reflect memory loss of threatening information.

Following the initial free recall test, the participant was given a second test of retention. This measure was an objective test designed to cue material in memory that was previously not recalled. The test consisted of watching the videotapes again but this time without the sound. The non-verbal actions of the actors were the memory cues provided as potential aids in the retrieval of any repressed information. The following were the written instructions provided for the objective test:

Please watch the videotape again. This time there will be no sound. Each time the client appears to be saying a sentence write the sentence down you think he/she has said. Do not worry about recalling the sentences out of order.

Following this final test, the participants were given a briefing as to the actual purpose of this experiment.

Scoring

Two raters (both naive to the experimental manipulations) were used to independently score the results of both the free and cued recall tests. Whether a sentence was recalled accurately was a subjective decision of the rater. An average of the raters' scores was used as the final score. The anxiety measure was objectively scored according to the instructions described by Zuckerman (1960).
CHAPTER III. RESULTS

Scoring

Consistency between raters appeared to be high. Differences between the two raters' scores were never greater than two sentences for any given score. Specifically for free recall, 90% of the two raters' scores were within one sentence correctly recalled (38% were rated exactly the same and 52% had a difference of one sentence). For cued recall, again, 90% of the two raters' scores were within one sentence apart in ratings (49% were rated exactly the same and 41% had a difference of one sentence). Scores ranged from 2 to 9 for free recall and from 3 to 11 for cued recall.

Analysis

Analysis of variance was used as the main statistical test (Kirk, 1968, p. 39). One of the main assumptions of analysis of variance (ANOVA) is that variances of compared distributions are homogeneous. To help insure the homogeneity of variance, a square root transformation was performed for each experimental hypothesis using both the raw data and the square root data. The results for each test were identical for both types of data and only the raw data figures are reported below.

Tukey's Honestly Significantly Different Test (HSD) was used when a multiple comparison of means was needed. Tukey's
HSD is a more conservative test than conducting a series of t-statistics (Kirk, 1968, p. 89).

Anxiety Measure

Zuckerman's Anxiety Inventory (Zuckerman, 1960) was used as an index of the participant's emotional reaction to the stimulus videotapes. Anxiety measure scores ranged from 2 to 18. Scores increased (higher anxiety) with increased videotape threat, $F(2, 108) = 6.81, p < .002$. The increase in anxiety scores occurred between the low threat condition and the other two (medium and high) threat conditions (Table 1).

Table 1. Multiple comparison of mean scores on Zuckerman's anxiety measure for High ($T_1$), medium ($T_2$) and low threat ($T_3$) conditions, using Tukey's Honestly Significantly Different (HSD) Test.

<table>
<thead>
<tr>
<th></th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_1$</td>
<td>7.6</td>
<td>-</td>
<td>2.1*</td>
</tr>
<tr>
<td>$T_2$</td>
<td>9.7</td>
<td>-</td>
<td>.20</td>
</tr>
<tr>
<td>$T_3$</td>
<td>9.5</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* $p < .01$, HSD = $q_{.01, 108} = .44$

No other differences occurred between anxiety score means (Table 2). Of particular notice was the lack of difference between anxiety score means for the homosexual and heterosexual conditions.
Table 2. Anova table for Zuckerman anxiety measure.

<table>
<thead>
<tr>
<th>Source</th>
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<th>ms</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
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<td>Sex of participant</td>
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<td>.83</td>
<td>.83</td>
<td>.1</td>
<td>.7447</td>
</tr>
<tr>
<td>Homo-Heterosexual Condition (H)</td>
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<td>.13</td>
<td>.13</td>
<td>.02</td>
<td>.892</td>
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<tr>
<td>Threat</td>
<td>2</td>
<td>107.47</td>
<td>53.73</td>
<td>6.8</td>
<td>.002</td>
</tr>
<tr>
<td>Sex x H</td>
<td>1</td>
<td>.3</td>
<td>.3</td>
<td>.04</td>
<td>.84</td>
</tr>
<tr>
<td>Sex x Threat</td>
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<td>3.46</td>
<td>1.73</td>
<td>.22</td>
<td>.8055</td>
</tr>
<tr>
<td>H x Threat</td>
<td>2</td>
<td>11.26</td>
<td>5.63</td>
<td>.71</td>
<td>.5031</td>
</tr>
<tr>
<td>Sex x H x Threat</td>
<td>2</td>
<td>6.2</td>
<td>3.1</td>
<td>.39</td>
<td>.681</td>
</tr>
<tr>
<td>Error</td>
<td>108</td>
<td>851.8</td>
<td>7.89</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recall Tests

Free recall was used as a measure of initial reaction and cued recall was used as an index of the presence of non-accessible (repressed) material. Free recall was predicted to be higher for lower threat conditions and cued recall was predicted to result in equal recall for all conditions. The results for both free and cued recall are shown in Figure 1.

Free recall was essentially equal for low, medium and high threat conditions (Table 3) while for cued recall, recall of sentences increased as the threat level increased $F(2, 108) = 8.23, p < .0008$ (Table 4).
Figure 1. Mean Sentence recall scores.
Table 3. Anova table for free recall scores.

<table>
<thead>
<tr>
<th>Source</th>
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<th>ss</th>
<th>ms</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1</td>
<td>.67</td>
<td>.67</td>
<td>.31</td>
<td>.58</td>
</tr>
<tr>
<td>Homo-Heterosexual Condition (H)</td>
<td>1</td>
<td>.07</td>
<td>.07</td>
<td>.03</td>
<td>.85</td>
</tr>
<tr>
<td>Threat</td>
<td>2</td>
<td>7.11</td>
<td>3.56</td>
<td>1.66</td>
<td>.19</td>
</tr>
<tr>
<td>Sex x H</td>
<td>1</td>
<td>4.41</td>
<td>4.41</td>
<td>2.06</td>
<td>.15</td>
</tr>
<tr>
<td>Sex x Threat</td>
<td>2</td>
<td>.45</td>
<td>.22</td>
<td>.10</td>
<td>.9</td>
</tr>
<tr>
<td>H x Threat</td>
<td>2</td>
<td>6.65</td>
<td>3.32</td>
<td>1.55</td>
<td>.21</td>
</tr>
<tr>
<td>Sex x H x Threat</td>
<td>2</td>
<td>4.32</td>
<td>2.16</td>
<td>1.01</td>
<td>.37</td>
</tr>
<tr>
<td>Error</td>
<td>108</td>
<td>231.3</td>
<td>2.14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Anova table for cued recall scores.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of participant</td>
<td>1</td>
<td>4.8</td>
<td>4.8</td>
<td>1.81</td>
<td>.18</td>
</tr>
<tr>
<td>Homo-Heterosexual Condition (H)</td>
<td>1</td>
<td>4.8</td>
<td>4.8</td>
<td>1.81</td>
<td>.18</td>
</tr>
<tr>
<td>Threat</td>
<td>2</td>
<td>43.72</td>
<td>21.86</td>
<td>8.23</td>
<td>.0009</td>
</tr>
<tr>
<td>Sex x H</td>
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<td>14.7</td>
<td>14.7</td>
<td>5.53</td>
<td>.0193</td>
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<tr>
<td>Sex x Threat</td>
<td>2</td>
<td>.95</td>
<td>.47</td>
<td>.17</td>
<td>.837</td>
</tr>
<tr>
<td>H x Threat</td>
<td>2</td>
<td>1.85</td>
<td>.93</td>
<td>.35</td>
<td>.712</td>
</tr>
<tr>
<td>Sex x H x Threat</td>
<td>2</td>
<td>8.15</td>
<td>4.07</td>
<td>1.53</td>
<td>.2188</td>
</tr>
<tr>
<td>Error</td>
<td>108</td>
<td>287.0</td>
<td>2.55</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The increase in cued recall with increased level of threat, was the only significant recall test result for both cued and free recall. Even cued and free recall in each homosexual condition were equal respectively to cued and free
recall in each heterosexual condition. In other words, neither the type of threat nor the sex of the participant affected the retention of material in both free and cued recall.

A separate analysis using only high threat condition scores was predicted to accentuate the effect of each threat on recall. Specifically, free recall was predicted to be lower for the more sexually threatening material and enhance the cued recall of that material. This did not result. The results for high threat scores were similar to combined high, medium and low threat results (Tables 5 and 6).

Table 5. Anova table for free recall in the high threat condition.

<table>
<thead>
<tr>
<th>Source</th>
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<th>ms</th>
<th>f</th>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1.0</td>
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<tr>
<td>Homo-Heterosexual Condition (H)</td>
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<td>4.9</td>
<td>4.9</td>
<td>2.48</td>
<td>.12</td>
</tr>
<tr>
<td>Sex x H</td>
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<td>3.6</td>
<td>3.6</td>
<td>1.82</td>
<td>.1821</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>71</td>
<td>1.97</td>
<td></td>
<td></td>
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</table>

Table 6. Anova table for cued recall in high threat condition.

<table>
<thead>
<tr>
<th>Source</th>
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<th>ms</th>
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<th>p</th>
</tr>
</thead>
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<td>.63</td>
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<td>Homo-Heterosexual Condition (H)</td>
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<td>.02</td>
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<td>Sex x H</td>
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<td>15.62</td>
<td>15.62</td>
<td>5.17</td>
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<tr>
<td>Error</td>
<td>36</td>
<td>108.7</td>
<td>3.02</td>
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</tbody>
</table>
Difference Scores

A main index of repression in the present study was the use of retrieval cues to demonstrate the presence of non-accessible, repressed, material in memory. The cued recall measure was used as retrieval cues. The difference between free and cued recall was an index of the effectiveness of the cues in the retrieval of threatening material. The greater the difference (cued minus free recall), the greater the indication of the presence of repressed material.

Free and cued recall scores were graphed to visually check the ranges of the two distributions of scores. The distributions appeared homogenous and permitted an analysis of difference scores. The difference scores increased with increased threat level, $F(2, 108) = 10.93, p < .0002$, and are shown in Figure 2.

Sentence recall was higher with cued than with free recall. Specifically, there was no significant difference between cued and free recall in the low threat condition. Medium and high threat difference score means (cued minus free recall) were equal and both were greater than the low threat difference score mean (Figure 2 and Table 7).
Figure 2. Mean sentence recall difference scores (cued minus free recall)
Table 7. Multiple comparison of mean difference scores (cued minus free recall) for high ($T_3$), medium, ($T_2$) and low ($T_1$) threat conditions using Tukey's Honestly Significant Difference (HSD) test.

<table>
<thead>
<tr>
<th>Threat Level</th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$T_1$</td>
<td>-1.15</td>
<td>0</td>
<td>1.40*</td>
</tr>
<tr>
<td>$T_2$</td>
<td>1.25</td>
<td>-</td>
<td>0.23</td>
</tr>
<tr>
<td>$T_3$</td>
<td>1.48</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

$^a_T$ = Threat level ($T_1$ = low)

*p < .01, HSD = q_{.01,108} = .27

Difference scores did result in a significant interaction between the type of sexual condition (homosexual or heterosexual) and the sex of the participant, $F(1,108) = 12.41$, $p<.001$. This result is illustrated in Figure 3.

As predicted, no other significant effects resulted with both the analysis of difference scores in general (Table 8), and with difference scores specific to the high threat videotape condition (Table 9).
Table 8. Anova table for difference scores (cued minus free recall)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of participant</td>
<td>1</td>
<td>1.87</td>
<td>1.87</td>
<td>.66</td>
<td>.5766</td>
</tr>
<tr>
<td>Homo-Heterosexual Condition (H)</td>
<td>1</td>
<td>3.67</td>
<td>3.67</td>
<td>1.29</td>
<td>.2563</td>
</tr>
<tr>
<td>Threat</td>
<td>2</td>
<td>62.01</td>
<td>31.01</td>
<td>10.93</td>
<td>.0002</td>
</tr>
<tr>
<td>Sex x H</td>
<td>1</td>
<td>35.21</td>
<td>35.21</td>
<td>12.41</td>
<td>.001</td>
</tr>
<tr>
<td>Sex x Threat</td>
<td>2</td>
<td>1.25</td>
<td>.62</td>
<td>.22</td>
<td>.805</td>
</tr>
<tr>
<td>H x Threat</td>
<td>2</td>
<td>15.45</td>
<td>7.72</td>
<td>2.72</td>
<td>.0683</td>
</tr>
<tr>
<td>Sex x H x Threat</td>
<td>2</td>
<td>8.82</td>
<td>4.41</td>
<td>1.55</td>
<td>.2144</td>
</tr>
<tr>
<td>Error</td>
<td>108</td>
<td>306.3</td>
<td>2.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 9. Anova table for difference scores (cued minus free recall) in high threat condition

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>ss</th>
<th>ms</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of participant</td>
<td>1</td>
<td>.62</td>
<td>.62</td>
<td>.26</td>
<td>.6158</td>
</tr>
<tr>
<td>Homo-Heterosexual Condition (H)</td>
<td>1</td>
<td>4.22</td>
<td>4.22</td>
<td>1.79</td>
<td>.1862</td>
</tr>
<tr>
<td>Sex x H</td>
<td>1</td>
<td>34.22</td>
<td>34.22</td>
<td>14.51</td>
<td>.0008</td>
</tr>
<tr>
<td>Error</td>
<td>36</td>
<td>84.9</td>
<td>2.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 3. Combined high, medium and low mean sentence recall difference scores (cued minus free recall)
The question arises whether further analysis of difference scores should be considered. For example, so far threat has been demonstrated to have a significant interaction with difference scores (Figure 2) and anxiety has been demonstrated to be related to threat (Table 2). What remains unclear is the specific relationship between anxiety level and difference scores. In theoretical terms: What is the effect of anxiety on memory? Two ANOVAs were performed to examine this question.

For both analyses the relationship between anxiety and difference scores was analyzed within each threat level. The purpose of this statistical manipulation was to keep the experimental variable of threat constant in order to focus on the isolated effects of anxiety. In the first analysis anxiety scores were trichotomized. That is, scores were divided into thirds of a normal distribution of anxiety scores. This was done to compare different anxiety levels with the difference scores. In the second analysis, anxiety scores were left as a continuous variable. In both analyses the results were negative. The main effect for anxiety and the correlation between anxiety and difference scores were found to be non-significant.
CHAPTER IV. DISCUSSION

Overview

The present study attempted to provide experimental evidence for the Freudian-defined process of repression. The results provided only partial support of the theory. Freud (1915, p. 86) defined repression as a defense mechanism used to protect a person from experiencing painful memories. In order to demonstrate repression, the presence of anxiety should impair the recall of threat-associated material. Also, the material must be shown to be present in memory and not simply a product of memory loss due to response competition (Holmes, 1972).

The results for the recall measures in the present study provided only partially supportive evidence. Contrary to repression theory, participants did not demonstrate lower recall with the presence of anxiety. Consistent with repression theory, retrieval cues did increase the recall of anxiety-associated material. In other words, memory was not impaired by threat, but more of the threatening material was shown to be available with the aid of retrieval cues (Figures 1 and 2). The alternate interference, or competing response, hypothesis offered by Holmes, 1972, did not provide a more parsimonious explanation of the results. Other hypotheses were implicated in the explanation of the inconsistent results.
Methodological innovations

The basic methodological innovations (the type of retrieval cue and the type of anxiety situation) appeared to provide an adequate experimental design. The design was effective in providing an anxious situation for repression to occur and the threat of watching a videotape counseling session did produce an anxious response. The design was not effective in providing a variety of anxious situations, which limited the number of possible demonstrations of repression.

The silent presentation of the videotapes was effective as a retrieval cue in that cued recall was consistently higher than free recall. This finding is particularly pronounced in that cued recall was subsequent to free recall and was subject to the potentially interfering effects of the free recall and anxiety measure tasks. Specifically, cued recall scores increased with increased levels of threat. This implied that the retrieval cues aided in the recall of threat-associated material, which provided the main evidence for a repression theory demonstration.

Manipulation checks

The results of the anxiety measure indicated that the threat manipulation was effective in producing an anxious response. As predicted, the high and medium threat material did produce higher anxiety scores than did low threat material. The medium threat condition did not conform to the pattern of
the predictions. It produced an anxiety response equal to
the high threat condition, in contrast to the prediction of
scoring somewhere between the high and low threat. These
results implied that the design was effective in general in
producing an anxious situation, but was not effective in
providing a variety of levels of anxious situations where
repression may occur to a greater or lesser degree.

The homosexual and heterosexual conditions also resulted
in an equal level of measured anxiety response. It was pre­
dicted that homosexual material would be more anxiety induc­
ing than heterosexual material and more likely to produce a
repressive response. Since anxiety reactions were equal, it
was not possible to directly attribute any memory loss, and
cueing enhancement of memory, to an anxiety induced repres­
sion process. The cueing effects are discussed later from
this perspective.

The same logic applied when the sex of the participant
was taken into account. According to Sears (1965), sexual
anxiety is essentially homosexual for males and heterosex­­ual for females. This implied that males would repress more
in the homosexual condition than females, and females would
repress more in the heterosexual condition than males. This
prediction was not supported in the present study. Anxiety
measures indicated equal anxiety reactions in both homo­
sexual and heterosexual conditions for both sexes. This
resulted even with a separate analysis for high threat scores, which potentially would enhance a demonstration of differences in anxiety scores. Again, the implication was that memory losses, and enhancement in recall due to cueing, were not attributable to a repression process. Anxiety differences were simply not demonstrated and a repression mechanism could not be expected to be implemented.

Main Findings

Free recall

The most surprising results were with the free recall test. It was anticipated that the more threatening and anxiety inducing videotapes would result in the lower retention scores on the free recall measure. As reported above, free recall was equal for all conditions. High threat recall equaled low threat recall and homosexual threat equaled heterosexual threat recall. This is somewhat inconsistent with repression theory. Repression by definition (Freud, 1915) is the process of withholding painful events from conscious memory. With the present results, events were recalled equally regardless of the level of associated pain or anxiety.

It was possible that two different processes were involved with the recall, or lack of recall, of high threat and low threat material, resulting in similar levels of recall. For example, low threat material would not be expected to be
repressed due to the low level of associated anxiety. Memory loss (recall of less than the full twelve sentences) could be attributed to simple forgetting due to decay (Brown, 1958) or response competition (Barnes and Underwood, 1959; Holmes, 1972). Memory loss in the high threat condition in contrast could be attributed to a repression process. The anxiety might have induced the participants to protect themselves from painful memories by maintaining the threat out of conscious memory.

Repression and simple forgetting could have resulted in the same display of memory loss. The way to differentiate between the two is by determining if the memory is actually lost (forgotten) or just inaccessible (repressed) in unconscious memory. This study used retrieval cues to differentiate these processes.

**Cued recall**

The effects of retrieval cues (the silent presentation of videotapes) had a varied effect on recall dependent upon the condition. In general, recall was enhanced by the use of retrieval cues. Cues were predicted to be most efficacious in those conditions where anxiety was present. The cues were expected to aid in the recovery of repressed (anxious) material. The results conformed to this prediction. Cued recall of sentences increased as anxiety responses increased (Figure 1). The more anxious the situation,
the more the retrieval cue aided in the recall of the as­
associated material. This result was the most explicit evi­
dence in the present study towards a demonstration of a
repression process.

An alternate explanation for the results for the cued
recall in Figure 1 is also possible. Perhaps higher cued
recall in the higher threat conditions was due to more sa­
lient cues in high threat verses low threat conditions.
Perhaps the actor and actress provided more animated, and
thus more salient, nonverbal cues in the higher threat con­
ditions. This would account for higher cued recall with
higher threat conditions. This explanation was possible
but less likely than the above repression theory interpre­
tation. Both the actor and actress were trained to provide
the same type of nonverbal cues in all threat conditions
(high, medium and low). While it was possible that the
exaggeration of the same nonverbal cues differed from high
to low threat, effort was made to minimize the variability.

In any event, it can be concluded that the memory loss
with high and low threat material can be attributed to two
separate processes. Low threat material was forgotten and
memory was not enhanced by the presence of cues. This im­
plied either decay or an interference process had taken
place. With high threat material, recall was enhanced with
the presence of cues. This implied that information was
present in memory but not accessible. This process is analogous to repression mechanisms.

Other results using retrieval cues were less compelling as a repression demonstration. In the homosexual and heterosexual threat conditions, the effects of cueing did not conform to predictions (Figure 3). Cueing was expected to result in higher recall in the more anxious conditions. The anxiety was expected to inhibit retrieval mechanisms, and the cued recall was expected to reinstate the mechanism, resulting in higher recall. This would mean higher recall of homosexual material than heterosexual material, higher cued recall for males than for females in the homosexual condition, and higher cued recall for females than males in the heterosexual condition. All of these predictions represent higher cued recall of the more anxious material.

As stated above, this pattern of results did not occur. Cueing did enhance recall of homosexual material but it had the same enhancing effect for heterosexual material. Even more contrary to a repression theory interpretation, cueing had the opposite effect in predictions for males and females. Cueing enhanced recall more for females in the homosexual condition than for males. Males were aided more by cues in the heterosexual condition (See Figure 3). The cueing did enhance recall, but opposite to the predicted pattern.

Homosexual and heterosexual threat conditions

It appeared from the results for homo- and heterosexual
threat conditions that cues aided in memory recall but not specifically in the recall of repressed material. According to Atkinson and Shiffrin's model of repression, retrieval cues aid in the recall of threat-associated material. This threat-associated material stays out of consciousness, according to Freud (1915, p. 86), as a protection from painful anxiety. To demonstrate repression in the present study, material must be shown to produce an anxious response as indexed by Zuckerman's anxiety measure. An anxious response would indicate the need to use a repression mechanism to defend against the anxiety.

As described above, anxiety responses were equal among the various sexual conditions (homo- and heterosexual conditions for males and females). The predicted pattern of anxiety responses did not result. This lack of differences in anxiety responses among sexual conditions negated the possibility of using retrieval cues in those conditions to demonstrate a repression process. One sexual threat was not more anxious for a participant than any other sexual threat. This meant that enhancement in cued recall over free recall could not specifically be attributed to the enhancement of recall of anxious material.

Perhaps the Zuckerman measure was not an accurate measure of the anxiety reactions. Even if this were the case, the pattern of results for cued recall in the homo- and
heterosexual conditions were opposite to predictions based on repression theory. Conditions predicted to be more anxious for participants had less enhancement in recall with the presence of retrieval cues.

**Competing response hypothesis**

The interference hypothesis posited by Holmes (1972) and D'Zurilla (1965) was also not a viable explanation of the present results. The interference hypothesis affirms that a threat (ego-threatening event), or an ego-enhancing event such as strong positive feedback, interferes with the retention of associated material. This is a competing response hypothesis where participants are hypothesized to attend more to the highly salient threat than to the less salient associated material. As described in the introduction, the present study had as synonymous the threat used to invoke anxiety and the actual target material, recollection of which (or lack of recollection) was used as an index of repression. This design by itself made competing response a less viable hypothesis. Even if participants in the present study did find some form of the threat to be a competing stimulus, there should have been some corresponding difference between the free recall of high and low threat material. High threat should have resulted in higher recall than low threat. According to Broadbent (1957), material given more attention is recalled at a higher level. This would have demonstrated
more attention to high threat, than low threat material. As described above, this was not the case: free recall was equal in all threat conditions. The increase in threat did not increase free recall, contrary to predictions based on a competing response hypothesis.

This same logic applied to the presently unexplained results of the specific conditions represented in Figure 3. Some factor resulted in retrieval cues enhancing recall more for males in the heterosexual condition and more for females in the homosexual condition. It was not a demonstration of repression because material in these conditions were rated as equally anxious. A repressive mechanism was not more likely to be used in any one condition and material was equally likely to be recalled with the presence of retrieval cues. An interference theory was also not viable since the threat and the material to be recalled were synonymous, and increased saliency of the threat did not result in increased recall of the threat.

**Design artifact**

Present theory did not explain the results displayed in Figure 3. The results appeared to be an artifact of the videotape recordings. The silent presentation of the female videotapes somehow cued recall more than the silent presentations of the male videotapes. In both conditions, where recall was aided more by the cues (homosexual condition for
the females and heterosexual for the males), the silent presentation of a female videotape was used as the cue. Simply stated, the female actress provided better non-verbal cues than the male actor. This was corroborated by informal comments of the therapists who rated the tapes and observed the actress to enunciate words more than the actor. This apparently provided more salient cues with the silent presentation of the female videotape.

Theoretical Implications

It would be difficult to make any far-reaching conclusions about Freudian repression theory based on the results of the present study. The results were supportive only in part to a repression theory demonstration and were inconsistent with varied experimental conditions. On the positive side, some basic aspects of the repression process were demonstrated with the alternate interference hypothesis being shown to be a less viable alternative. This in itself is encouraging to future research and somewhat tempers the pessimistic outlook of Holmes (1974).

It is important to be cautious in purporting to demonstrate any process as intricate and profound as Freudian repression theory. A recent survey of research on Freudian theory, (Fisher and Greenberg, 1977) emphasized that it is probably impossible to demonstrate the existence of any Freudian concept in any one study. These authors indicated
that even the best experiment can only depict a part of a well-thought-out theory such as Freudian repression. The central issue is not whether Freud's ideas are true or false but rather to what extent are his ideas valid (Fisher and Greenberg, 1977, p. 11).

The present study provides limited support to an information processing system that presumably protects a person from painful memories. This system resembles the concept of repression described by Freud (1915) and, translated into information processing language by Atkinson and Shiffrin (1971), in that threatening information was shown to be more available in conscious memory than accessible. The question remains as to what aspect of the threat produced this repression-like finding. The final statistical analysis, reported at the end of the result section, was unsuccessful in demonstrating a direct relationship between anxiety and difference scores. Future research is needed to establish a clearer relationship between anxiety and the loss and retrieval of repressed information.

In the future, the present study could be replicated with the addition of a second and third anxiety measure. The first measure would be presented, as in the present study, to index the initial anxiety reaction to the threatening material. The second measure would be presented after the free recall task and the third following cued recall. In
this way anxiety reactions could be tracked with respect to the progression of a repression process. The repeated measure would also help to focus on anxiety with respect to its effect on memory, in contrast to the present study's focus on threat.

Future designs could also improve upon the present study by equating the meaningfulness of the stimulus material for each threat level. As discussed above, the present study resulted in some ambiguity with the interpretation of free recall scores. Free recall was predicted to be lower for high threat material but instead resulted in equal retention for all conditions. This difficulty may be circumvented by equating initial recall for all conditions. The mechanics of this procedure could be rather basic. A control condition could be added (e.g., Flavell, 1955) where the threat manipulation would be explained to participants to potentially eliminate anxiety reactions. Recall for each condition could be compared without the experimental manipulation of threat. Stimulus material could be repeatedly redesigned until the material in each condition was at an equal recall potential.

In conclusion, the present study appears to provide a useful method in researching the repression process. The present results are inconclusive but the design is amenable
to additional experimental conditions that may be fruitful in the demonstration of a repression process.
REFERENCES


Penn, N. Experimental improvements on an analogue of repression paradigm. Psychological Record, 1964, 14, 185-196.


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I also wish to thank my employer and friend, George Belitsos, executive director of Youth and Shelter Services, Inc., whose encouragement and support was integral to the completion of this project. Lastly, special thanks to Dr. Roy Warman and his clerical staff at the Student Counseling Service for their technical assistance in the collection of the experimental data.
Client #1

This client represents the low threat condition. The lines and the gestures of the actors are designed to not threaten the viewer. The actors are not demanding or over-powering but rather they are informative. They are serious and concerned with what they are talking about, yet the intensity of the concentration is directed inward. They are in fact intense throughout the script, but intense about how they feel about themselves, not the viewer.

SCRIPT

(15 seconds of silence facing the camera)

I'm feeling very good about myself (close eyes, play with hair)
Counseling has helped me a great deal, (smile, cross arms)
I don't hide what I'm feeling, (lean forward, bite lip)
I have new feelings every day, (look away, hand to face)
I've even learned to express myself, (finger in mouth, smile)
I like who I am, (play with hair, close eyes)
I'm liking different kinds of people, (rub hands, look away)
I'm more open to new experiences, (hand to face, clench fist)
I want to continue to learn, (cross arms, hand to neck)
I want to lose my inhibition, (bite lip, lean forward)
I'm glad I came to see you, (hand to neck, finger in mouth)
Thank you very much for the help, (clench fist, rub hands)
Client #2

This client represents the medium threat condition. The threat is a somewhat overpowering assault on the viewer's self-esteem as a sexual being, but is not directly aimed at the viewer. Instead, the actor portrays an air of sexual intensity but the viewer is not entirely clear as to whom the strong feelings are being directed. The actors create an image of confusion about their feelings. The sexual reference is fairly obvious but not directly, and the viewers must decide for themselves if the threat is directed towards them.

The actors are aware of the sexual feelings they are experiencing, but they are both frightened of the feelings, and highly uncomfortable with expressing them. The resultant message is an intense hidden sexual expression that is stated indirectly.

SCRIPT

(15 seconds of silence facing the camera)

I'm not sure about you, (close eyes, play with hair)
I'm nervous about being here, (smile, cross arms)
It's hard to be alone with you, (lean forward, bite lip)
I have these strange feelings, (look away, hand to face)
I'm afraid of what I'm feeling, (finger in mouth, smile)
I need something from you, (play with hair, close eyes)
I want to be close to you, (rub hands, look away)
I should really leave here, (hand to face, clench fist)
I'm getting too involved with you, (cross arms, hand to neck)
You won't give me what I want, (bite lip, lean forward)
I can't stand this pressure, (hand to neck, finger in mouth)
I want something so badly, (clench fist, rub hands)
Client #3

This client represents the high threat condition. The threat is an overpowering assault on the viewer's self-esteem as a sexual being. That is, the viewer has an image of an ideal self in terms of his or her own sexuality. As outsiders, we do not know what that image is like but the intent here is to completely overpower any ideal image of what a sexual encounter is like for the individual. The actor totally forces his/herself onto the viewer without awareness or regard for the needs of the viewer. The sexual approach or "come-on" is a strong, direct expression of the sexual needs of the actor-client. The client is demanding, overpowering, overtly seductive, intensely craving satisfaction of his/her own sexual needs. The viewer is made to feel like a depersonalized, sexual object. The client's intent is to use the person for their own sexual satisfaction and avoids making the individual feel unique as a person.

SCRIPT

(15 seconds of silence facing the camera)

I needed to see you, (close eyes, play with hair)
You make me feel so good, (smile, cross arms)
I want to be close to you, (lean forward, bite lip)
Being here with you excites me, (look away, hand to face)
Anything can happen when we're alone, (finger in mouth, smile)
I love smelling you here next to me, (play with hair, close eyes)
I want to touch you, (rub hands, look away)
I'm trembling all over, (hand to face, clench fist)
I need to hold you, (cross arms, hand to neck)
I'm feeling so intense, (bite lip, lean forward)
I can't stand this pressure, (hand to neck, finger in mouth)
I want you so badly, (clench fist, rub hands)
Zuckerman's Affect Adjective Check List

PUT A CHECK MARK BESIDE EVERY WORD THAT DESCRIBES A FEELING THAT YOU PRESENTLY HAVE AND/OR HAVE EXPERIENCED SINCE YOU'VE ENTERED THIS ROOM. CHECK AS MANY AS YOU FEEL APPROPRIATE.

SAD___ CALM___ CONCERNED___ BORED___ AFRAID___ CHEERFUL___ NERVOUS___ ANNOYED___ HUNGRY___ LONELY___ HATEFUL___ GUILTY___ GLAD___ CONTENTED___ HURT___ HAPPY___ ANXIOUS___ SILLY___ TRUSTING___ TENSE___ SHAKY___ DISTANT___ TIRED___ PLEASANT___ NOSTALGIC___ DISAPPOINTED___ SURPRISED___ CONCERNED___ DESPERATE___ STIFF___ STEADY___ EXPOSED___ LOVING___ INTERESTED___ FRIGHTED___ UPSET___ UNCOMFORTABLE___ RELAXED___ WORRYING___ THOUGHTFUL___ SEXUAL___ ALIVE___ CONTENT___ EMBARRASSED___ PEACEFUL___ FEARFUL___ RESIGNED___ JOYFUL___ PANICKY___ DEFENSIVE___ WEARY___ SECURE___ PROUD___ TENDER___ SECURE___ AMUSED___ TERRIFIED___ INSECURE___ HOT___ REMOVED___
Free Recall Test

CONDITION:  M F - H M L
SEX:  M F  S#_____

INSTRUCTIONS:

Recall as many as you can of the twelve sentence you just heard. Try to write the sentences as closely as possible to the original words. Be sure to write the sentence even if you are not sure of the wording. The order of the sentences is not important.
Cued Recall Test

CONDITION: M F - H M L
SEX: M F S#

INSTRUCTIONS:

Please watch the videotape again. This time there will be no sound. Each time the client appears to be saying a sentence, write down the sentence that you think is being said. The tape will pause long enough to give you enough time to do this. Look up after you are through writing to prepare for the next sentence. Do not worry about recalling the sentences out of order.