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Full Name of Author — Nom complet de l’auteur

Debora Lynn Dubreuil

Date of Birth — Date de naissance
February 10, 1957

Country of Birth — Lieu de naissance
Canada

Permanent Address — Résidence fixe

#201 8 Assiniboine Road
Downsview, Ontario
M3J 1L4

Title of Thesis — Titre de la thèse

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Name of Supervisor — Nom du directeur de thèse

Dr. Nicholas P. Spanos

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Expectancy Effects on the Breaching of Hypnotic Amnesia

by

C. Debora L. Dubreuil

Thesis submitted to the Faculty of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Arts

Department of Psychology
Carleton University
Ottawa, July, 1981.
The undersigned recommend to the Faculty of Graduate Studies and Research acceptance of the thesis Expectancy Effects on the Breaching of Hypnotic Amnesia submitted by Debora L. Dubreuil in partial fulfillment of the requirements for the degree of Master of Arts

Thesis Supervisor

Chairman, Psychology Department

Carleton University

July 1981
Abstract

Two interrelated experiments investigated the hypothesis that hypnotic amnesia spontaneously decays over time. In Experiment 1, sixty-two subjects were randomly assigned to either a Time-Only or a Retest condition. All received an hypnotic induction procedure, learned a 12-word list to a strict criterion, and were given an amnesia suggestion for the words. Retest subjects then received two successive recall trials, while Time-Only subjects received only one recall trial which occurred at the same time that Retest subjects were given their second recall trial. There were no differences in amnesia between the Time-Only trial and either of the Retest trials.

Experiment 2 examined the effect of situational expectations on response to a second recall trial. Expectancy instructions interspersed between two amnesia suggestion recall trials were varied. Subjects who showed partial amnesia on a first recall trial were assigned to three conditions. In the first, subjects were retested without special instructions. In the second and third conditions, subjects were led to expect either that they would remember more or remember less on the second recall trial. Subjects in the "Remember More"
group breached amnesia (i.e., showed less amnesia on trial 2), as did subjects in the "Retest" group. Only "Remember Less" subjects failed to breach. In summary, when presented with a fairly explicit expectancy situation, subjects tended to comply with expectations. These findings are consistent with a cognitive-social psychological interpretation of hypnotic amnesia.
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Introduction

Suggested amnesia is a temporary failure to recall events associated with an explicit suggestion to forget. Historically, this phenomenon has been associated with hypnosis. When amnesia suggestions are preceded by an hypnotic induction procedure, the resultant forgetting is referred to as "hypnotic amnesia" (Spanos & Radtke-Bodorik, 1980). The temporary nature of hypnotic amnesia is illustrated by its reversibility. The "forgotten" material can be easily recovered when the subject is presented with a prearranged cue that "cancels" the amnesia (Cooper, 1979).

The discovery of hypnotic amnesia is usually credited to the Marquis de Puységur, a student of Mesmer (Ellenberger, 1970). In 1784 de Puységur mesmerized a shepherd boy who, instead of convulsing (as was common among such subjects) appeared to enter a deep sleep. After "awakening" the boy appeared to be totally amnesic for the events that had occurred during the "sleep" (de Puységur, 1784/1970). This phenomenon played a central role in theories of hypnosis throughout the nineteenth century (Spanos & Gottlieb, 1979), and even today, amnesia continues to be considered a fundamental aspect of hypnotic responding (Hilgard, 1977; Spanos & Radtke-Bodorik, 1980).
Suggested Amnesia

Suggestions for amnesia usually consist of the following:

1) Subjects are instructed that they will not be able to recall the target material until administered a cue that will cancel their amnesia, 2) before cancellation of amnesia they are challenged to recall the target material, and 3) amnesia is cancelled and subjects are again asked to recall the target material. Although subjects are given the suggestion for amnesia during the hypnotic session, they may be tested for recall either during the session or upon "awakening" (posthypnotic suggested amnesia).

Subjects display amnesia in varying degrees. For example, a subject may appear "totally amnesic" for events associated with the hypnotic experience by recalling nothing or "partially amnesic" by recalling some aspects of the experience (Cooper, 1979). Although amnesia suggestions usually request total amnesia, subjects frequently show only partial amnesia (Evans & Kihlstrom, 1973; Spanos & Bodorik, 1977; Spanos, Radtke-Bodorik & Stam, 1980; Spanos, Stam, D'Eon, Pawlak & Radtke-Bodorik, 1980).

Independent Variables Affecting Suggested Amnesia

Three major variables affecting the occurrence of suggested amnesia are the subject's level of hypnotic susceptibility, the hypnotic induction procedure, and simulation instructions.
**Hypnotic susceptibility.** Subjects who display amnesia tend to respond positively to the other suggestions contained in standardized hypnotic susceptibility scales, i.e., high susceptible subjects are more likely to show amnesia than low susceptible subjects (Barber & Calverley, 1966; Coe, Taul, Basden, & Basden, 1973; Hilgard & Cooper, 1965; Spanos & Bodorik, 1977; Spanos, Stam, D'Eon, Pawlak & Radtke-Bodorik, 1980).

Six studies have reported positive associations between hypnotic susceptibility and amnesia. Four of them found differences between high and low susceptible subjects (Barber & Calverley, 1966; Coe et al., 1973; Thorne & Hall, 1974; Williamson, Johnson, & Eriksen, 1965), and two found significant correlations between amnesia and hypnotic susceptibility (Hilgard & Cooper, 1965; Kihlstrom & Evans, 1976).

The relationship between susceptibility and amnesia is not dependent upon the use of an hypnotic induction procedure. The relationship occurs regardless of whether an hypnotic induction or task-motivated (waking condition) procedure is used (Barber & Calverley, 1966; Spanos & Bodorik, 1977; Spanos, Radtke-Bodorik & Stam, 1980, Spanos et al., 1980; Thorne & Hall, 1974). Moreover, the relationship between susceptibility and hypnotic amnesia is independent of the type of scale used to assess hypnotic susceptibility. For example, positive associations have been found for the following: 1) the
Harvard Group Scale of Hypnotic Susceptibility, Form A (Kihlstrom & Evans, 1976; Spanos et al., 1980) 2) the Stanford Hypnotic Susceptibility Scale, Forms A, B, and C (Coe et al., 1973; Hilgard & Cooper, 1965; Nace, Orne & Hammer, 1974; Williamsen et al., 1965), and 3) the Barber Susceptibility Scale (Barber & Calverley, 1966; Spanos & Bodorik, 1977).

**Hypnotic induction procedure vs task-motivational instructions.**

A number of studies have shown that equivalent amounts of amnesia are produced by both hypnotic induction procedures and task-motivational instructions (TM). TM instructions are used to match the "motivation" implied in most hypnotic procedures, while omitting mention of drowsiness, sleep or hypnosis. The subjects are simply asked to try their best to accomplish the suggested tasks (Barber, 1969).

Barber and Calverley (1966) compared hypnotic induction and task-motivation with respect to amnesia for six words learned to criterion. Recall and recognition amnesia occurred to the same degree in both induction and task-motivated groups. Other studies have obtained similar results (Norris, 1973; Spanos & Hamm, 1973; Thorne & Hall, 1974).

However, more recent studies suggest that subjects receiving hypnotic induction procedures demonstrate more amnesia than those receiving task-motivation instructions (Radtke-Bodorik, Planas & Spanos, 1980; Spanos & Bodorik, 1977;
Spanos, Radtke-Bodorik & Stam, 1980; Spanos et al., 1980).

For example, Spanos et al. (1976) gave an amnesia suggestion for the number "four" to hypnotic induction and task-motivation groups. Subjects were then asked to count from one to five. The results indicated that subjective and objective scores indicating amount of amnesia were significantly greater for subjects receiving the hypnotic induction as opposed to TM instructions. Many of the studies in this area use different procedures, therefore, it is impossible to determine the factors responsible for these contradictory findings.

**Simulation instructions.** Simulation studies, in which subjects are instructed to "act" as if hypnotized, have been used to assess the issue of subjects faking and complying with experimental demand characteristics. Results indicate that suggested amnesia cannot be parsimoniously accounted for by faking and compliance (Williamsen et al., 1965). "Real" hypnotic subjects and simulators do not perform in the same way. Instead, simulators typically show higher levels of "amnesia" than "real" hypnotic subjects.

**Hypotheses of Suggested Amnesia**

Until the 1970's the two most popular explanations for suggested amnesia were repression (Clemen, 1964) and dissociation (Hilgard, 1974; 1976). Recently, however, investigators have begun to conceptualize suggested amnesia in
terms of modern information processing views of memory. Much of this recent work has stressed the role of storage and retrievability of information and recall organization in suggested amnesia (Spanos & Radtke-Bodorik, 1980).

**Repression hypothesis.** A number of investigators have examined Freud's suggestion that hypnotic amnesia involves a repressive process (Bobbit, 1958; Brenman, 1947; Erikson, 1939; Hilgard & Hommel, 1961; Levitt, Persky, Brady, Fitzgerald, & den Breeijen, 1961; Luria, 1932; Rapport, 1950; Schilder & Kauder, 1927/1956). The repression hypothesis states that negative, painful memories are automatically shut off from awareness (Gill & Brenman, 1959). This hypothesis predicts that the material associated with negative affect will be forgotten more often than that associated with positive affect. Hilgard and Hommel (1961) reported that subjects showed amnesia for failed suggestions more often than for passed suggestions. They attributed this finding to negative affect that is purportedly associated with "failing" test suggestions.

However, the study most frequently cited in support of the repression hypothesis was conducted by Clemes (1964). This study also postulated that amnesic subjects were more likely to forget events associated with negative than with positive affect, and assessed affective tone by means of a word-association test. Critical words (those with slow
reaction-time response) and neutral words (quick reaction-time response) were obtained on an initial word-association test. Slow reaction time supposedly represented "repressed conflictual material". In a second session, nine critical and nine neutral words were learned by the subject, who was then administered an amnesia suggestion for eight of the words. In keeping with the repression hypothesis, Clemons' hypnotic subjects were amnesic for significantly more critical than neutral words.

Three major criticisms have been made of Clemons' (1964) study (Stam, Radtke-Bodorik & Spanos, 1980). First, Clemons assumed that longer reaction-times are indicative of repressed conflictual material, but Stam et al., (1980) noted that longer reaction-times may reflect other factors such as meaningfulness, associative value, familiarity, imageability, and frequency of occurrence in the English language.

Second, Clemons presented the critical and neutral words in the same order for all subjects, with more neutral words appearing at both the beginning and end of the list. Thus, word type (critical/neutral) was confounded with list position. Third, Clemons' control groups were inadequate. These groups displayed very little amnesia, and therefore, they could not provide any information concerning the selectivity of forgetting.

In a replication of Clemons' (1964) study, using individually randomized word lists, Stam et al. (1980) found no
significant differences in amount of amnesia for critical and neutral words. Instead, they found that word attributes were significant predictors of amnesia for specific words, with imageability rated as the most important attribute (i.e., subjects were less likely to be amnesic for words with high imageability).

Several investigators have criticized the fact that most studies examining the repression hypothesis have derived an index of repression from the proportion of passed to failed items that subjects recall on standardized hypnotic susceptibility scales (Coe, Baugher, Krimm & Smith, 1976; Pettinati & Evans, 1978). Pettinati and Evans (1978) noted that these studies had not taken into account the difference in recall pool size between high susceptibles and low susceptibles. For example, high susceptibles usually pass more items than low susceptibles resulting in fewer failed items to remember. Therefore, susceptibility is confounded by the size of the recall pool. Pettinati and Evans (1978) developed a new measure of selective recall to remove this artifact. They found that both high susceptibles and low susceptibles recalled more passed than failed items.

In short, there is no consistent support for the repression hypothesis of hypnotic amnesia. Furthermore, the concept of repression has come under increasing criticism in areas unrelated to hypnosis. Holmes (1974) conducted
an extensive literature review and concluded that no strong experimental evidence for the concept of repression has been provided.

Dissociation hypothesis. Janet (1925) proposed that consciousness is composed of a collection of inter-related ideas. According to this hypothesis, subsidiary constellations of ideas may sometimes become cut off or be dissociated from the dominant constellation of ideas that constitutes consciousness. These "dissociated" ideas although unconscious, may continue to influence behavior. With respect to suggested amnesia, this notion implies that during hypnosis ideas may become "functionally ablated" or dissociated from the ideas that constitute the "waking" state. This hypothesis then, views hypnosis and waking as two independent states (Cooper, 1979).

Attempts to validate the functional ablation notion have usually employed retroactive interference paradigms. In this paradigm, subjects typically learn a list of words and are tested for recall or recognition. A second list is learned, amnesia is suggested for it, and then subjects are once more tested on the first list. Typically, memory for the first list is impaired by learning of the second list (Kasler, 1974). However, if memories for the second list are "dissociated" from the first because of the amnesia suggestion, subjects should have no difficulty in recalling the first list. Recent studies contradict this hypothesis (Coe,
Baaden, Baaden & Graham, 1976; Coe et al., 1973; Graham & Patton, 1968; Stevenson, Stoyva & Beach, 1962). Amnesic subjects in these studies showed no reduction in retroactive interference during recall of test 1.

Hilgard (1974) has presented a modification of dissociation, which he calls neodissociation. Basically, he suggests that dissociated material continues to affect consciousness and may interfere with memory even though it cannot be consciously reached. Although this explanation could account for the retroactive interference situation, it is so vague that it can "explain" any findings on a post hoc basis. Its utility is thereby questionable.

Information Processing Views of Memory

Storage and retrievability of memory. Modern information processing views of memory make a clear distinction between the storage and retrievability of information from memory (Kausler, 1974). Information that is stored in memory may be inaccessible under many circumstances, but may become easily accessible under others, even when new learning or practice has not occurred (Tulving & Pearlstone, 1966). The reversibility of suggested amnesia demonstrates the availability of the inaccessible material (Spanos & Bodorik, 1977).

Recall organization. The concept of recall organization is central to many information processing paradigms (Puff, 1977). It is known that subjects often organize information
to aid their recall of it. For example, subjects who learn a list of words that fall into several taxonomic categories will often display "clustering". That is, they will group words from the same category together during recall. Several investigators have proposed that suggested amnesia is associated with a failure to organize recall (Evans & Kihlstrom, 1973; Spanos & Bodorik, 1977; Spanos, Radtke-Bodorik & Stam, 1980; Spanos, et al., 1980).

Evans and Kihlstrom (1973) were the first investigators to examine the disorganization of material during hypnotic suggestion. Subjects in their study were administered three separate susceptibility scales, the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSS:A, Shor & Orne, 1962) and the Stanford Hypnotic Susceptibility Scale, Forms A and B (SHSS:A & B, Weitzenhoffer & Hilgard, 1959). Evans and Kihlstrom (1973) used partially amnesic subjects (i.e., subjects who remembered at least 3 items) to examine the order in which subjects recalled items during the amnesia suggestion. Recall order was compared to the order in which these items actually occurred on the scales. During the amnesia suggestion high susceptibles recalled the items in a disorganized fashion, while low susceptibles recalled them sequentially. The authors suggested that disorganized recall indicates that amnesia involves a disruption in retrieval process; that the amnesia interferes with the subject's strategies for recalling material.
Several criticisms of Evans and Kihlstrom’s (1973) study are possible, three of which involve the hypnotic susceptibility scales used. First, the scales do not consider reversibility, so that a subject classified as amnesic may simply have "forgotten" the items. Second, the wording of the amnesia suggestions on these scales is ambiguous. For example, subjects may assume that they are to report on subjective experiences, as opposed to scale items, thereby appearing amnesic for the items. Third, since recall organization is not examined before or after the amnesia suggestion, it may simply be that high susceptibles have less ordered recall of scale items independently of an amnesia suggestion. In fact, Schwartz (1978) found that high susceptibles demonstrated less organized recall when recalling list items before an amnesia suggestion than did lows. This leaves Evans and Kihlstrom’s (1973) finding open to question.

Another problem with this study (Evans & Kihlstrom, 1973) is that the investigators did not take into account the fact that high susceptibles typically recall fewer items than low susceptibles. Therefore, the lower rank-order correlations (Rho) they obtained for highs may result from an association between ordered recall and number of items recalled.

Spanos and Bodorik (1977) conducted a study using a free recall paradigm which attempted to overcome some of the
problems associated with the disrupted retrieval work. They found that partially amnesic hypnotic subjects showed less organized recall during the amnesia suggestion than before or after it, and that non-hypnotic subjects showed more organized recall during the amnesia suggestion. Spanos and Bodorik (1977) concluded that amnesia is associated with disruption in the organization of recall.

The inattention hypothesis. Spanos and Radtke-Bodorik (1980) have recently suggested that amnesia and disorganization are related to patterns of attending during the suggestion period. The "inattention hypothesis" holds that amnesia and disorganization occur to the extent that subjects attend away from the task of target recall during the suggestion period. Spanos, Stad, D'Eon, Pawlak and Radtke-Bodorik (1980) have shown that by instructing subjects either to attend away from or to attend to the recall material they could manipulate degree of amnesia shown by hypnotic and task-motivated subjects.

Expectancy: Its Effect on Hypnosis and Hypnotic Amnesia

A number of investigators (Barber, 1969; Barber, Spanos, & Chaves, 1974; Spanos et al., 1980) have argued that subjects' response to amnesia and other hypnotic test suggestions is a function of their expectations. Nevertheless, studies that have compared subjects' expectations concerning hypnosis and amnesia with actual performance in
an hypnotic testing session have often yielded nonsignificant or very small relationships.

Two methodological paradigms have been employed to study expectancy effects in hypnotic amnesia. The first involves correlating subjects' pretest expectancies with their actual amnesia scores. The second involves the manipulation of variables designed to affect subjects' expectancies. The studies associated with each paradigm will be reviewed critically.

**Pretest expectancies and amnesia.** Shor (1971) asked subjects to estimate their performance on each item of the Harvard Group Scale of Hypnotic Susceptibility (HGSCH, Shor and Orne, 1962). They were then administered the HGSCH:A. The correlation between total anticipated performance and actual performance was only .25 ($p < .01$). The correlation between expectancy for amnesia and amnesia performance was also quite low. These findings indicate at most a very small influence of expectations on hypnotic performance.

Ashford and Hammer (1978) asked subjects to evaluate whether they believed that a) they would be good hypnotic subjects (i.e., easily hypnotized), and b) hypnotic subjects are amnesic. They then dichotomized subjects into those who believed that they would be easily hypnotized and those who believed that they could not be hypnotized (or hypnotized only with difficulty). Subjects were also
divided into three groups with respect to expectations about amnesia: a) believer subjects, b) subjects with reservations and c) nonbeliever subjects. Believers indicated that the general statement, "People usually forget what happened during the trance as soon as they wake up from it" was true. Those subjects with reservations indicated that the statement was "more true than not true" and the nonbelievers felt that it was either "more not true" than "true" or "not true". Results indicated that expectations for being hypnotized and beliefs concerning amnesia were not related to the actual occurrence of amnesia.

The above studies indicate that expectations of hypnosis and amnesia have little effect on actual performance in a testing situation. These studies are however, open to a number of criticisms. First, they assessed amnesia using standard scales of hypnotic susceptibility. As described earlier, the scoring of amnesia on these scales includes methodological problems such as failing to measure reversibility and "ambiguous" amnesia suggestions. In short, failures to find strong correlations between pretest expectancies and amnesia scores may reflect a failure to adequately measure amnesia. Second, the studies did not always assess subjects' expectations of their own personal performance (Ashford & Hammer, 1978). Therefore, conclusions relating expectancy and actual amnesia performance are not
warranted as the expectancy was general, not personal. Third, these studies assumed that expectations concerning hypnotic amnesia are unidimensional; that the issue is simply whether or not the subject expects to show amnesia. However, subjects may have numerous expectations concerning amnesia, i.e., does it occur automatically or are they required to generate it? Subjects' expectations concerning whether or not they will be amnesic may interact with their construal of what amnesia is like in moderating decrements in recall. For instance, a subject who expects to be amnesic, and who also believes that amnesia involves the initiation of a self-generated strategy aimed at forgetting may be more likely to show amnesia than a subject who expects to be amnesic, but who also believes that he need do nothing but wait for the forgetting to "happen" automatically.

Fourth, it was assumed that pretest expectations concerning hypnotic amnesia are stable and do not interact with the structure of the amnesia testing session. Naive hypnotic subjects often come to a session with misconceptions about hypnosis. Once in the situation their expectation of amnesia may change very quickly if they suddenly realize that the experience is not so far removed from "ordinary" experience.

Experimental manipulation of expectations. Young and Cooper (1972) assessed students' hypnosis beliefs in a classroom situation by means of a questionnaire. They then gave a lecture on recent hypnosis research and common mis-
conceptions about the phenomena. One group was told that amnesia is a predominant characteristic of hypnosis, while another was told that it was not common. Several weeks after the lecture, student volunteers were accepted for hypnosis experiments by a different experimenter, and were administered a standardized hypnotic susceptibility test in which all reference to amnesia was eliminated. However, "spontaneous" (i.e., nonsuggested amnesia) amnesia was tested. Subjects given the "expect" amnesia lecture showed significantly more amnesia during susceptibility testing than did those receiving the "not expect" amnesia lecture.

Spanos, Stam, D'Eon, Pawlak and Radtke-Bodorik (1980) hypothesized that amnesia would occur depending upon how subjects construed the ambiguous demands contained in the test session. Suggestions for amnesia typically consist of three parts. First, subjects are instructed that they will be unable to recall familiar target material until they are given a cue that cancels their amnesia. Second, before presentation of the cancellation cue they are challenged to "try and remember" the target material. Third, the cancellation cue is presented and subjects again recall the target information. Subjects are considered amnesic if they recall fewer items after the challenge than after presentation of the cancellation signal, and if they report post-experimentally that they actually forgot (as opposed to remembered, but withheld)
the words that they failed to recall following the challenge.

One source of ambiguity in the testing session is associated with the challenge to "try and remember" that is given before the cancellation cue. Subjects often interpret the amnesia suggestion as a cue to attend to events other than the target material during the amnesia session (Spanos, Radtke-Bodorik, & Stam, 1980). Therefore, they can interpret the "remember" challenge as either a serious request to refocus attention on the task of recalling the target material (active recall interpretation), or alternatively, as a request to recall any of the target material which "comes to mind" while simultaneously maintaining attention elsewhere (passive recall interpretation).

Spanos et al. (1980) conducted an experiment which manipulated subjects' interpretation of the "remember" challenge. The authors hypothesized that subjects often do not show amnesia because they respond to the remember challenge as a request for active recall, but do show amnesia to the extent that they interpret the challenge as a request for passive recall and thereby maintain attention away from the target material. They also hypothesized that hypnotic induction procedures predispose subjects to interpret the remember challenge in terms of "passive" recall, whereas task-motivation procedures predispose subjects to interpret the challenge in terms of "active" recall. Hypnotic and
task-motivated subjects were randomly assigned to one of three conditions. All groups were informed pre-experimentally about a list learning amnesia sequence to follow. The first group was given active recall instructions for the "remember" challenge, while the second group received passive recall instructions. Subjects in the third group received no special instructions. The hypotheses concerning hypnotic and task-motivated subjects were validated. As predicted, hypnotic subjects given control instructions showed more amnesia than corresponding task-motivated subjects. Passive recall instructions produced substantial increments in amnesia for the task-motivated subjects, but failed to affect the amnesia level of hypnotic subjects. Passive recall instructions and hypnotic induction procedures both induce a set toward "passive" recall, therefore adding one manipulation to the other was redundant. However, "passive" recall instructions for the task-motivated subjects changed their recall tactic from active to passive, causing increments in amnesia. Because task-motivated subjects typically adopt an "active" recall set, active recall instructions failed to lower their already low amnesia levels. However, the "active" recall instructions significantly reduced the amount of amnesia shown by the hypnotic subjects.

The second experiment varied both the "remember" challenge and the wording of the amnesia suggestion. On the one hand, the wording of amnesia suggestions implies that
subjects are to actively bring about forgetting (i.e., I want you to forget...). However, the wording also implies that forgetting will occur effortlessly and automatically, without the subject's active participation (i.e., the words will be gone, gone completely from your mind). Therefore, some subjects may interpret these suggestions as requests to direct attention away from the target material, whereas others interpret them as requests to continue attending to the material while waiting for amnesia. In Spanos et al.'s (1980) first experiment some subjects showed full recall when given "passive" recall instructions. The authors hypothesized that these subjects may have interpreted the suggestion as an instruction to "wait" for amnesia to happen. Since they were still attending to the material when challenged to remember, they reported it. The authors predicted that amnesia would be increased in hypnotic and task-motivated subjects who were told pre-experimentally to both interpret the suggestion as a request to actively disattend to the target material and to recall passively when challenged. Results indicated that these "dual instructions" caused substantially more amnesia than control instructions in both hypnotic and task-motivated subjects (Spanos et al., experiment 3, 1980).

Dubreuil (1980, see Note 1) also manipulated demands in the experimental situation. Medium, high, and very high
susceptible hypnotic subjects learned one of two word lists to a strict criterion. Half of the subjects were administered a standard posthypnotic amnesia suggestion, while the other half received a modified posthypnotic amnesia suggestion. Subjects were tested for recall of the list words, given a word-association test (WAT) designed to elicit the list words, and were then assessed once again for recall. The amnesia suggestion was cancelled at this point, whereupon subjects received a third test of list word recall and a second administration of the word-association test. The wording of the amnesia suggestions was the crux of the experiment. The standard suggestion failed to imply that the critical words (list words) should not be used as responses to the WAT. In this respect, subjects receiving this suggestion may have interpreted the WAT as a task altogether separate from the amnesia suggestion, making use of the critical words "acceptable". However, the modified suggestion was more explicit. It informed subjects that they would be amnesic for the critical words regardless of what else they were asked to do. Therefore, these subjects would not be as likely to interpret the WAT as a task separate from the suggestion for amnesia.

For subjects given the modified suggestion, response latency during the first word-association test (i.e., during the amnesia period) was longer for critical than for neutral words. Those given the standard suggestion showed the opposite
pattern; longer response latencies for neutral than for critical words during the first WAT. Subjects in the two suggestion treatments also showed a different pattern of response for number of word associates produced during the first WAT. Very high susceptibles administered the modified suggestion gave significantly fewer critical than neutral associates. For the standard suggestion, however, subjects at all susceptibility levels gave significantly more critical than neutral associates. These results indicate that the patterns of forgetting shown by subjects are strongly influenced by the specific demands generated by the social structure of the experimental situation.

**Breaching amnesia.** Several investigators have attempted to "breakdown" amnesia before presentation of the cancellation cue. Subjects are typically asked to recall twice during the suggestion period and are given instructions aimed at enhancing recall on this second try. For example, following the first amnesia period recall, but before the second, subjects might be instructed to be truthful or to exert extra effort when attempting to recall. Following the second amnesia recall trial the cancellation cue is presented and a final recall trial is given.

Howard and Coe (1980) investigated contextual factors in breaching posthypnotic amnesia. Subjects who scored above 8 on the HGSHS:A (Shor & Orne, 1962) were randomly assigned to one of three "contextual pressure" conditions: a) polygraph, b) honesty, and c) relax. In each condition
subjects were seen individually and administered a tape-recorded Stanford Hypnotic Susceptibility Scale: Form C (SHSS:C, Weitzenhoffer & Hilgard, 1962). After the amnesia suggestion, subjects were "awakened" and received different instructions according to the condition to which they had been assigned. Those in the "polygraph" group were told that they would be connected to a very "effective" lie detector and asked about their recent experience during hypnosis. They were then administered the standard test for amnesia on the SHSS:A. When they said they could not remember anything further they were given a second recall test with the instruction, "Now if you think carefully, perhaps you can remember more." Subjects in the "honesty" group were informed upon "awakening" that honesty in reporting their recent hypnotic experience was essential. Following this first recall test, they, like the polygraph group, received the second recall test. Subjects in the "relax" group were not presented with any further instructions upon "awakening". They rested for the duration of the polygraph and honesty instructions, and were then administered the first and second recall test. All subjects received an identical third recall test. Those results which apply most directly to the present study indicated that subjects in the polygraph and honesty conditions reported significantly more material on the first recall than did subjects in the relax condition. However, polygraph and honesty subjects did not differ from one another.
There were no significant differences in amount of material reported by subjects in the three conditions for the second and third recall. Howard and Coe (1980) concluded that the strength of suggestions accompanying challenges affects the breaching of amnesia; that subjects given strong requests for breaching do so. Unfortunately, Howard and Coe (1980) presented the polygraph and honesty breaching instructions before the first recall, thereby neglecting to establish a baseline of recall. It is therefore not entirely appropriate to compare the first recall of these two groups with the first recall for the relax group as the instructions may have affected the amount of initial amnesia subjects experienced, instead of their willingness to report their experiences. The instructions should have preceded the second recall.

Spanos et al. (1980) attempted to breach amnesia in highly susceptible hypnotic subjects. High susceptibles have a strong investment in maintaining the role of a "good hypnotic subject" (Barber et al., 1974; Sarbin & Coe, 1972) even if this means contradicting other aspects of the experimental situation (Orne, 1971; Dolby & Sheehan, 1977; Stam & Spanos, in press). High susceptibles can comply with "active" recall instructions (those which ask subjects to interpret the remember challenge as a serious request to refocus attention on the task of recalling the target material) only by behaving inconsistently with the good hypnotic subject role. Therefore,
Spanos et al. (1980) predicted that these subjects would ignore preliminary instructions that implied role violation. Subjects who scored above 8 on the HGSAS:A (Shor & Orne, 1962) were randomly assigned to active recall or control (no special instructions) treatments. All subjects then received an hypnotic induction procedure and list learning sequence. Subjects in the two treatments did not show significantly different amounts of amnesia. However, post-experimental questionnaire data indicated that "active" recall subjects had ignored their preliminary instructions. These subjects continued actively "disattending" to target material during the suggestion period despite explicit instructions to the contrary.

Kihlstrom, Evans, Orne and Orne (1980) conducted a study on the breaching of amnesia as well. Subjects' recall on the HGSAS:A (Shor & Orne, 1962) was measured at three different times. The first was the usual recall test on the HGSAS:A. The second occurred after this but before the amnesia suggestion was cancelled. Subjects' instructions regarding this second recall differed according to the condition to which they had been randomly assigned. The conditions were as follows: a) retest in which subjects were not given any further instructions, but were simply asked to recall again, b) cue in which subjects were asked to list the items they remembered in the original presentation order, and c) challenge in which subjects were to exert extra effort to recall, and d) honesty where subjects
were instructed not to voluntarily fail to report what they actually remembered. The third recall test occurred after cancellation of the amnesia suggestion. Subjects were asked to recall all of the HGSHS:A suggestions that they could remember.

For high susceptibles, recall test-to-recall test changes followed the same pattern in all three groups. On the second recall, highs in all conditions gained about 43% of the deficit shown between the first and third recall, indicating that the second recall during amnesia did not result in subjects recalling all of the words. However, the low susceptibles' recall on the second test amounted to about 72% of the available material. Kihlstrom et al. (1980) suggest that the increment in recall from test 1 to test 2 may represent the natural "wearing off" of suggested amnesia in some subjects. Kihlstrom et al. stated that subjects who demonstrated high levels of suggested amnesia over extended periods of time may be exceptional in that they are very "experienced," "untrained" subjects would be expected to manifest some decay or spontaneous breakdown of suggested effects.

Kihlstrom et al.'s (1980) results may be interpreted in an alternative fashion. It is possible that subjects recalled more suggestions on the second test of recall due to demands inherent in the experimental situation. The fact that they were asked to recall twice in a row may have led
subjects to believe that they were supposed to recall more of the suggestions on the second try.

The present study consists of two overlapping experiments. Experiment 1 will attempt to assess Kihlstrom et al.'s (1980) hypothesis that amnesia "dissipates" over time. Subjects will be randomly assigned to two different conditions. All will receive an hypnotic induction procedure, list learning sequence, amnesia suggestion and "wake-up" procedure. Subjects in one condition (Retest) will be given an initial test of recall after the amnesia suggestion. Following this test, they will be given no specific instructions but will simply be asked to recall a second time. Following this second recall trial, they will receive the cancellation cue followed by a final test of recall. The procedure for the second condition (Time-Only) will be identical up to the presentation of the amnesia suggestion. Following this suggestion, however, these subjects will simply "rest". Their first test of recall will occur at the time that the other group receives the second recall test. They will then receive a cancellation cue for the amnesia and be given a final test of recall.

Kihlstrom et al. (1980) would predict the following results. Subjects in the Time-Only condition should recall fewer words on their first recall than Retest subjects do on their first recall because Time-Only subjects will manifest some spontaneous decay of amnesia. Retest subjects accordingly will show less
amnesia on their second recall test due to dissipation of amnesia. We predict the following. Subjects in both conditions will show equivalent levels of recall on their first attempt. Subjects in the Retest group will recall significantly more words on their second as opposed to first recall due to the expectation that they should.

Experiment 2 of the present study is based upon the notion that the amnesia test session contains ambiguities and that subjects respond according to their interpretation of these ambiguities. When a fairly explicit expectancy situation is created, subjects will respond in line with these expectancies. Experiment 2 will attempt to influence amnesia by altering challenge instructions accompanying a second recall test. Subjects will be randomly assigned to three different conditions. The first condition will consist of the Retest group used in Experiment 1. The procedure for the second and third conditions will be identical to the Retest group up to completion of the initial test of recall. Following this test they will receive different challenge instructions, depending upon which condition they are assigned to, for a second recall test. The second condition (Remember More) will be told that people usually remember more words on the second recall, while the third condition (Remember Less) will be told that people usually remember fewer words on this recall. After this second test of recall,
these subjects will receive a cancellation cue, be given a final test of recall as well as the "wake-up" procedure. We predict that subjects in the "Remember More" and "Remember Less" groups will follow instructions and recall respectively, more or fewer words on their second recall.

Method

Subjects

Eighty-eight Carleton University undergraduates (62 females and 26 males; mean age 19), who volunteered to participate in a two session experiment involving hypnosis and memory, and who met the criteria for hypnotic susceptibility described below, were retained for this study. All subjects received course credit or $3.00 for their participation.

Procedure

All subjects were seen in a susceptibility screening session and in a single experimental session.

Screening session. Subjects were selected on the basis of their performance on the Carleton University Responsiveness to Suggestion Scale (CURSS, Spanos, 1980; see Note 2). Those who scored 2 or above were retained for the experimental session.

Experimental session. Subjects were randomly assigned to four different conditions with approximately twice as many assigned to the Retest group (n = 42) as to the Time-Only (n = 20). Sixteen of the 42 Retest subjects were partial
amnesics. Subjects were tested in the Remember More and Remember Less conditions until 13 showing partial amnesia in each of these conditions were retained.

All instructions were tape-recorded. Subjects received a ten minute hypnotic induction procedure, taken verbatim from Spanos and Bodorik (1977) (see Appendix A). Following this they were told that a list of words would be presented and at the end of the list presentation they would be given a one minute period to recall verbally all the words they could remember, in any order they liked. Subjects were informed that this procedure would continue until a criterion of two successive correct trials was met.

The word list consisted of twelve words, three words each from the categories of animals, relatives, units of measure, and type of fabric. The words were selected from the norms of Battig and Montague (1969), and are those that occurred most frequently as a response to the category name. They were either mono or disyllabic.

After reaching the learning criterion, subjects received an amnesia suggestion, taken verbatim from Spanos and Bodorik (1977) (see Appendix A). The suggestion informed them that they would be unable to remember any of the list words until they heard a tapping noise and the words, "Now you can remember". The procedure after this point varied depending upon the condition to which subjects were assigned (see Figure 1).
### Experiment 1

<table>
<thead>
<tr>
<th>Retest Group</th>
<th>Amnesia Suggestion</th>
<th>Recall 1</th>
<th>Recall 2</th>
<th>Cancellation Cue</th>
<th>Recall 3</th>
<th>Wake-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-only Group</td>
<td>Amnesia Suggestion</td>
<td>Recall 1</td>
<td>Cancellation Cue</td>
<td>Recall 2</td>
<td>Wake-up</td>
<td></td>
</tr>
</tbody>
</table>

### Experiment 2

<table>
<thead>
<tr>
<th>Retest Group</th>
<th>Amnesia Suggestion</th>
<th>Recall 1</th>
<th>Recall 2</th>
<th>Cancellation Cue</th>
<th>Recall 3</th>
<th>Wake-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no special instruction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Remember More Group</th>
<th>Amnesia Suggestion</th>
<th>Recall 1</th>
<th>Recall 2</th>
<th>Cancellation Cue</th>
<th>Recall 3</th>
<th>Wake-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>(remember more instruction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Remember Less Group</th>
<th>Amnesia Suggestion</th>
<th>Recall 1</th>
<th>Recall 2</th>
<th>Cancellation Cue</th>
<th>Recall 3</th>
<th>Wake-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>(remember less instruction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Retest group. These subjects were challenged to remember the list words with the following instruction, "Try to remember the words you learned and repeat them out loud. You will be given one minute to do this." This constituted Recall Test 1. After this recall period subjects were simply asked to recall a second time with this request, "Once again, try to remember the words and repeat them out loud. You will be given one minute to do this." However, before giving this instruction, the experimenter waited a specified amount of time so that its administration would occupy the same length of time as the instructions for the "Remember More" and "Remember Less" conditions. Subjects then received the cancellation cue, the tapping sound accompanied by "Now you can remember." This was followed by a third and final test of recall (Recall Test 3) worded as such, "Please recall the words you learned at the beginning of the experiment. You will be given one minute to do this." Upon completion of this recall period, subjects were administered a wake-up procedure taken verbatim from Spanos and Bodorik (1977) (see Appendix A).

Time-Only group. These subjects received no instructions for a specified period of time. This time period equaled the one required for administration of the instructions and first recall test for the other three conditions. Thus, Recall Test 1 for the Time-Only group and Recall test 2 for the other
three groups occurred the same length of time after the amnesia suggestion. On their first recall, the Time-Only group was told, "Try to remember the words and repeat them out loud. You will be given one minute to do this." After their recall period, they received the cancellation cue, were asked to recall a final time (Recall Test 3 instructions), and received the "wake-up" procedure.

**Remember More group.** These subjects were challenged to remember the list words with the same instruction that the Retest group received (Recall Test 1). After the recall period, subjects were given the following challenge:

When people are asked to recall twice in a row, they find it easier to remember and usually recall more words on their second try. Once again, try to remember the words and repeat them out loud. You will be given one minute to do this.

After this second test of recall (Recall Test 2), subjects were given the cancellation cue, Recall Test 3, and the wake-up procedure.

**Remember Less group.** The procedure for this condition was the same as that of the "Remember More" condition with one exception. The challenge accompanying Recall Test 2 was as follows:

When people are asked to recall twice in a row, they have even more difficulty in remembering and usually recall fewer words on their second try. Once again, try to remember the words and repeat them out loud.
Amnesia scores. Degree of amnesia was determined for Recall Test 1 as the difference between the number of words recalled on Recall Test 3 and Recall Test 1. Similarly, amnesia for Recall Test 2 was measured as the difference between the number of words recalled on Recall Test 3 and Recall Test 2.

Results

Initial Learning

A one-way analysis of variance (ANOVA) revealed no significant differences between the groups on the number of trials needed to reach criterion learning. (See Table 1) The number of trials varied from 2 to 13, and the means are shown in Table 2.

Experiment 1

Amnesia during retest. Amnesia scores on Recall Trial 1 and Recall Trial 2, for the total and partial amnesics in the Retest condition were assessed by means of a one-way ANOVA. The analysis was significant, $F(1, 47) = 5.72, p < .05$, and the relevant means are shown in Table 3. The ANOVA summary table is shown in Table 4. Subjects showed significantly more amnesia on the first recall trial, than on the second recall trial. In short, amnesic subjects showed a significant decrement in amnesia when tested on a second recall trial.

The dissipation hypothesis. A within-subjects ANOVA that included all subjects in the Retest group indicated significantly more amnesia on Recall Trial 1 than on Recall Trial 2, $F(1, 83) = 5.24, p < .05$. (See Table 5 and 6)
Table 1

One-way ANOVA on Learning Trials to Criterion

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups within cells</td>
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<td>.271</td>
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<tr>
<td></td>
<td>84</td>
<td>3.5462</td>
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</table>
Table 2  
Mean Number of Learning Trials to Reach Criterion

<table>
<thead>
<tr>
<th>Group</th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retest Group</td>
<td>4.452</td>
<td>2.287</td>
<td>42</td>
</tr>
<tr>
<td>Time-Only Group</td>
<td>4.650</td>
<td>1.872</td>
<td>20</td>
</tr>
<tr>
<td>Remember More Group</td>
<td>3.358</td>
<td>.776</td>
<td>13</td>
</tr>
<tr>
<td>Remember Less Group</td>
<td>3.846</td>
<td>.899</td>
<td>13</td>
</tr>
</tbody>
</table>
Table 3

Mean Amnesia Scores on Recall Trial 1 and Recall Trial 2
for Amnesic Subjects in the Retest Condition

<table>
<thead>
<tr>
<th></th>
<th>M^a</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall Trial 1</td>
<td>7.792</td>
<td>4.021</td>
<td>24</td>
</tr>
<tr>
<td>Recall Trial 2</td>
<td>6.375</td>
<td>4.924</td>
<td>24</td>
</tr>
</tbody>
</table>

^aThese means differ significantly from one another, p < .05.
Table 4

One-way ANOVA on Amnesia Scores for Recall Trial 1 and Recall Trial 2 in the Retest Condition

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>error</td>
<td>23</td>
<td>36.20</td>
<td></td>
</tr>
<tr>
<td>Trial error</td>
<td>1</td>
<td>24.08</td>
<td>5.72*</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>4.21</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
Table 5
One-way ANOVA on Amnesia Scores for Recall Trial 1 and Recall Trial 2 in the Retest condition (Nonamnesics and Amnesics)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
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<th>F</th>
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<tbody>
<tr>
<td>error</td>
<td>41</td>
<td>45.48</td>
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</tr>
<tr>
<td>Trial</td>
<td>1</td>
<td>13.76</td>
<td>5.26*</td>
</tr>
<tr>
<td>error</td>
<td>41</td>
<td>2.62</td>
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</tr>
<tr>
<td>Total</td>
<td>83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
Table 6

Mean Amnesia Scores on Recall Trial 1 and Recall Trial 2 for all Subjects in the Retest Condition

<table>
<thead>
<tr>
<th></th>
<th>M^a</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall Trial 1</td>
<td>4.452</td>
<td>4.930</td>
<td>42</td>
</tr>
<tr>
<td>Recall Trial 2</td>
<td>3.643</td>
<td>4.878</td>
<td>42</td>
</tr>
</tbody>
</table>

^aThese means differ significantly from one another, p < .05.
In order to test the dissipation hypothesis, the amnesia scores of subjects who received a recall test trial 105 seconds following the suggestion (Time-Only group) were compared to the Recall Trial 1 and Recall Trial 2 amnesia scores of subjects in the Retest group. The amnesia score means for subjects in the Time-Only and Retest conditions are shown in Table 7. A one-way ANOVA indicated no significant differences in amnesia between Time-Only subjects and Retest subjects at trial 1. (See Table 8 for F-values) A second ANOVA indicated no significant differences in amnesia between Time-Only and Retest subjects at trial 2. (See Table 9 for F-values)

The lack of significance in the last two analyses might be due to a floor effect. Many of the Retest group subjects showed no amnesia on trial 1, and therefore, could not show a decrease in amnesia. Examination of the raw data indicated that those subjects who scored below 4 on the CURSS were almost always fullrecallers. Therefore, the above analyses were repeated after eliminating subjects with susceptibility scores below 4 from both the Retest and Time-Only groups. The relevant means are shown in Table 10. The one-way ANOVA on amnesia scores for the first Retest recall trial and the Time-Only recall trial was not significant, nor was the one-way ANOVA on amnesia scores for the second Retest recall trial and the Time-Only recall trial. (For F-values, see Tables 11 and 12)
### Table 7

Means for Time-Only and Retest Amnesia Scores

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>n</th>
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<tr>
<td>Time-Only</td>
<td>3.800</td>
<td>5.347</td>
<td>20</td>
</tr>
<tr>
<td>Retest Recall Trial 1</td>
<td>4.452</td>
<td>4.930</td>
<td>42</td>
</tr>
<tr>
<td>Retest Recall Trial 2</td>
<td>3.643</td>
<td>4.878</td>
<td>42</td>
</tr>
</tbody>
</table>

*a These means failed to differ significantly.
Table 8

One-way ANOVA on Amnesia Scores for Time-Only and Retest Recall Trial 1

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Groups within cells</td>
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<td>5.766</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>25.660</td>
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</tr>
</tbody>
</table>
Table 9
One-way ANOVA on Amnesia Scores for Time-Only and Retest Recall Trial 2

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>Groups</td>
<td>1</td>
<td>.33456</td>
<td>.01</td>
</tr>
<tr>
<td>within cells</td>
<td>60</td>
<td>25.314</td>
<td></td>
</tr>
</tbody>
</table>
Table 10
Means for Time-Only and Retest Amnesia Scores
(CURSS Score > 3)

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-Only</td>
<td>5.357</td>
<td>5.746</td>
<td>20</td>
</tr>
<tr>
<td>Retest Recall Trial 1</td>
<td>5.500</td>
<td>4.925</td>
<td>42</td>
</tr>
<tr>
<td>Retest Recall Trial 2</td>
<td>4.500</td>
<td>5.059</td>
<td>42</td>
</tr>
</tbody>
</table>

*These means failed to differ significantly from one another.*
Table 11

One-way ANOVA on amnesia scores for Time-Only and Retest Recall Trial 1 (CURSS > 3)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
<td>1</td>
<td>.20238</td>
<td>.01</td>
</tr>
<tr>
<td>within cells</td>
<td>46</td>
<td>26.733</td>
<td></td>
</tr>
</tbody>
</table>
Table 12

One-way ANOVA on amnesia scores for Time-Only and Retest Recall Trial 2 (CURSS > 3).

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
<td>1</td>
<td>7.2857</td>
<td>.26</td>
</tr>
<tr>
<td>within cells</td>
<td>46</td>
<td>27.689</td>
<td></td>
</tr>
</tbody>
</table>
No firm conclusions about the dissipation hypothesis can be drawn from these results. The decrement in amnesia shown between recall trials 1 and 2 in the Retest group, although significant, was quite small. On the other hand, variability within groups was large, and may have masked between-group differences.

Experiment 2

A 3 x 2 split-plot ANOVA for the partial amnesics (Remember More/Remember Less/Retest x Recall Trial 1/2) conducted on amnesia scores yielded a significant main effect for trials, $F(1,39) = 11.09, p < .05$, and a significant Groups x Trials interaction, $F(2,39) = 6.37, p < .05$. The analysis is summarized in Table 13, and the means involved in the significant interaction are shown in Table 14 and plotted in Figure 1.

There were no significant between group differences in amnesia on the first recall trial (all $p$'s $> .10$). Apriori t-tests (two-tailed) revealed the following. Retest subjects showed significantly more amnesia on the first recall trial, than on the second, $t(31) = 2.28, p < .05$. Remember More subjects also exhibited significantly more amnesia on Recall Trial 1 than on Recall Trial 2, $t(25) = 3.35, p < .05$. There was no significant difference in amnesia on the two recall trials for the Remember Less group, $t(25) = .71$.

Difference scores were examined to assess the amount of change in amnesia from Recall Test 1 to Recall Test 2 for
Table 13

Remember More/Remember Less/Retest x Recall Trial 1/2
Split-plot ANOVA on Amnesia Scores for Partial Amnesics

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>2</td>
<td>26.597*</td>
<td>1.28</td>
</tr>
<tr>
<td>error</td>
<td>39</td>
<td>809.34</td>
<td></td>
</tr>
<tr>
<td>Trial</td>
<td>1</td>
<td>21.880</td>
<td>11.09*</td>
</tr>
<tr>
<td>Group x Trial</td>
<td>2</td>
<td>12.568</td>
<td>6.37*</td>
</tr>
<tr>
<td>error</td>
<td>39</td>
<td>1.9724</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
### Table 14

Means for the 3 x 2 (Remember More/Remember Less/Retest x Recall Trial 1/2) Split-plot ANOVA on Amnesia Scores for Partial Amnesics

<table>
<thead>
<tr>
<th></th>
<th>Recall Trial 1</th>
<th></th>
<th>Recall Trial 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>p</td>
</tr>
<tr>
<td>Remember More group</td>
<td>6.462&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.256</td>
<td>4.077&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>3.328</td>
<td>13</td>
</tr>
<tr>
<td>Remember Less group</td>
<td>6.769</td>
<td>2.386</td>
<td>7.077&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.121</td>
<td>13</td>
</tr>
<tr>
<td>Retest group</td>
<td>5.688&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3.260</td>
<td>4.688&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4.332</td>
<td>16</td>
</tr>
</tbody>
</table>

**Note.** Means sharing the same subscript differ significantly from one another.
Figure 1

Remember More/Remember Less/Retest x Recall Trial 1/2 Interaction on Amnesia Scores for Partial Amnesics
each of the three groups. The difference scores were computed as follows. Amnesia scores on Recall Test 1 were subtracted from amnesia scores on Recall Test 2. Therefore, negative difference scores represented a decrease in amnesia from the first to the second recall trial, while positive scores indicated an increase in amnesia. A one-way ANOVA comparing the difference scores between groups was significant, $F(2,39) = 6.37$, $p < .05$. The analysis is presented in Table 15, the means in Table 16.

The amnesia difference scores for the Remember Less group were significantly higher than those for the Retest group, $t(27) = 2.10$, $p < .05$, and those for the Remember More group, $t(25) = 3.24$, $p < .05$. Furthermore, subjects in the Remember More group tended to show greater decrements in amnesia than those in the Retest group, but the analysis failed to reach conventional levels of significance, $t(27) = 1.72$, $p < .10$.

Chi-square analysis. Within each group subjects could show either more amnesia, less amnesia, or the same degree of amnesia from the first to the second recall trial. The relative frequency of these three responses within the three groups (see Table 17) was assessed with a chi-square analysis. The analysis was significant, $X^2(4) = 11.92$, $p < .05$. About half of the Retest subjects and 85% of the Remember More subjects showed a decrease in amnesia between Recall Trial 1 and 2.
Table 15

One-way ANOVA on difference scores for Partial Amnesics

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
<td>2</td>
<td>25.135</td>
<td>6.37*</td>
</tr>
<tr>
<td>within cells</td>
<td>39</td>
<td>3.9448</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
Table 16

Means for the One-way ANOVA on difference scores for Partial Amnesics

<table>
<thead>
<tr>
<th>Group</th>
<th>M</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retest Group</td>
<td>-1.000</td>
<td>1.751</td>
<td>16</td>
</tr>
<tr>
<td>Remember More Group</td>
<td>-2.385</td>
<td>2.567</td>
<td>13</td>
</tr>
<tr>
<td>Remember Less Group</td>
<td>.308</td>
<td>1.548</td>
<td>13</td>
</tr>
</tbody>
</table>

Note. Means sharing the same subscript fail to differ significantly, p < .05.
Table 17

Percentages of Subjects who Breach Amnesia, Increase Amnesia, and Maintain Equivalent Levels of Amnesia on Recall Trial 2

<table>
<thead>
<tr>
<th>Group</th>
<th>Breach Amnesia</th>
<th>Equivalent Amnesia Levels</th>
<th>Increase Amnesia</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retest group</td>
<td>56 (9)</td>
<td>19 (3)</td>
<td>25 (4)</td>
<td>16</td>
</tr>
<tr>
<td>Remember More group</td>
<td>85 (11)</td>
<td>15 (2)</td>
<td>0 (0)</td>
<td>13</td>
</tr>
<tr>
<td>Remember Less group</td>
<td>23 (3)</td>
<td>23 (3)</td>
<td>54 (7)</td>
<td>13</td>
</tr>
</tbody>
</table>

Note. Numbers in brackets represent number of subjects in each category.
On the other hand, only 23% of the Remember Less subjects showed such a decrease. Approximately the same percentage of subjects in the three groups showed no change in amnesia on the two recall trials. Finally, substantially more Remember Less subjects increased amnesia between recall trials than was the case for the remaining two groups.

**Correlational analyses.** A breaching score for each subject in the Retest group who showed partial or total amnesia on Recall Trial 1 was determined as follows. Subjects who breached amnesia (i.e., showed less amnesia on trial 2 than on trial 1) were given a score of 3. Subjects who showed no change in amnesia on the two recall trials were given a score of 2, and subjects who showed either total amnesia on both trials or who increased their level of amnesia from the first to the second recall trial, were assigned a score of 1. Correlations between these breaching scores, CURSS scores, and the amount of amnesia subjects demonstrated on Recall Trial 1 are presented in Table 18.

**Discussion**

Amnesic subjects in our Retest condition showed a significant decrement in amnesia between the two suggestion period recall trials. This finding replicates results obtained initially by Kihlstrom et al. (1980) and more recently by Ham, Redtke & Spanos (see Note 3). However, Kihlstrom et
Table 18
Correlations among Susceptibility Scores, Recall Test 1 Amnesia Scores, and Breaching Scores for Amnesics in the Retest Group

<table>
<thead>
<tr>
<th></th>
<th>Recall Test 1 Amnesia Score</th>
<th>Breaching Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susceptibility Score</td>
<td>.48∗</td>
<td>-.53∗</td>
</tr>
<tr>
<td>Recall Test 1</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Amnesia Score</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
al.'s (1980) interpretation of this finding in terms of an automatically occurring "dissipation" of amnesia is unable to account for the overall results of our two experiments.

The results of our first experiment, taken by themselves, are equivocal with respect to this hypothesis. The degree of amnesia shown by Time-Only subjects did not differ significantly from the levels of amnesia displayed by Retest subjects on either their first or second recall trial. Since the Retest subjects showed a significant amnesia decrement across the two trials, these nonsignificant between-groups comparisons probably reflect the extensive within-subjects variability evidenced in all conditions. This problem could be reduced somewhat in a future study that compared three groups of subjects who showed equivalent levels of amnesia on a first recall trial. The time between this first recall trial and a second could then be increased systematically across treatments. Amnesia difference scores (1st trial score – 2nd trial score) between these three treatments could then be compared, and a failure to find significant differences would clearly be inconsistent with the dissipation hypothesis.

The results of our second experiment highlight the insufficiency of the dissipation hypothesis and, at the same time, underscore the importance of social psychological variables in the "breaching" of hypnotic amnesia. Partial amnesics
in the Remember Less condition showed no evidence of breaching. In fact, they recalled (nonsignificantly) fewer words on their second recall trial, and showed significantly less breaching than Retest subjects. On the other hand, Remember More subjects showed significantly greater breaching than Remember Less subjects, and also tended to show greater breaching than those in the Retest group. In short, depending upon wording, brief expectancy instructions interspersed between trials either enhanced or eliminated subjects' tendency to breach amnesia.

These findings contradict the notion that hypnotic amnesia dissipates either as a function of time or as a result of repeated trials. They suggest instead that performance on a second recall trial is dependent upon subjects' interpretation of this test situation. In the absence of special expectancy instructions, many subjects probably believe that repeated attempts at remembering (like repeated attempts in most situations) will be somewhat more effective than a single attempt. Such an expectation is particularly likely in subjects who showed relatively low levels of amnesia to begin with, and who are low in hypnotic susceptibility. For these subjects, a second recall trial probably enhances expectations for increased recall, and thereby leads to a small breaching effect.

Informing subjects that it is common to remember more on a second recall trial probably reinforces this expectation.
and thereby leads to even greater breaching. However, informing them that it is common to remember less conflicts with their prior expectations. The net result is a cancellation effect which leads on average to equal levels of recall on the two trials.

It is important to keep in mind that in the absence of expectancy instructions (i.e., Retest group), only about half of our subjects showed a breaching effect. The remainder either maintained the same level of amnesia or showed an increase. Moreover, nonbreachers scored higher on hypnotic susceptibility than breachers. The failure of high susceptibles to breach has also been reported by others (Howard & Cobb, 1980; Kihlstrom et al., 1980; Spanos, Stambler et al., 1980).

A social psychological account for the frequent failure of high susceptibles to show a breaching effect may be outlined as follows. Subjects who obtain high scores on hypnotic susceptibility scales are invested in presenting themselves during a hypnotic session as being "deeply hypnotized" (Spanos, in press). For these subjects failing to breach amnesia in the face of repeated challenges to recall constitutes a role validating manoeuvre. It adds legitimacy to the subject's self-presentation as "really unable to remember", and therefore, as "deeply" hypnotized. Thus, hypnotic amnesia in general, and the failure to breach amnesia in particular, do not reflect
an inability to recall target material. Instead, amnesia is one aspect of a strategic role enactment that is aimed at maintaining a self-presentation of "deeply hypnotized." It reflects a suggestion-bounded unwillingness (rather than an inability) to attend to retrieval cues that will reinstate the "forgotten" material. High susceptibles often maintain amnesia across recall trials because breaching would be inconsistent with this self-presentation as "deeply hypnotized."

Our social psychological account differs fundamentally from traditional accounts of hypnosis that view amnesia as an automatically occurring failure in recall. For instance, Kihlstrom et al. (1980) argue that high susceptible hypnotic subjects experience a "dissociation in memory" that makes their amnesia "relatively impervious to reminders, exhortations and demands intended to improve memory" (p. 614, 1980). In short, these subjects purportedly fail to breach because they have lost control of memory and are thereby unable to bring target material into consciousness.

Traditional accounts of hypnosis predict that instructional manipulations will not produce complete breaching of hypnotic amnesia in high susceptible subjects. Our social psychological perspective predicts instead that hypnotic amnesia can be easily and completely breached even (especially) in very high susceptible subjects if it is defined as supportive of, rather than as inconsistent with, a self-presentation as deeply hypnotized.
Spanos, Radtke, and Bertrand (1981, see Note 4) tested this hypothesis with eight very high susceptible hypnotic subjects who had failed repeatedly to breach amnesia despite exhortations to be honest and try their best. Following Hilgard (1979), these subjects were informed that, during hypnosis, a "hidden part" of the mind remained aware of information that the "conscious part" could no longer remember. These subjects were then administered an amnesia suggestion for a previously learned word list and challenged to recall. All showed high levels of amnesia. However, before cancellation of the amnesia, the experimenter instructed subjects' "hidden part" to recall the list. Without exception subjects recalled all of the list words. In short, all of these very high susceptible subjects breached amnesia completely when doing so validated rather than invalidated their self-presentation as deeply hypnotized.

According to some investigators (i.e., Hilgard, 1979), hypnotic subjects actually do possess "hidden parts" that are dissociated from conscious awareness and that can be communicated with by the experimenter. Perhaps Spanos et al. (1981) simply communicated with (rather than created through suggestion) the "hidden part" of subjects that prevented conscious access to the forgotten words (for critical reviews of the "hidden observer" notion see Coe & Sarbin, 1977; Margolis & Margolis, 1979; Spanos & Hewitt, 1980). Spanos et al. (1981) tested these ideas in a second experiment. High susceptible
subjects were informed that they had two "hidden parts"; one that was aware of everything that occurred in their right hemisphere and another that was aware of everything in the left. Subjects learned a list containing both concrete and abstract words. Half were informed that concrete words were stored in the right hemisphere and abstract words in the left. The remaining half were given the opposite expectation concerning storage location. Following a suggestion, all subjects showed amnesia for the list words. However, before cancelling the suggestion the experimenter successively "contacted" each subject's right and left "hidden parts". As anticipated, subjects recalled "forgotten" words purportedly stored in the right hemisphere when contact was made with their "right hidden part", and the opposite words when contact was made with their "left hidden part."

The major implication of these findings is straightforward; hypnotically amnesic subjects have not lost control of their memories, and it is inaccurate to describe them as unable to remember target material. Very high susceptible hypnotic subjects can be induced to breach amnesia easily and completely when the successful recall of forgotten information is defined as consistent with "deep hypnosis."

In our study the amount of amnesia demonstrated by subjects on a second recall trial during the suggestion
period was clearly influenced by contextual factors. When experimental demands implied that it was appropriate to respond in a particular fashion (i.e., by remembering more or remembering less), subjects usually did just that. These findings underscore the importance of cognitive-social psychological variables in hypnotic responding.

Hypnotic subjects are not simply "automatons", responding passively to suggestion. Instead, they can be conceptualized more usefully as active, cognizing participants in a social interaction which is shaped and defined by situationally engendered expectations.
Reference Notes


2. Spanos, N.P. *Carleton University Responsiveness to Suggestion Scale.* Unpublished manuscript, Carleton University, 1980.


References


Hilgard, E.R. Toward a neo-dissociation theory: Multiple cognitive controls in human functioning. Perspectives in Biology and Medicine, 1974, 17, 301-316.


Appendix A - Hypnotic Instructions

A 1. Hypnotic Induction
A 2. Free Recall Instructions
A 3. Amnesia Suggestion
A 4. Waking Procedure
Appendix A 1  Hypnotic Induction

Close your eyes. Your ability to be hypnotized depends entirely on your willingness to cooperate. It has nothing to do with your intelligence. As for your will power -- if you want to, you can pay no attention to me and remain awake all the time. On the other hand, if you pay close attention to what I say, and follow what I tell you, you can easily fall into a hypnotic sleep. Hypnosis is nothing fearful or mysterious. It is merely a state of strong interest in some particular thing. In a sense you are hypnotized whenever you see a good show and forget you are part of the audience, but instead feel part of the story. Your cooperation, your interest, is what I ask for. Your ability to be hypnotized is a measure of your willingness to cooperate. Nothing will be done that will in any way cause you the least embarrassment.

Now relax and make yourself entirely comfortable.

Relax completely. Relax every muscle of your body.

Relax the muscles of your legs. Relax the muscles in your arms. Make yourself perfectly comfortable. Let yourself be limp. Relax more and more, more and more. Relax completely.

Relax completely. Relax completely.

Your legs feel heavy and limp, heavy and limp. Your arms are heavy, heavy, heavy as lead. Your whole body feels heavy, heavier, and heavier. You feel tired and sleepy, tired and sleepy. You feel drowsy and sleepy, drowsy and
sleepy, your breathing is slow and regular, slow and regular.

You feel pleasantly drowsy and sleepy as you continue to listen to my voice. Just keep your thoughts on what I am saying. You are going to get much more drowsy and sleepy. Soon you will be deep asleep but you will have no trouble hearing me. You will not wake up until I tell you to. Remember that the dangers of hypnosis are a myth. Nothing will be done that is any way harmful to you. I shall now begin to count. At each count you will feel yourself going down, down, down, into a deep, comfortable, a deep restful sleep. A sleep in which you will be able to do all sorts of things I ask you to do. One—you are going to go deeply asleep.... Two—down, down, into a deep, sound sleep.... Three—four—more and more more and more asleep.... Five—six—seven—you are sinking, sinking, into a deep, deep sleep. Nothing will disturb you. Pay attention only to my voice and the things I tell you.... Eight—nine—ten. Deep asleep! You will not awaken until I tell you to do so. You will wish to sleep and have the experiences I shall presently describe.

You are feeling comfortable and relaxed, comfortable and relaxed, and you are in a deep sound sleep—a deep sound sleep—fully prepared to respond to and experience what I will ask you to do. Fully prepared to respond to each of the suggestions which I will now give you.
Appendix A 2 Free Recall Instructions

In a moment I am going to tell you to open your eyes. You will remain hypnotized, but will feel alert and will be able to accomplish the task I give you, quickly and easily.

I am going to read a short list of words. Try and remember as many words as you can. At the end of the list I will say "recall". Try to recall as many of the words as you can, in any order you like. I will give you one minute to recall the words. This procedure will continue until you are able to recall all of the words on two successive trials. Remember, you can recall the words in any order you like.

Remember, although your eyes will be open and you will feel alert you will remain hypnotized. Now open your eyes but remain hypnotized.

Remember, the same list of words will be presented until you are able to recall all of the words correctly on two successive trials. Please repeat out loud all the words you can remember after each list presentation.
Appendix A 3 Amnesia Suggestion

Close your eyes and listen carefully to the following suggestion. I want you to forget the words you have just learned. When I ask you to recall the list of words you will be unable to remember them until I tap like this (tapping noise) and say "Now you can remember". Until that time you will be completely unable to think of, recall, or remember the words in any way. The words will be gone, gone completely from your memory. You will be completely unable to think of, recall or remember them in any way.
Appendix A 4  Waking Procedure

You are going to wake up in a few minutes. You will feel refreshed, wide awake, and in a good mood. I will count from five to one and with each count you will be more fully awake. Five — starting to wake, four — more and more awake, three — still more and more awake, two — becoming more and more awake, one — wide awake. Open your eyes. Wide awake.
Appendix B - Word List

uncle
yard
silk
dog
mile
cat
mother
wool
horse
father
inch
cotton