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BLOCKING OF RECALL AS A FUNCTION OF THE INTENTION TO REMEMBER AND PERSONALITY FACTORS

by

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Chapter 1

Introduction

Forgetting, both long- and short-term, is a familiar experience and takes a variety of forms. One intriguing form of short-term forgetting is the inability to call to mind something that we are certain we know. At times this inability to recall is only momentary--as when we block on a name ("It's on the tip of my tongue"), or when we temporarily forget what we were going to say or lose a thought that just crossed our mind. Sometimes the inability lasts longer, and strenuous efforts at retrieval are unsuccessful. Such a failure to recall can be annoying, even painful and embarrassing. The beginning therapist may find he cannot recall a substantial part of the session he just concluded; the neophyte raconteur finds he cannot remember the good joke he wanted to recount.

What often makes this experience so puzzling is that when we do succeed in retrieving the memory we can find no good and sufficient reason for having even momentarily forgotten it. The experience itself was well enough registered--there was no apparent weakness of learning or trace formation--and it may also have been so innocuous or emotionally neutral that the usual dynamic explanation (i.e., a hypothesis of repression) fails to be convincing. At times we may suspect that the content of the memory was quite irrelevant, and that the reason for having forgotten it depended upon something else. What? One promising factor to consider is the experience of intending to remember.

Although the intention to remember is usually thought of in terms of its facilitating effects on retention, there is good reason to suspect that such a determination, particularly when it takes the form of a self-administered injunction, can actually interfere with memory. Bartlett (1932), in his classic study of remembering, has observed and reported on such adverse effects. He described how subjects in the picture writing experiment reacted to certain signs with a special effort to remember and it was precisely these signs that were lost. Bartlett attributed the loss to an "interesting complex attitude" on the part of the subject, an aspect of which, if it could be formulated, would be stated, 'I shall never be able to reproduce this sign,' followed by an extra effort, 'But I will remember' (italics his). This second formulation corresponds to the form of the superego injunction that will be discussed. Bartlett concludes by saying, "...there is no doubt whatever that in these experiments a special determination to remember was promptly followed by omission. Similar cases are common in everyday experience" (p. 116). This observation of Bartlett's has, apparently, not been directly followed up. There have, however, been many studies that compare the effects on memory of intentional and incidental learning. This body of research will be discussed below.

A formulation of the mechanism whereby an intention to remember may underlie such instances of blocked recall might be as follows. On the surface, the person may feel simply that the material is something he would like to remember, be it a good point, a funny joke, an important interaction or whatever. He is understandably dismayed to find this is just the memory he cannot recapture. On a deeper level, however,

he may have given himself a strong instruction that he should or must remember. He does this because he thinks that remembering under these circumstances is something he must do in order to live up to certain standards and expectations he has of himself, that is, to satisfy superego requirements that may be related to an internalized ego ideal. To be a good therapist he must remember the session; to be an entertaining raconteur he must remember jokes. In consciously or unconsciously construing the situation this way the individual makes living up to his injunction a condition for feelings of self-satisfaction. As a result the situation becomes emotionally loaded and the individual then buckles under the strain or sabotages his own efforts. Of course, the person most likely to formulate such a self-directed injunction and to suffer from its adverse effects would be one with a strict, overweening and perfectionistic set of superego demands.

The foregoing analysis of momentary forgetting, while clearly invoking psychodynamic factors, may be contrasted with the usual Freudian notion of repression, especially in respect to the role played by superego factors. The concept of repression has, since the Psychopathology of Everyday Life (Freud, 1901), served as the traditional explanation for the temporary forgetfulness of names, foreign words, impressions, resolutions and the like, as well as "slips of the tongue" and other errors. In essence, the theory states that certain memories and thoughts become inaccessible to consciousness because awareness of them would provoke guilt feelings or cause anxiety. Such memories or thoughts are judged unacceptable in terms of superego standards of

morality. Repression, therefore, represents a defense against unpleasure (Lewy & Rapaport, 1944). In the total defensive effort, however, the painful thought itself may not be the only one that succumbs to motivated forgetting. Any one of a host of seemingly innocuous elements that are linked associatively with it in the unconscious may be pulled along into disturbance as well, thus accounting for the phenomenon in question. Schwartz and Rouse (1961), using the concept of associative priming, restate the theory as follows, "We assume that the forgotten word was partially activated (primed) in anticipation of the goal of the thought sequence being communicated to the other person. The partially activated word, in turn, primed related thoughts, some of which were painful in character. The forgetting was thus a way of defending against the associative implications of the crucial word" (p. 2).

In the traditional Freudian view, then, the moral demands of the superego necessitate repression or forgetting. Freud was originally specific in attributing to the ego ideal (the term he then used for what was later to become the superego) the function of being "the chief influence in repression" (Freud, 1921). In modern psychoanalytic terms, however, repression would strictly speaking be considered an ego defense necessitated by potential conflict with superego requirements. In contrast to this, with the mechanism under investigation in this paper, the superego demands for perfection require not forgetting, but remembering. In addition, in repression theory it is assumed that the drive-derivative content of the forgotten material fundamentally underlies the defensive mechanism. In contrast to this, it is assumed in this paper that the calling up of a superego injunction to remember can

bring any material into conflict, regardless of its content, and cause momentary forgetting to occur. In such cases, the function of memory itself would be seen to suffer from the effects of an overly strong intention to remember, rather than any particular class of memories (such as sexual, aggressive, etc.) being lost.

Despite the contrasts given above it should be noted that the two views of momentary forgetting are basically compatible and the ideas put forth in this paper are intended merely as a supplement to the traditional view. Temporary forgetting is, after all, a phenomenon that manifests itself in a variety of ways. In any particular form of blocking one or the other mechanism may dominate. In the Psychopathology of Everyday Life, Freud (1901) gave many convincing examples of the omission of single words, particularly where a substitution took place. Such cases as he described are undoubtedly accounted for by repression. On the other hand, Freud gave very few examples of the loss of extended thoughts--such as the forgetting of jokes, points for an argument, and the like--where no substitution takes place, that are the focus of this study. One may be justified in asking whether an explanation emphasizing the role of superego factors and the intention to remember may not account especially well for this group of cases. It is interesting to note in this respect that a careful rereading of the few examples of this type of momentary forgetting given by Freud shows that they remain open to this alternative explanation. A brief example would be the case quoted by Freud of Ferenczi's forgetting of a self-coined phrase. Ferenczi's description of the incident, as reported by Freud, is as follows: 'One of the guests thought this obser-

vation very good, which in turn emboldened me to remark--probably to ensure myself of the good opinion of the well-disposed critic--that some time ago I thought of something still better. But when I was about to repeat this clever idea I was unable to recall it' (Freud, 1901, p. 20). It seems an obvious possibility that an overly strong intention to remember based upon the need to fulfill some aspect of an ego ideal striving was a significant factor in Ferenczi's inability to recall his clever maxim.

The viewpoint expressed in this paper may be seen as relating to a present day trend toward the study of characterological problems as opposed to the study of neurotic symptoms, per se, with which Freud himself primarily dealt. It is consistent also with the thinking of the school of ego psychology in the sense that it describes the way in which an ego function (namely, memory) that is usually thought of as conflict-free (Hartmann, 1939) can become involved in conflict. Finally, as will be seen below, the ideas presented here reflect an even more recent interest in reexamining the dimensions of superego functioning (Hartmann & Loewenstein, 1962; Lampl-de Groot, 1962; Nass, 1966; Sandler, 1960; Schafer, 1960; and others).

There are a number of ways in which one can characterize momentary forgetting as deriving from the dynamics of a superego injunction. The most important of these are based on overmotivation or self-defeat. The individual with severe or perfectionisitic superego demands is one who tends to construct his behavior in terms of "ought" and "must". He feels worthless and contemptible when he does not live up to his own ideals. In the event that he instructs himself to remember something, then, so much importance is placed on success that effortless, relaxed

functioning becomes impossible. It is easy to see how both registration and recall may in this way be blocked. Horney (1950) has provided perhaps the best theoretical framework for understanding the negative function of inner demands. She describes how the neurotic individual sets up and clings to an unrealistic idealized image of himself which he then feels he must match in his actual behavior. In holding up ideals of such an imperative, yet at the same time unreachable, nature the individual engineers the conditions for his own failure. Horney aptly calls this state of affairs the "tyranny of the should".

Another related way in which the intention to do something amy undermine performance in certain individuals is by triggering a self-defeating mechanism. Although the dynamics of self-deafeat are multiple and complex, superego factors, particularly guilt and self-condemnation, are regarded as major underlying determinants (Warner, 1966). In a sense, the inability to let oneself succeed is merely another side of the vicious circle that is set up in relation to severe internal demands. Since the demands, by their very nature are extremely difficult to meet, failure is almost inevitable. The failure to live up to a super-ego injunction, in contrast to an ordinary intention, results in guilt and self-contempt which can require a need for punishment in order to be lessened (Freud, 1923). The self-defeating person unconsciously, but deliberately, undercuts his own performance as payment for the wrong he feels he has committed. It should be clear that the failure to live up to superego requirements can be in relation to ideals of a non-moral nature as well as those of an exclusively moral nature, though we would strictly apply the term "guilt" only to the latter. In relation to bad conscience in the more moral sense, issues of

aggression are of special importance, in light of the historical development of the superego as a means of suppressing childhood aggression (Freud, 1932). Persons harboring underlying guilt and a judgment of themselves as bad or unworthy reflect these considerations also when they say of a fortunate happening in their lives, "It's too good to be true."

Again, Horney (1950) provides the most succinct explanation for neurotic self-frustration and self-destruction (of which self-defeat is only a subtle and unconscious variation). She points out the ironic, but easily explained, aspect of idealization that the greater the individual's self-hate, the higher he sets his ideals in compensation. The higher ideals, in turn, lead to a widened gulf between the real and idealized selves which results in further devaluation of the self, and so on. According to Horney, self-destruction is one of several expressions of self-hate.

This discussion clearly emphasizes the negative, hostile aspects of superego functioning, which were the qualities Freud developed most fully in his work. This is not to say, however, that there are not positive and loving aspects as well, as Schafer (1960) has reminded us. Other authors have long ago noted the dual nature of superego manifestations. Murray (1938) outlined the following two distinguishable conditions of superego organization: Superego Integration, in which the dictates of the conscience are accepted and integrated into the ego; and Superego Conflict, in which asocial impulses clash with strong prohibiting forces and result in various symptoms of maladjustment such as guilt feelings, self-corrective compulsions, depressions and so forth.

Fromm (1947) delineated the dimensions of superego functioning in a somewhat different fashion, contrasting the authoritarian and humanistic orientations. The former derives from the reverence for external authority and is characterized by the goal of obedience. Humanistic conscience, on the other hand, reflects the individual's own set of value judgments and is characterized by the goals of happiness and productivity.

This discussion of superego functioning would be incomplete without reference to current issues of theoretical concern to which it relates. A number of articles have been published recently attempting to reexamine certain aspects of the concept of the superego. A major question has been whether to consider the ego ideal as a separate system from the rest of the superego, the so-called conscience or the superego proper. It will be remembered that Freud's conception of the ego ideal underwent alteration from time to time as his ideas progressed. Sandler, Holder and Meers (1963) outline four major changes in Freud's use of the term from its introduction in the paper "On Narcissism" (1914) to his later presentations in terms of the structural theory. Freud often used the term "ego ideal" synonymously with "superego". His last view was somewhat modified, however, stating that maintaining the ideal was one function of the superego along with self-observation and conscience (1932). Hartmann and Loewenstein (1962) and Schafer (1960) concur with the Freudian view in considering the superego one system despite its various functions. Other writers argue differently. Lampl-de Groot (1962), for example, maintains a distinction between the ego ideal as the need-satisfying, wish-fulfilling agency and the superego as the critical and punitive agency. Piers and Singer (1953) differentiate the concepts

of "guilt" and "shame" as representing, in the case of the former, tension between the ego and superego and, in the case of the latter, tension between the ego and ego ideal. The point of view presented here is most consistent with a unified concept of the superego in that it emphasizes the interlocking nature of the strivings for perfection and the self-critical functions.

Still another issue of theoretical importance has been raised by Schafer (1967) in his paper on ideals. Schafer argues that ideals stem from all three psychic structures and follow a principle of multiple function. He takes the position that superego standards relate only to questions of morality. Standards of perfection in other areas, such as work or achievement, he believes are rightly regarded as ego standards since they connote good adaptation to reality. In Schafer's view it would be necessary to classify some of the standards discussed above in relation to blocked recall as ego standards. This does not seem entirely appropriate, however. As Hartmann and Loewenstein (1962) point out, the ego ideal strivings include non-moral as well as moral aims. Then, too, regardless of whether the standards themselves relate to ego or superego ideals, the tremendous self-censure and feelings of unworthiness that may be connected with the actual, or even imagined, non-fulfillment of these ideals in certain people must be regarded as revealing superego functioning that has developed in an overly judgmental fashion. What would under normal circumstances be considered an ego striving must under these circumstances be considered a superego imperative. Horney (1950) was clear in distinguishing between genuine standards having an adaptive function and the coercive "shoulds".

Chapter 2

Research Findings

In terms of research findings, Luborsky's investigation of momentary forgetting during psychotherapy (1967) represents the most directly relevant work. Luborsky studied a total of 2,085 sessions from 19 patients and collected 69 examples of momentary forgetting, that is, instances where the patient reported having just forgotten a thought that was in his mind. Of these 69 instances, 51 were complete in the sense that the patient was able to recover the lost thought, thus leaving the event open for scrutiny. On inspection, Luborsky's figures showed considerable individual differences among the subjects in their susceptibility to this type of blocking.

Using free association as a research tool, Luborsky compared the content and context of the momentarily forgotten thoughts with control statements taken from the sessions preceding the forgetting. His overall interpretation of the data was that momentary forgetting occurs because "a conscious thought associatively makes contact with (primes) a series of potentially more threatening thoughts clustered around a repressed drive-organized complex of thoughts. One of these primed derivatives is momentarily forgotten as part of an increase in defense against the threat of the associated repressed thoughts' coming into awareness" (p. 215, italics his). This interpretation corresponds to the classical formulation of repression. As Holt points out in an editorial footnote, however, this interpretation is really a questionable generalization from the data. Luborsky's findings seem open to an alternative

explanation that is more in line with this proposal. The most highly significant feature that was found regarding the forgotten statements was that they represented a "new attitude or behavior which he [the patient] has wished for a long time, but has been unable to achieve or to tolerate" (p. 196). Could it not be that these patients blocked primarily because of the fact that superego conflicts prevented them from fulfilling that kind of a wish or ideal uneventfully? Holt observes in another footnote:

> "It is striking how many of the concrete examples given by Luborsky touch on issues raised by Schafer [1967]: the frequency with which what is momentarily forgotten is a self-representation expressed as a self-observation, and the ubiquitousness in these forgettings of self-evaluations with respect to various kinds of ideals. Forgetting may be motivated, it appears, by a kind of discrepancy (cognitive dissonance?) between self-representations. Often this is of an expected kind, when the perceived self does not live up to superego or ego standards; but as Luborsky brings out, it is surprisingly often a discrepancy that one would ordinarily expect to be pleasant, between the present perceived self and a past self (or self-representation) in ways constituting an approach to ideals. Indeed, the euphoric affect that would be appropriate to such an achievement is in fact frequently associated with momentary forgetting, with statistical significance". (p. 201).

An explanation has been given above for the way in which a superego conflict can cause an intention that is related to an ideal to be disturbed. In the case of Luborsky's subjects, the writer would further emphasize the importance of transference factors in this respect. Luborsky reports that "considering all instances together, the most common quality determining the loss of these thoughts seems to be potential anxiety about letting oneself and/or the therapist become aware of the thought" (p. 193, italics his). Luborsky's typical patient may be understood as holding certain ideals for himself, particularly in relation to how he wishes the therapist to see him. His

thought is probably to tell the therapist that he has in some way reached his ideal of himself or their shared goal in relation to the treatment. The patient then may become blocked either because of an over-motivated intention or because success would be "too good to be true". It is interesting to note that one of Luborsky's patients stated he felt the thought was lost "possibly because it sounds conceited. It does sound conceited to me". This may be interpreted as a variation of 'I am not worthy of thinking this well of myself,' a superego sentiment. There is no way of assessing directly the subjects' intent to remember in this study, but it may be significant to note that Luborsky observed the momentary forgetting is often given in a surprised tone of voice, suggesting that the patient fully intended to remember.

Investigations in the experimental laboratory, using a totally different line of approach, have explored another type of blocked recall, the so-called tip-of-the-tongue phenomenon. This well-known experience was described eloquently by William James (1890) as follows:

> "Suppose we try to recall a forgotten name. The state of our consciousness is peculiar. There is a gap therein; but no mere gap. It is a gap that is intensely active. A sort of a wraith of a name is in it, beckoning us in a given direction, making us at moments tingle with the sense of our closeness and then letting us sink back without the longed-for term. If wrong names are proposed to us, this singularly definite gap acts immediately so as to negate them. They do not fit into its mould. And the gap of one word does not feel like the gap of another, all empty of content as both might seem necessarily to be when described as gaps" (p. 251).

Recent experiments have shown that subjects are indeed able to predict better than chance which of a group of unrecalled items they will subsequently be able to recognize. This has been demonstrated for both general information material from long-term memory as well as paired-

associate responses from more recent memory (Freedman & Landauer, 1966; Hart, 1965; Hart, 1967). Hart (1967) has called this ability to classify the storage or non-storage of material without actual recall the MOM or memory-monitoring system. It has also been shown that subjects are able to identify certain generic qualities of forgotten vocabulary words, such as the initial letter, the number of syllables, etc., while still being unable to recall the word itself (Brown & McNeill, 1966). Freedman and Landauer (1966) found that giving the initial letters of the correct answers to their common knowledge questions significantly aided recall when compared with giving incorrect initial letters or no letters at all. This line of research has begun to answer important questions about storage and retrieval factors in the tip-of-the-tongue (TOT) phenomenon. It leaves unanswered the major questions of interest in the present study, namely, the reasons for the occurrence of the memory failure and the possibility that individuals may differ in their susceptibility to blocking because of personality factors. Brown and McNeill (1966) did incidentally report variations among subjects in the tendency to experience the TOT state in the experimental situation, which involved recalling obscure vocabulary words from their definitions. Subjects experienced from 0 to 8 TOT states during the two hour session.

Psychologists have long been interested in the problem of incidental vs. intentional learning and there is a sizable body of literature on the subject (see, for example, McLaughlin's review, 1965). The central question impelling such research has been whether or not learning can take place in the absence of a specific intent to learn. The studies have, therefore, focused primarily on the incidental rather than the intentional condition. The usual procedure is to compare the two conditions

with an eye to discovering the factors that will increase or decrease incidental learning with respect to intentional learning. It is no surprise that intentional learning has generally been found to be superior to incidental learning, but it is surprising that this difference is often quite small, and can under suitable conditions be obliterated (Mechanic, 1964; Mechanic & Mechanic, 1967; Plenderleith & Postman, 1957; and others) or even reversed (Dornbush & Winnick, 1967; Eagle & Leiter, 1964; Schwartz & Rouse; and others). The interesting finding that intentional learning can be inferior to incidental learning has been shown not only for recognition memory, but for recall as well. Dornbush and Winnick (1967), for example, found that intentional learning was superior only for recall at a slower presentation rate. For recall at a fast presentation rate and for recognition at both presentation rates incidental learning was superior. Schwartz and Rouse (1961) found in their experiments that incidental learning subjects recognized and recalled 53% more words than did subjects in a comparable group who learned intentionally. The important variable in this and other studies was the nature of the orienting or "cover" task the subjects were required to perform. In a definitive experiment, Eagle and Leiter (1964) demonstrated that "intention to learn is crucial for learning only to the extent that it generates adequate learning operations. Furthermore, different learning responses (e.g., recall and recognition) require somewhat different operations."

If an intention to learn generates a suitable operation then it will support recall. If, however, the intention fails to generate one, then recall will suffer. For some people under some conditions an intention may actually prevent a suitable learning operation from taking

place by creating motivation which is too strong. Allport (1943) states, in this respect, that while a moderate level of ego-involvement is facilitating to learning, too intense a level may be disruptive. "Its optimal integrative value," he says speaking of ego-involvement, "may be actually undermined when eagerness or self-consciousness reach a degree of intensity that lead to embarrassment or over-anxiousness". A study by Johnson and Thompson (1962) demonstrated this curvilinear relationship between motivation and intentional learning. They found that while a medium level of motivation enhanced intentional learning, a high level was detrimental. In this experiment the high motivation group consisted of students in the experimenters' classes who were on the borderline between two grades and who were told that a high performance in the experiment would give them the higher grade. It is this writer's contention that persons with strict superego demands will be especially prey to this type of disruption under conditions of intent to remember, as they will also be more prey to the interesting varieties of day to day forgetting described above.

The notion that a high level of motivation may be more detrimental to certain personality types than to others has not been studied in relation to superego variables, but has been demonstrated in relation to manifest anxiety. Sarason (1956) found that whereas highly motivating instructions were helpful to middle and low anxious subjects, they hindered the performance of high anxious subjects. Sarason hypothesized that anxious subjects may have learned certain detrimental responses to such situations like verbalizing to themselves about the importance of a good evaluation. In another study, Sarason (1957) reported similar find-

ings. He noted, however, that there was considerable inter-subject variability. "This raises the question," he says, "of whether or not control of only one individual difference variable, anxiety, is sufficient to reduce markedly the intragroup variability so often obtained when motivating instructions are experimentally varied" (p. 168). The present study, though attempting to answer different questions, directs attention to one possible personality variable of importance in this respect.

Although there has been considerable theoretical interest in defining superego factors, little experimental work has been done which relates this aspect of personality to performance measures in areas such as learning, intelligence, etc. Grunes (1956) devised three paper and pencil scales measuring what he called Integrated, Non-Integrated and Moralistic-Repressive Conscience types respectively. The Integrated and Non-Integrated Conscience types are similar to Murray's Superego Integration and Conflict and reflect the degree to which strong moral principles and standards of behavior are acceptable and comfortable to the individual (Integrated Conscience) versus the degree to which such prohibitions and standards are rebelled against, thereby creating moral conflict, anxiety and guilt (Non-Integrated Conscience). While these two scales concern themselves in large part with the strictly conscience aspects of superego functioning (those of primary interest to Grunes) they also include questions relating to standards for perfection and striving towards an ideal. The Moralistic-Repressive Conscience type is similar to Fromm's authoritarian conscience. This type is characterized by a strict moral system requiring a high degree of control over impulses and self-expression by the individual and others as well and does not

relate to the present study.

Grunes related scores on the conscience scales to four measures of intelligence and abstract reasoning (verbal analogies, number series problems, Raven's Progressive Matrices and multiple choice vocabulary). He hypothesized that Non-Integrated and Moralistic-Repressive Conscience would be negatively related to intelligence, while Integrated Conscience would relate positively to intelligence.

The results of the Grunes study were most consistent for the Moralistic-Repressive dimension, with all groups tested showing the predicted negative relationship. For Integrated Conscience the predicted positive relationship was generally not found. For Non-Integrated Conscience the predicted negative relationship was given marginal support, showing up for some groups (older women and Catholic men) and for certain of the intelligence measures (number series for men, analogies and vocabulary for women). The present study attempted to explore the way in which one aspect of superego functioning could be related to certain more limited learning operations as opposed to intelligence in general.

Chapter 3

Experimental Design and Hypotheses

In line with the foregoing considerations, the aim of the present dissertation was to study experimentally the effects on free recall of a personality variable (harshness vs. weakness of superego demands) and the intention to remember, in order to investigate the processes underlying momentary forgetting and other forms of blocking.

Subjects were first questioned by means of a written questionnaire as to their experiences of the kind of blocking, both momentary and otherwise, that have been discussed in this paper, in order to evaluate their everyday susceptibility to such occurrences. On the basis of this questionnaire, subjects who stated they were prone to experiencing momentary forgetting and related phenomena (High Blocking group) were distinguished from subjects who stated that they rarely experienced such blocking (Low Blocking group). At the same time, subjects were given a paper-and-pencil inventory designed to evaluate the strength or harshness of superego factors in their personality. On the basis of this superego scale, subjects who described themselves as having an overly demanding set of superego requirements (High Superego group) were distinguished from those who described themselves as having a weak or benign set of requirements (Low Superego group).

The relationship between the scores on these two instruments was investigated in order to test

Hypothesis 1: that proneness to memory blocking is positively related to superego severity.

Subjects were next tested on their ability to freely recall verbal material (jokes and humorous stories) under the conditions of a Type II incidental vs. intentional learning experiment. A Type II design is one in which subjects are directed by intentional instructions to learn certain material while at the same time being oriented to other material which is incidental with respect to learning (McLaughlin, 1965). This format allows for a comparison between the intentional and incidental learning of each subject. In addition, by having intentional items interspersed among incidental items, the experimental procedure duplicates as closely as possible the everyday experience of blocking, where the individual seems to highlight the material he intends to remember against a context of more casually encountered material.

In addition to the intentional vs. incidental learning procedure, subjects were also given a short test of memory ability for connected verbal material in order to assure comparability of subjects on this dimension.

In this study, jokes were selected for the experimental task on the basis of several considerations. As noted in the introduction, the memory phenomenon in question often happens in real life in relation to jokes or stories the person wants to recount. This material, therefore, would seem to lend itself to a laboratory investigation of the variables involved. Moreover, jokes were felt to be interesting enough to most subjects to maintain a moderate level of attention throughout the experiment and, through the proper instructions, could be made the object of a strong intention to remember. Subjects were oriented toward the material by asking them to rate the jokes for humorousness. They were also given strongly ego-involving instructions to remember half of the

jokes on which they would later be tested. In the recall test, however, they were asked to reproduce all the jokes to which they were exposed.

Recall was measured by means of an accuracy score, and a comparison was made of the differential learning under intentional and incidental conditions of subjects in the High and Low Superego groups.

Hypotheses 2 and 3: It was hypothesized that under the conditions of the experiment subjects with harsh or severe superego standards (High Superego group) would have lower intentional learning than a group of subjects who were comparable in verbal memory ability, but who had weak superego standards (Low Superego group). It was hypothesized that no difference would be found between the two groups on incidental learning.

A separate comparison was made of the differential learning under intentional and incidental conditions of subjects in the High and Low Blocking groups.

Hypotheses 4 and 5: It was hypothesized that subjects who reported being prone to momentary forgetting and related phenomena (High Blocking group) would have lower intentional learning than a group of subjects who were comparable in verbal memory ability, but who reported rarely experiencing blocking (Low Blocking group). Again, the prediction was that there would be no difference between the two groups on incidental learning.

These two sets of hypotheses reflect the writer's belief that the combination of characteristically strong superego demands coupled with

an externally encouraged subjectively felt intention to remember can lead to a breakdown in performance through over-motivation or self-defeating tendencies, as well as the notion that the kind of forgetting involved in momentary blocking is related to the detrimental effects of a self-administered injunction to remember.

Chapter 4

Method

Subjects

Subjects for this experiment consisted of 13 classes of undergraduate psychology at City, Queens and Lehman Colleges who were enlisted on a non-volunteer basis since it was felt that volunteering for experiments may be related to superego variables. For similar reasons the experimental procedure was designed to minimize experiment-related subject loss as much as possible within the constraints of time, teacher cooperation, etc. In all, full data were collected on 203 subjects, of whom 85 were males and 118 were females. Subjects ranged in age from 17 to 54 years, with a mean age of 21.2 years (S.D.=4.6). The mean grade point average was 2.79 or roughly a B- (S.D.=0.46).

Materials

The 12 jokes used in this study were selected with minor adaptation from a study on the perception of humor in college students (Hom, 1966) and from several books of anecdotes for public speakers. The jokes were chosen for their relevance to a college group as well as for their length. No jokes of a highly charged nature were used. Each of the 10 test items consisted of 21 information units and the two warm-up items consisted of 16 and 25 information units. The test jokes were divided into two sets of five jokes each. An attempt was made to balance the sets as much as possible with respect to content (i.e., school related jokes, jokes about dating, jokes that might appeal more

to males or females). The final sets each contained a total of 228 words. Within each set the order of the jokes was determined randomly. The jokes in one set were presented to subjects as the odd numbered items, those in the other set were presented as the even numbered items. The list of jokes is given in Appendix A.

The jokes were recorded on tape by a male speaker in a bland tone of delivery with 10 seconds between items. The tape was pretested on a similar group of subjects to check for the clarity of the recording and to ensure that the number of jokes and the length of items was feasible for recall.*

The tape recorded jokes were presented to subjects on a Panasonic portable tape recorder.

Procedure

Subjects were first given the two paper-and-pencil tests to fill out at home and return to class. These instruments were referred to as a "memory survey" and an "attitude and experience inventory" respectively. They were given out by the class teacher who indicated that the study was part of ongoing research in the department and represented an attempt to learn about City University students in general rather

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*In actuality a second tape was used in the experiment for the last 11 classes tested. This occurred because on the first day of testing subjects complained that the recording was too slow. (The pretest group had not made this complaint.) From the reaction it was felt that the slowness of the tape might tend to annoy subjects unduly and a re-recording was made by the same speaker at a slightly faster speed. After the data were scored it was found that there was no difference between the tapes on the mean total recall (intentional plus incidental recall) and the data were therefore pooled.

than being a test of the student himself. Students identified themselves by means of a code number consisting of the last four digits of their phone number. They were reminded of the anonymous nature of the study and were encouraged to be as free and open as possible in their responses. The teacher indicated the need for a high rate of return in surveys such as this and encouraged this verbally. In addition, some teachers may have required return.

On another day, unannounced previously to the class, the experimental learning procedure was conducted by the experimenter in the classroom. Each subject was given a "Rating Sheet" on which to record his ratings of the humorousness of the jokes. This sheet also indicated which set of jokes was intentional by stating "REMEMBER THIS JOKE" before half of the items. In Condition (A) the odd numbered jokes were flagged for intentional recall, leaving the even numbered jokes for incidental recall. In Condition (B) the even numbered jokes were flagged for intentional recall. The two forms of the answer sheet were arranged alternately in the pile from which they were distributed, so that approximately half the subjects would fall into each condition. Samples of the two answer sheets appear in Appendix B.

Subjects were instructed as follows:

> "I am interested in finding out some things about your sense of humor--not only how well you appreciate humor, which is the usual meaning of the term, but particularly about your ability to recount jokes and funny stories from memory. My purpose is to demonstrate how this ability relates to other important psychological traits. If you think about it, I'm sure you know what I mean. Being able to remember jokes well reflects, for one thing, being mentally alert and having a high verbal ability. In one study with college students it was even shown that this trait alone was a surprisingly good predictor of I.Q. I knew they were related, but I was surprised to find it show up so clearly statistically. The other quality that

this ability reflects is, of course, how well you are liked. We all know people who seem to draw others to them simply by being able to make them laugh. And we know how embarrassing it is to start telling a joke and then forget it. We start out trying to win attention and end up looking foolish.

The test consists of my playing a tape of 10 jokes. You are to do two things. The first is to rate each joke for humorousness using the following five point scale:

Not funny at all
Mildly amusing
Moderately funny
Quite funny
Hilarious

On the sheet in front of you, you are to indicate how funny the joke seems to you by checking the appropriate box. Be sure to give one of these ratings to each joke even if you are not entirely sure where to place it. The jokes are not read in a humorous fashion, so it's up to you to decide how funny they are.

The second thing you are to do is to commit to memory certain of the jokes. Your answer sheet will indicate which of the jokes you are to remember. When the number of the item is spoken on the tape look down on the sheet and check to see if this is one you are supposed to remember. After the tape is over I'll ask you to give an exact reproduction of these five jokes. The tape will only be played once and each joke appears only once, so listen carefully. Don't make any notes on your paper; you must rely on your memory. Any questions?

One very important thing, please make no sound whatsoever during the tape--no questions, no laughter or anything. If you laugh you may miss the beginning of the next joke and will indicate to others something about your rating. So it's absolutely essential that you react with perfect silence.

In order to help you get used to the procedure there will be two warm-up items. Here they are... Any questions? O.K. Let's begin.

When the tape was completed, subjects were told:

"Now I'm going to ask for your recall of the jokes. Only I want you to reproduce <u>all</u> the jokes that you heard, not just the ones you were instructed to remember. I would like you to write out all 10 jokes as accurately as you can. And, by the way, if you can remember the warm-ups include them too. It's probably impossible for you to recall them word for word, but try to be as precise and word perfect as you can. Any questions? One more thing; if anything occurs to you at the end of a joke, say some stray facts or

any afterthoughts, put them in, but put them in a set of parentheses. Write as quickly as you can. I'm good at deciphering handwriting. Please go ahead."

After subjects finished giving their recall, the Post-Experimental Inquiry shown in Appendix C was given out. The purpose of this was to determine whether any of the subjects anticipated the incidental learning procedure or for any other reason instructed themselves to remember some of the incidental material (see p. 37). Subjects were also given an opportunity to indicate whether their performance was influenced by special circumstances or stresses such as illness, etc. (see p. 37). One additional question was asked verbally. That was, "Did you know any of these jokes before? If so, which one(s)?"

For the final part of the session, subjects were given the "Twin Story" (Paul, 1966) as a test of memory ability for extended verbal material (see Appendix D). The following instructions were used to achieve a fully intentional, yet non-stressful, state of mind:

"The last thing will be a straight memory task--a short one. I assure you there won't be any more tricks of any kind. I will just read you a story and afterward I'll ask for your memory of it. In this case, don't worry too much about how you'll do. Just listen carefully. I will read the story through <u>once</u>, at my usual reading speed. Now, it will not be possible for you to remember it completely. Nevertheless, try and remember as much of it as possible. Any questions? Just relax. Don't try to use any special memory schemes."

The following instructions were used to secure the reproduction:

"Now, your memory of the story. As accurately, completely and faithfully as you can, please write out the story that I read to you. Any questions? Again, if anything occurs to you at the end, say some stray items or afterthoughts, write them down in parentheses. Write as quickly as you can. Please go ahead."

Tests and Scoring

Blocking questionnaire. The questionnaire used in this study to assess susceptibility to momentary forgetting is given in Appendix E. This instrument and a numerical scoring system for it were devised by the experimenter and pretested on a group of 68 City College students. On the basis of the pretesting only minor revisions were made on the original form of the instrument in order to eliminate ambiguities.

The scoring manual for the blocking questionnaire is given in Appendix F. In general, the scoring system consists of assigning positive values to responses indicating a tendency to experience blocking, assigning negative values to responses indicating a tendency not to experience blocking, and assigning no value to responses which fail to discriminate between blocking and non-blocking or which represent the average response.

For the total group tested the blocking scores ranged from -24 to 49 with a mean score of 1.76 (S.D.=15.46). No difference was found between the blocking scores for males and females. The summary of blocking scores is given in Table 1. The distribution of the blocking scores is shown in Figure 1.

Since the distribution was clearly bimodal in shape the natural peaks in the curve were used in determining the cut-off points for High and Low Blocking subjects. The actual values of the cut-off points, 12 or more for High Blocking subjects and -7 or less for Low Blocking subjects, were arrived at by examining the ungrouped frequency distribution. The number of subjects falling into the High, Middle and Low ranges on blocking are given in Table 2.

Table 1

Blocking Scores

Group	N	Range	Mean	S.D.	t
Males	83	-24 to 48	1.39	15.51	<1
Females	118	-25 to 49	2.02	15.42	
Total	201	-24 to 49	1.76	15.46	

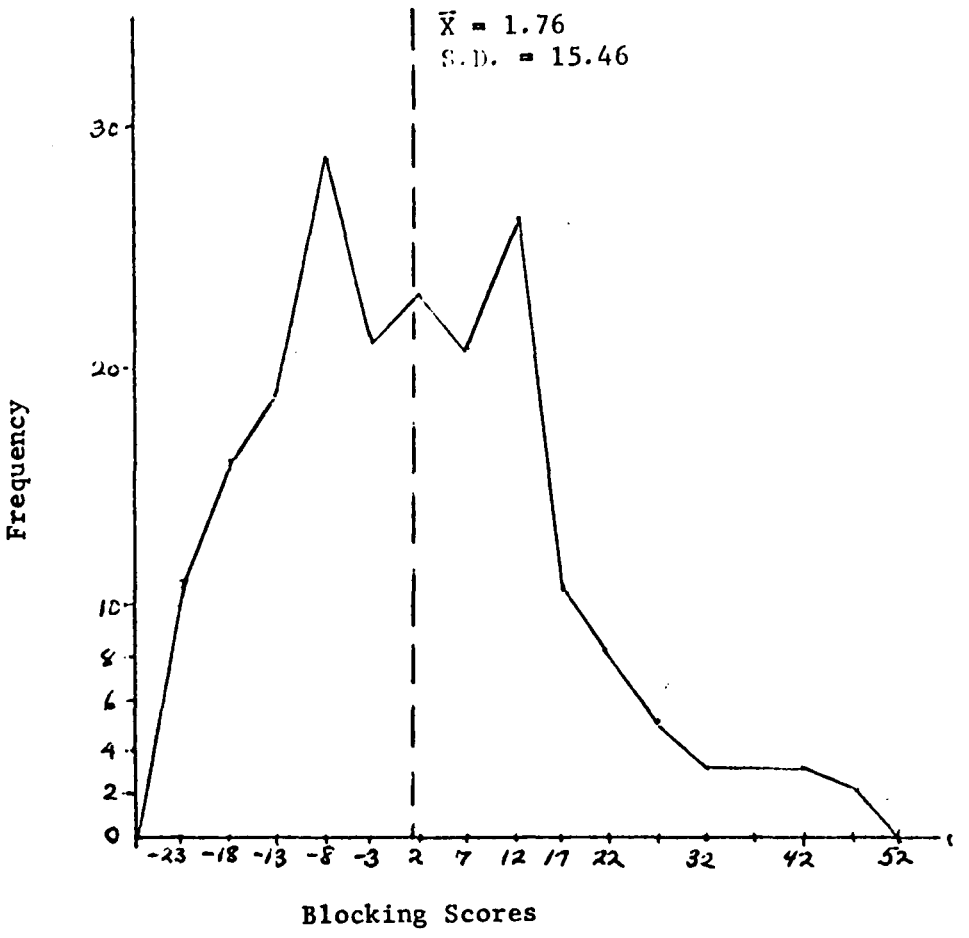

Fig. 1 Frequency Distribution of Blocking Scores

Table 2

Number of Subjects Scoring in the High, Middle and Low Ranges on Blocking

Group	High Blocking[a]	Middle Blocking[b]	Low Blocking[c]	Total
Males	24	26	33	83
Females	29	52	37	118
Total	53	78	70	201

[a]Scoring 12 or more

[b]Scoring between -6 and 11

[c]Scoring -7 or less

Superego scale. The superego scale used in this experiment consists primarily of 38 items culled from the Grunes Integrated and Non-Integrated Conscience Scales (Grunes, 1956) on the basis of their relevancy to the conception of superego severity given in the introduction to this paper. In general, the chosen questions relate to the quality and severity of demands felt by the person (e.g., "I do most things because I really want to and not because I have to") rather than to specific moral or "conscience" issues (e.g., "When you come right down to it, most people are basically selfish"). In a pilot study with 68 City College students the entire Integrated and Non-Integrated Conscience Scales (45 and 54 items respectively) were given to subjects (the Moralistic-Repressive Scale being judged unrelated to the present study) and the hypothesis was tested that the relationship between blocking and superego severity would be greater when scores on the 38 relevant items were used as the measure of superego severity than when scores on the non-relevant items were used. Since this hypothesis was confirmed it was concluded that these items would provide the most pertinent measure of superego severity for the present study. Seven additional items were added in order to cover important aspects not dealt with in the Grunes items, and 25 buffer items were included also to make the purpose of the test somewhat less obvious to the subjects.

The final scale as presented to subjects is given in Appendix G. Each of the 45 items on the scale is scored one to four, with a score of four being given to the True or False choice indicating greater superego severity. These choices are underlined next to each item in Appendix G. The possible scores on this scale range from 45 to 180.

Superego scores ranged from 68 to 160, with a mean score of 111.46 and a standard deviation of 17.95. The summary of superego scores is given in Table 3. No significant difference was found between the scores for males and females. The frequency distribution is shown in Figure 2. As with blocking scores, since the distribution was bimodal in form the natural peaks in the curve were used in assigning subjects to the High and Low Superego groups. The exact cut-off points, determined by examining the ungrouped frequency distribution, were 119 or more for the High Superego group and 103 or less for the Low Superego group. The numbers of subjects falling in the High, Middle and Low groups are shown in Table 4.

Measure of recall. Recall of the jokes and the Twin Story was measured by means of an accuracy score. This method of scoring, which entails dividing the material into information units and assigning a predetermined point value to correct and reasonably correct units, has been described elsewhere (Paul, 1966). In this study, the point values used were 2, 1 or 0 points per information unit. The examiner scored all protocols without knowledge of the subject's performance in other aspects of the experiment. A record was kept of decisions as they were made. The scoring manual for jokes is given in Appendix H and for the Twin Story in Appendix I.

In order to check for scoring reliability of the jokes the following procedure was employed: all completed protocols were arranged in order of intentional recall score and every fifth one removed. This group of protocols was then shuffled and presented to a second person for independent scoring. The coefficient of reliability with this procedure was .99.

Table 3

Superego Scores

Group	N	Range	Mean	S.D.	t
Males	84	68-160	110.82	19.17	<1
Females	118	73-153	111.92	17.00	
Total	202	68-160	111.46	17.95	

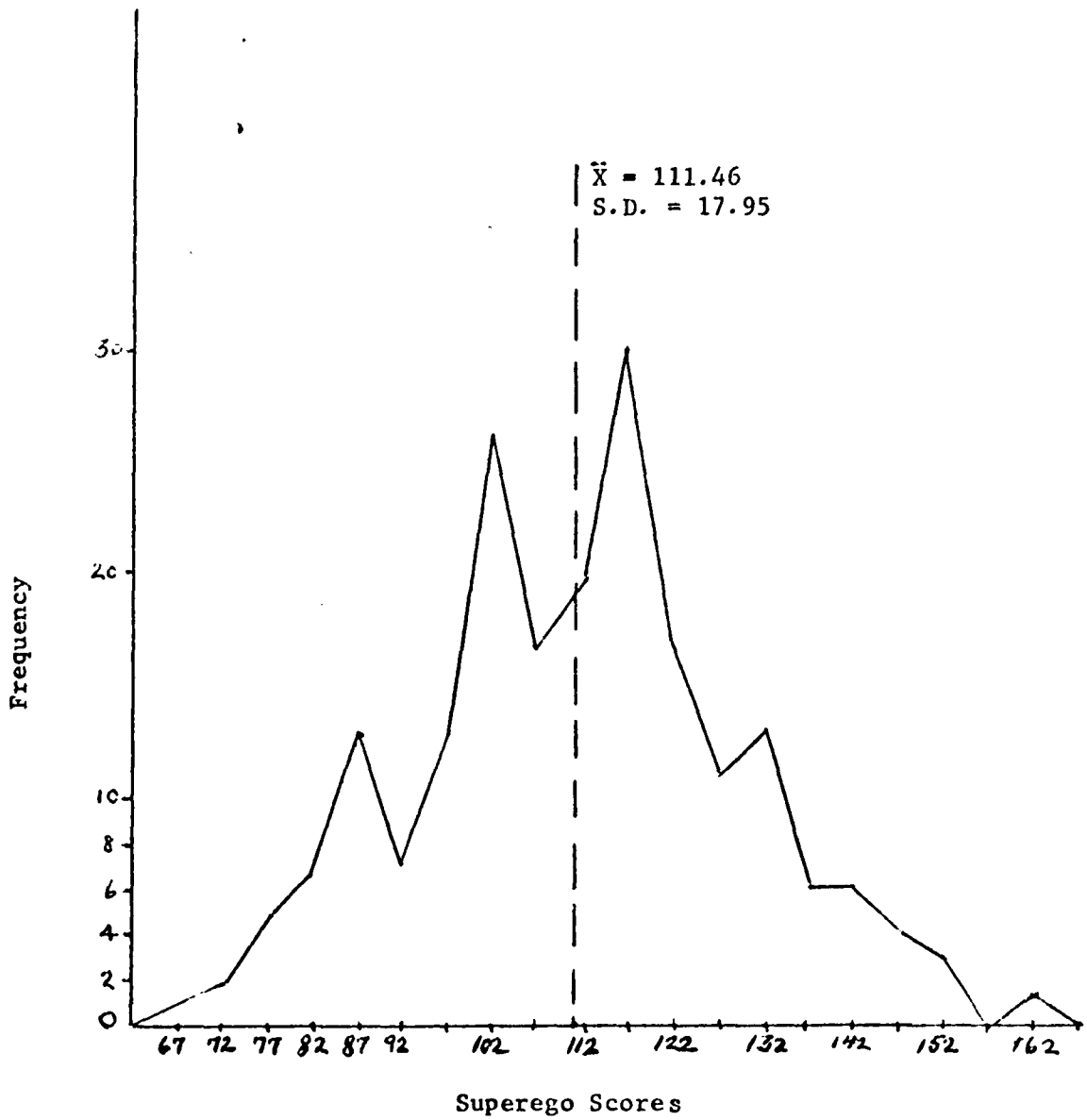

Fig. 2 Frequency Distribution of Superego Scores

Table 4

Number of Subjects Scoring in the High, Middle and Low Ranges on Superego Severity

Group	High Superego[a]	Middle Superego[b]	Low Superego[c]	Total
Males	29	25	30	84
Females	39	37	42	118
Total	68	62	72	202

[a]Scoring 119 or more

[b]Scoring between 104 and 118

[c]Scoring 103 or less

In addition to the accuracy score, recall of the jokes was also measured by the number of jokes remembered and by the total number of words given in the recall, without regard to accuracy.

Elimination of subjects. In analyzing the data, various subjects had to be excluded from consideration in one or more of the statistical procedures because of irregularities in their performance which would be pertinent to the outcome of that procedure. The various criteria used in eliminating subjects are given in Appendix J. Each analysis was based on the maximum number of subjects available for it. The largest group of subjects (31) was eliminated from consideration in the analysis of the intentional vs. incidental recall scores. The use of more relaxed criteria for elimination does not, however, change the nature of the results.

Pro-rating of recall scores for subjects who self-instructed incidental jokes. In cases where the subject, for one reason or another, instructed himself to recall one or two of the jokes which were intended by the experimenter to be incidental with respect to recall, it was necessary to consider such self-instructed items as additional intentional material and then prorate the intentional and incidental scores accordingly. The data from this group of subjects were examined to determine that they did not depart from the general pattern of results. This information is shown in Appendix K.

Chapter 5

Results

Relationship Between Memory Blocking and Superego Severity

In this study it was hypothesized that susceptibility to everyday experiences of memory blocking (as measured by scores on the blocking questionnaire) would be positively correlated with superego severity (as measured by scores on the superego scale). This hypothesis is supported by the data. Product moment correlations were run between the two variables. The values obtained were for the total group r=.42 (n'=200), for male subjects r=.44 (n'=82), for female subjects r=.39 (n'=.118). All three correlations were significant at the .01 level.

The mean blocking scores for High, Middle and Low Superego subjects were also computed and are shown in Table 5. These differences were tested by means of analysis of variance and were found to be significant at the .001 level of the total group and for females, and at the .01 level for males (see Table 6). Similarly, the mean superego scores for High, Middle and Low Blocking subjects were computed and are shown in Table 7. These differences were also significant (see Table 8).

Relationship Between Intentional vs. Incidental Memory and Superego Severity

It was predicted that subjects in the High Superego group would have lower intentional recall (accuracy) scores than subjects in the Low Superego group, while the two groups would not differ on incidental recall. Before testing this hypothesis, it was necessary to determine that High and Low Superego subjects did not differ in verbal memory

Table 5

Mean Blocking Scores for High, Middle and Low Superego Subjects

Group	N	Mean	S.D.
Total Group			
High Superego	68	9.74	16.16
Middle Superego	60	0.98	13.74
Low Superego	72	-5.32	12.60
Males			
High Superego	29	8.66	17.30
Middle Superego	23	0.87	14.53
Low Superego	30	-5.70	11.32
Females			
High Superego	39	10.54	15.44
Middle Superego	37	1.05	13.43
Low Superego	42	-5.05	13.56

Table 6

Analysis of Variance of Blocking Scores for High, Middle and Low Superego Subjects

Total Group

Source	df	MS	F
Treatment	2	3984.46	19.67***
Error	197	202.55	
Total	199		

Males

Source	df	MS	F
Treatment	2	1521.30	7.18**
Error	79	211.89	
Total	81		

Females

Source	df	MS	F
Treatment	2	2481.24	12.35***
Error	115	200.83	
Total	117		

**$p < .01$

***$p < .001$

Table 7

Mean Superego Scores for High, Middle and Low Blocking Subjects

Group	N	Mean	S.D.
Total Group			
High Blocking	52	121.06	18.72
Middle Blocking	78	111.31	16.74
Low Blocking	70	104.44	15.86
Males			
High Blocking	23	122.65	19.40
Middle Blocking	26	108.04	17.06
Low Blocking	33	104.58	18.20
Females			
High Blocking	29	119.79	18.41
Middle Blocking	52	112.94	16.50
Low Blocking	37	104.32	13.70

Table 8

Analysis of Variance of Superego Scores for High, Middle and Low Blocking Subjects

Total Group

Source	df	MS	F
Treatment	2	4119.28	14.28***
Error	197	288.36	
Total	199		

Males

Source	df	MS	F
Treatment	2	2353.69	7.11**
Error	79	331.09	
Total	81		

Females

Source	df	MS	F
Treatment	2	1993.31	7.61***
Error	115	261.98	
Total	117		

** $p < .01$

***$p < .001$

ability. This was done by comparing the two groups on the Twin Story recall. Table 9 shows that there was no significant difference in verbal memory ability between High and Low Superego subjects in either the total sample or the male and female subsamples.

The hypothesis itself was tested by means of analysis of variance. The following design was used with the method of unweighted means being employed to handle unequal numbers of subjects in the four subject groups (Winer, 1962).

		Ss	Intentional	Incidental
High Superego	(A)	1 ⋮ n	odd jokes	even jokes
	(B)	1 ⋮ n	even jokes	odd jokes
Low Superego	(A)	1 ⋮ n	odd jokes	even jokes
	(B)	1 ⋮ n	even jokes	odd jokes

The results of the analysis of variance using accuracy scores for the total group and for males and females separately are given in Tables 11, 13, and 15. The corresponding means and standard deviations are given in Tables 10, 12 and 14. The analysis of variance, in each case, gives only two significant Fs. The highest significant F comes from the difference between intentional and incidental memory averaged over all subjects and all conditions and is neither a surprising nor interesting finding. The second significant F, however, that from

Table 9

Accuracy Scores on Twin Story Recall

for High and Low Superego Groups

Group	N	Mean	S.D.	t
Males				
High Superego	24	54.29	12.11	<1
Low Superego	22	54.95	11.90	
Females				
High Superego	34	56.50	14.18	<1
Low Superego	38	55.45	13.78	
Total				
High Superego	58	55.58	13.29	<1
Low Superego	60	55.26	13.02	

Table 10

Accuracy Scores for High and Low

Superego Subjects on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	32	78.28	27.74	<1
Low Superego	Intentional	(A)	34	80.68	31.00	
High Superego	Incidental	(A)	32	69.62	35.97	<1
Low Superego	Incidental	(A)	34	65.76	29.97	
High Superego	Intentional	(B)	28	92.71	28.53	<1
Low Superego	Intentional	(B)	26	99.08	27.08	
High Superego	Incidental	(B)	28	47.54	28.72	<1
Low Superego	Incidental	(B)	26	52.38	27.22	

Note: In this and all other tables Condition (A) indicates odd jokes intentional and even jokes incidental, while Condition (B) indicates even jokes intentional and odd jokes incidental.

Table 11

Analysis of Variance of Accuracy Scores for High and Low Superego Subjects on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	119		
Superego (S)	1	352.54	
Conditions (C)	1	25.63	
S x C	1	595.36	
Error (b)	116	1028.38	
Within Subjects	120		
Intentional vs. Incidental Recall (I)	1	49432.80	65.82***
S x I	1	225.05	
C x I	1	17295.86	23.03***
S x C x I	1	82.96	
Error (w)	116	751.03	
Total	239		

***$p < .001$

Table 12

Accuracy Scores for High and Low Superego Males on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	14	74.00	24.89	1.29
Low Superego	Intentional	(A)	12	86.42	23.78	
High Superego	Incidental	(A)	14	57.64	34.16	<1
Low Superego	Incidental	(A)	12	57.92	32.49	
High Superego	Intentional	(B)	11	87.18	33.12	<1
Low Superego	Intentional	(B)	10	96.60	26.36	
High Superego	Incidental	(B)	11	32.27	20.94	1.69
Low Superego	Incidental	(B)	10	49.80	26.43	

Table 13

Analysis of Variance of Accuracy Scores for High and Low Superego Males on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	46		
Superego (S)	1	2273.68	2.53
Conditions (C)	1	148.41	
S x C	1	293.67	
Error (b)	43	898.27	
Within Subjects	47		
Intentional vs. Incidental Recall (I)	1	31069.45	44.05***
S x I	1	23.49	
C x I	1	4674.15	6.63*
S x C x I	1	593.06	
Error (w)	43	705.29	
Total	93		

*$p < .05$

***$p < .001$

Table 14

Accuracy Scores for High and Low Superego Females on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	18	81.61	30.04	<1
Low Superego	Intentional	(A)	22	77.54	34.42	
High Superego	Incidental	(A)	18	78.94	35.45	<1
Low Superego	Incidental	(A)	22	70.04	28.36	
High Superego	Intentional	(B)	17	96.29	25.55	<1
Low Superego	Intentional	(B)	16	100.62	28.26	
High Superego	Incidental	(B)	17	57.41	29.22	<1
Low Superego	Incidental	(B)	16	54.00	28.43	

Table 15

Analysis of Variance of Accuracy Scores for High and Low Superego Females on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	72		
Superego (S)	1	326.52	
Conditions (C)	1	0.07	
S x C	1	433.86	
Error (b)	69	1060.99	
Within Subjects	73		
Intentional vs. Incidental Recall (I)	1	20582.23	26.55***
S x I	1	355.30	
C x I	1	12760.79	16.46**
S x C x I	1	19.02	
Error (w)	69	775.14	
Total	145		

**p < .01

***p < .001

the C x I interaction. ($F=23.03$ $p < .001$ for the total group; $F=6.63$, $p < .05$ for male subjects; $F=16.46$, $p < .01$ for female subjects), indicates an unexpected difference in recall for the two sets of jokes. The even numbered set of jokes elicited greater recall than the odd numbered set for both intentional and incidental memory. Thus, although Condition (A) and (B) did not differ in overall recall (intentional + incidental), they did differ in the spread between intentional and incidental scores. In Condition (B), where the even jokes were intentional, there was a greater difference between intentional and incidental scores than in Condition (A), where the even jokes were incidental.

The hypothesized significance of the interaction between superego level and intentional vs. incidental memory (S x I) was clearly not found in any of the analyses. However, a trend in the predicted direction appears to be shown in the data for male subjects. Looking at the data for male subjects in Table 12, it can be seen that in Condition (A) the mean accuracy scores for High vs. Low Superego subjects under intentional recall, while not significantly different, are clearly in the predicted direction, i.e., High Superego lower than Low Superego. Incidental scores were, as predicted, not different. In Condition (B), again, intentional scores for High Superego subjects were, as predicted, lower than for Low Superego subjects. The incidental scores here, however, were not as predicted, with High Superego subjects showing an extremely low value of 32.27.

In order to explore further the question of the relationship between superego level and intentional vs. incidental memory, especially

for male subjects, a series of correlations was run between superego scores and the various memory measures, i.e., intentional recall, incidental recall, intentional - incidental recall and the Twin Story test of verbal memory ability. The data here include the full range of subjects, not just the High and Low Superego groups. From Table 16 it can be seen that, while there was no significant relationship between superego scores and any of the memory measures for female subjects, a significant correlation ($r = -.38$, $p < .01$) was found between superego scores and intentional memory for male subjects. Importantly, no significant correlation was found between superego scores and either incidental memory or verbal memory ability as represented by the Twin Story recall. The significant correlation of $-.19$ ($p < .05$) between superego level and intentional recall in the total group must be considered to derive essentially from the male subjects.

Relationship Between Intentional vs. Incidental Memory and Memory Blocking

In this study a second set of hypotheses was proposed concerning the relationship between memory blocking and intentional vs. incidental memory. It was predicted that subjects in the High Blocking group would score lower on intentional recall than subjects in the Low Blocking group, while scores for incidental recall would not differ. In order to test these hypotheses a set of analyses were conducted similar to those given above for the superego variable.

Table 17 gives the comparison between High and Low Blocking subjects on the Twin Story test of verbal memory ability. No significant difference was found for either the total group of subjects or for males and

Table 16

Product Moment Correlations Between

Superego Scores and Memory Measures

	Twin	Intentional	Incidental	Intentional-Incidental
Males (n'=65)	.04	-.38**	-.05	-.06
Females (n'=106)	-.01	-.04	-.01	-.01
Total (n'=171)	.01	-.19*	-.03	-.04

*p < .05

**p < .01

Table 17

Accuracy Scores on Twin Story Recall

for High and Low Blocking Groups

Group	N	Mean	S.D.	t
Males				
High Blocking	18	56.39	10.64	1.17
Low Blocking	26	51.92	13.48	
Females				
High Blocking	26	56.31	13.93	< 1
Low Blocking	33	53.85	11.54	
Total				
High Blocking	44	56.34	12.55	1.35
Low Blocking	59	53.00	12.36	

females alone.

The results of the analysis of variance are given in Table 19 for the total group and in Tables 21 and 23 for males and females separately. The corresponding means and standard deviations are given in Tables 18, 20 and 22. In all three analyses the results failed to confirm the experimental hypotheses. Once again, the most outstanding finding was that of a significant F for the C x I interaction, representing the difference between the two sets of jokes. The values obtained were $F=24.65$, $p<.001$ for the total group; $F=9.18$, $p<.01$ for male subjects; $F=15.37$, $p<.001$ for female subjects. In the analysis of variance for female subjects the B x I interaction, the main comparison of interest in this study, approached statistical significance ($F=3.87$). However, the results here were in the opposite direction from the prediction, with intentional memory for High Blocking subjects higher than for Low Blocking subjects, especially in Condition (B), and with incidental memory for High Blocking subjects lower than for Low Blocking subjects.

Examination of the means for male subjects in Condition (A) (Table 20) shows the same tendency in the predicted direction as was found for the superego analysis, though no tendency was found in Condition (B). In Condition (A) intentional recall scores for High Blocking subjects were lower than for Low Blocking subjects, while no difference was found for incidental recall.

A series of correlations was also run between blocking scores and the various memory measures. This data is shown in Table 24. Although the correlations for both males and females are all non-significant, it

Table 18

Accuracy Scores for High and Low Blocking Subjects on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Blocking	Intentional	(A)	24	72.17	31.35	< 1
Low Blocking	Intentional	(A)	29	76.28	31.84	
High Blocking	Incidental	(A)	24	61.50	36.87	1.01
Low Blocking	Incidental	(A)	29	70.62	28.99	
High Blocking	Intentional	(B)	20	100.10	30.12	< 1
Low Blocking	Intentional	(B)	31	92.48	28.09	
High Blocking	Incidental	(B)	20	40.75	23.52	1.33
Low Blocking	Incidental	(B)	31	50.45	26.43	

Table 19

Analysis of Variance of Accuracy Scores for High and Low Blocking Subjects on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	103		
Blocking (B)	1	739.51	
Conditions (C)	1	32.51	
B x C	1	392.23	
Error (b)	100	854.97	
Within Subjects	104		
Intentional vs. Incidental Recall (I)	1	43714.54	47.22***
B x I	1	1573.16	1.70
C x I	1	22821.70	24.65***
B x C x I	1	478.07	
Error (w)	100	925.66	
Total	207		

***p < .001

Table 20

Accuracy Scores for High and Low Blocking Males on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Blocking	Intentional	(A)	8	69.00	24.02	1.36
Low Blocking	Intentional	(A)	12	86.83	31.36	
High Blocking	Incidental	(A)	8	67.88	45.75	<1
Low Blocking	Incidental	(A)	12	65.92	28.95	
High Blocking	Intentional	(B)	10	92.60	29.43	<1
Low Blocking	Intentional	(B)	15	93.80	27.17	
High Blocking	Incidental	(B)	10	41.50	25.68	<1
Low Blocking	Incidental	(B)	15	49.13	24.82	

Table 21

Analysis of Variance of Accuracy Scores for High and Low Blocking Males on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	44		
Blocking (B)	1	813.70	
Conditions (C)	1	211.75	
B x C	1	66.10	
Error (b)	41	951.60	
Within Subjects	45		
Intentional vs. Incidental Recall (I)	1	18508.24	23.42***
B x I	1	238.06	
C x I	1	7252.38	9.18**
B x C x I	1	916.93	1.16
Error (w)	41	790.37	
Total	89		

**p < .01

***p < .001

Table 22

Accuracy Scores for High and Low Blocking Females on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Blocking	Intentional	(A)	16	73.75	35.07	< 1
Low Blocking	Intentional	(A)	17	68.82	30.91	
High Blocking	Incidental	(A)	16	58.31	32.79	1.44
Low Blocking	Incidental	(A)	17	73.94	29.44	
High Blocking	Intentional	(B)	10	107.60	30.19	1.36
Low Blocking	Intentional	(B)	16	91.25	29.76	
High Blocking	Incidental	(B)	10	40.00	22.52	1.09
Low Blocking	Incidental	(B)	16	51.69	28.62	

Table 23

Analysis of Variance of Accuracy Scores for High and Low Blocking Females on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	58		
Blocking (B)	1	64.25	
Conditions (C)	1	435.24	
B x C	1	415.50	
Error (b)	55	781.09	
Within Subjects	59		
Intentional vs. Incidental Recall (I)	1	24307.97	22.62***
B x I	1	4160.02	3.87
C x I	1	16516.99	15.37***
B x C x I	1	98.53	
Error (w)	55	1074.60	
Total	117		

***$p < .001$

Table 24

Product Moment Correlations Between

Blocking Scores and Memory Measures

	Twin	Intentional	Incidental	Intentional-Incidental
Males (n'=65)	.16[a]	-.17	-.11	-.03
Females (n'=106)	.00[b]	-.01	-.07	.04
Total (n'=171)	.05	-.07	-.09	.02

[a] n'=64

[b] n'=105

should be noted that when correlations were run separately for the (A) and (B) groups a significant correlation of r= -.35 ($p<.05$ with 31df) was found for male subjects in the (A) group between blocking and intentional recall.

Use of Other Measures of Recall

Since the use of accuracy scores as the measure of recall did not yield positive results, other measures of recall were explored. It was felt that nonevaluative methods of scoring, in particular, might prove useful, especially in reducing the very large variance found with the accuracy measure.

Subjects were first of all compared on the number of jokes recalled under intentional vs. incidental instructions. Tables 26, 28 and 30 give the analyses of variance for the superego variable, with the corresponding means and standard deviations being shown in Tables 25, 27 and 29. For the blocking variable the analyses of variance are given in Tables32, 34 and 36. The corresponding means and standard deviations are shown in Tables 31, 33 and 35.

In general, the results here did not yield conclusions essentially different from the previous analyses in regard to either the superego or blocking variable. The B x I and S x I interaction in every case but one was nonsignificant. (The exception is discussed below.) Again, a significant difference was found between the two sets of jokes (C x I interaction). For the total group, in addition, there was a significant difference in the total number of jokes recalled between High and Low Blocking subjects, with Low Blocking subjects recalling more jokes

Table 25

Number of Jokes Given by High and Low Superego Subjects on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	32	3.92	1.10	< 1
Low Superego	Intentional	(A)	34	3.98	1.22	
High Superego	Incidental	(A)	32	3.72	1.53	< 1
Low Superego	Incidental	(A)	34	3.56	1.34	
High Superego	Intentional	(B)	28	4.05	0.92	1.44
Low Superego	Intentional	(B)	26	4.38	0.80	
High Superego	Incidental	(B)	28	2.51	1.28	< 1
Low Superego	Incidental	(B)	26	2.78	1.44	

Table 26

Analysis of Variance of Number of Jokes Given by High and Low Superego Subjects on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	119		
Superego (S)	1	0.92	
Conditions (C)	1	7.89	4.78*
S x C	1	1.75	
Error (b)	116	1.65	
Within Subjects	120		
Intentional vs. Incidental Recall (I)	1	52.43	37.18***
S x I	1	0.24	
C x I	1	23.56	16.71***
S x C x I	1	0.15	
Error (w)	116	1.41	
Total	239		

*$p < .05$

***$p < .001$

Table 27

Number of Jokes Given by High and Low Superego Males on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	14	3.86	0.95	1.30
Low Superego	Intentional	(A)	12	4.29	0.71	
High Superego	Incidental	(A)	14	3.21	1.67	<1
Low Superego	Incidental	(A)	12	3.28	1.51	
High Superego	Intentional	(B)	11	3.75	1.02	1.68
Low Superego	Intentional	(B)	10	4.40	0.70	
High Superego	Incidental	(B)	11	1.67	0.90	2.14*
Low Superego	Incidental	(B)	10	2.80	1.48	

*$p < .05$

Table 28

Analysis of Variance of Number of Jokes Given by High and Low Superego Males on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	46		
Superego (S)	1	7.52	4.85*
Conditions (C)	1	5.90	3.81
S x C	1	2.36	1.52
Error (b)	43	1.55	
Within Subjects	47		
Intentional vs. Incidental Recall (I)	1	41.24	32.73***
S x I	1	0.02	
C x I	1	5.90	4.68*
S x C x I	1	1.01	
Error (w)	43	1.26	
Total	93		

*p < .05

***p < .001

Table 29

Number of Jokes Given by High and Low Superego Females on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	18	3.98	1.24	<1
Low Superego	Intentional	(A)	22	3.82	1.41	
High Superego	Incidental	(A)	18	4.11	1.33	<1
Low Superego	Incidental	(A)	22	3.72	1.25	
High Superego	Intentional	(B)	17	4.24	0.83	<1
Low Superego	Intentional	(B)	16	4.38	0.88	
High Superego	Incidental	(B)	17	3.06	1.20	<1
Low Superego	Incidental	(B)	16	2.76	1.47	

Table 30

Analysis of Variance of Number of Jokes Given by High and Low Superego Females on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	72		
Superego (S)	1	1.13	
Conditions (C)	1	3.18	2.01
S x C	1	0.32	
Error (b)	69	1.58	
Within Subjects	73		
Intentional vs. Incidental Recall (I)	1	17.25	11.90**
S x I	1	1.01	
C x I	1	18.01	12.42***
S x C x I	1	0.07	
Error (w)	69	1.45	
Total	145		

**$p < .01$

***$p < .001$

Table 31

Number of Jokes Given by High and Low Blocking Subjects on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Blocking	Intentional	(A)	24	3.50	1.12	1.15
Low Blocking	Intentional	(A)	29	3.90	1.36	
High Blocking	Incidental	(A)	24	3.29	1.48	1.36
Low Blocking	Incidental	(A)	29	3.83	1.42	
High Blocking	Intentional	(B)	20	4.26	0.91	<1
Low Blocking	Intentional	(B)	31	4.20	0.91	
High Blocking	Incidental	(B)	20	2.17	1.45	1.58
Low Blocking	Incidental	(B)	31	2.82	1.42	

Table 32

Analysis of Variance of Number of Jokes Given by High and Low Blocking Subjects on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	103		
Blocking (B)	1	7.37	4.52*
Conditions (C)	1	3.58	2.20
B x C	1	0.40	
Error (b)	100	1.63	
Within Subjects	104		
Intentional vs. Incidental Recall (I)	1	44.35	26.88***
B x I	1	2.27	1.38
C x I	1	32.13	19.47***
B x C x I	1	0.98	
Error (w)	100	1.65	
Total	207		

*$p < .05$

***$p < .001$

Table 33

Number of Jokes Given by High and Low Blocking Males on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D	t
High Blocking	Intentional	(A)	8	3.38	0.74	3.19**
Low Blocking	Intentional	(A)	12	4.50	0.80	
High Blocking	Incidental	(A)	8	3.50	2.00	< 1
Low Blocking	Incidental	(A)	12	3.79	1.53	
High Blocking	Intentional	(B)	10	3.93	1.00	< 1
Low Blocking	Intentional	(B)	15	4.21	0.94	
High Blocking	Incidental	(B)	10	2.24	1.66	< 1
Low Blocking	Incidental	(B)	15	2.69	1.28	

**$p < .01$

Table 34

Analysis of Variance of Number of Jokes Given by High and Low Blocking Males on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	44		
Blocking (B)	1	6.10	3.57
Conditions (C)	1	5.88	3.44
B x C	1	0.62	
Error (b)	41	1.71	
Within Subjects	45		
Intentional vs. Incidental Recall (I)	1	19.26	12.42**
B x I	1	0.58	
C x I	1	9.14	5.90*
B x C x I	1	1.33	
Error (w)	41	1.55	
Total	89		

*$p < .05$

**$p < .01$

Table 35

Number of Jokes Given by High and Low Blocking Females on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Blocking	Intentional	(A)	16	3.56	1.28	< 1
Low Blocking	Intentional	(A)	17	3.47	1.52	
High Blocking	Incidental	(A)	16	3.18	1.21	1.49
Low Blocking	Incidental	(A)	17	3.86	1.40	
High Blocking	Intentional	(B)	10	4.60	0.70	1.22
Low Blocking	Intentional	(B)	16	4.19	0.91	
High Blocking	Incidental	(B)	10	2.10	1.29	1.41
Low Blocking	Incidental	(B)	16	2.94	1.57	

Table 36

Analysis of Variance of Number of Jokes Given by High and Low Blocking Females on Intentional and Incidental Recall

Source	df	MS	F
Between Subjects	58		
Blocking (B)	1	1.82	1.12
Conditions (C)	1	0.10	
B x C	1	0.04	
Error (b)	55	1.62	
Within Subjects	59		
Intentional vs. Incidental Recall (I)	1	24.63	14.32***
B x I	1	7.18	4.17*
C x I	1	24.88	14.46***
B x C x I	1	0.41	
Error (w)	55	1.72	
Total	117		

*$p < .05$

***$p < .001$

than High Blocking subjects ($F=4.52$, $p<.05$; see Table 32). For the superego variable a significant difference emerged between Condition (A) and Condition (B), with more jokes being recalled in Condition (A) ($F=4.78$, $p<.05$; see Table 26).

In this set of analyses there was again a clear difference in the results for males and females. For the males a trend in the predicted direction similar to that found with the accuracy measure showed up, (particularly in Condition (A)), though it was somewhat confused by a tendency for the High Blocking and High Superego subjects to recall fewer jokes generally than the Low Blocking and Low Superego subjects. At the least, it can be said that for male subjects in intentional recall the mean number of jokes remembered by the High Blocking and High Superego groups was in every case lower than the mean number of jokes remembered by the Low Blocking and Low Superego groups. In one case, namely the comparison between High and Low Blocking males in Condition (A), the difference was large ($t=3.19$, $p<.01$, with 18df; see Table 33).

For female subjects there was no evidence at all to support the experimental hypotheses and there was, in fact, a significant result in the opposite direction for the B x I interaction in the blocking analysis ($F=4.17$, $p<.05$; see Table 36). Here High Blocking females showed lower incidental recall than Low Blocking females, and in Condition (B) showed slightly higher intentional recall as well.

Another measure of recall used was a simple word count of the recall production, without regard to accuracy. The standard deviations here, however, proved to be very large and the data were not analyzed beyond the means and standard deviations (see Tables 37 - 42).

Table 37

Number of Words Given by High and Low Superego Subjects on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	32	135.09	47.69	< 1
Low Superego	Intentional	(A)	34	145.24	56.57	
High Superego	Incidental	(A)	32	125.66	50.78	< 1
Low Superego	Incidental	(A)	34	124.20	45.18	
High Superego	Intentional	(B)	28	155.75	42.22	1.16
Low Superego	Intentional	(B)	26	167.92	33.75	
High Superego	Incidental	(B)	28	96.43	41.62	< 1
Low Superego	Incidental	(B)	26	102.50	55.95	

Table 38

Number of Words Given by High and Low Superego Males on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	14	137.21	49.35	1.14
Low Superego	Intentional	(A)	12	159.67	50.57	
High Superego	Incidental	(A)	14	109.07	57.11	<1
Low Superego	Incidental	(A)	12	117.75	52.15	
High Superego	Intentional	(B)	11	147.91	54.16	1.05
Low Superego	Intentional	(B)	10	168.30	30.25	
High Superego	Incidental	(B)	11	66.27	33.39	1.63
Low Superego	Incidental	(B)	10	100.30	59.67	

Table 39

Number of Words Given by High and Low Superego Females on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Superego	Intentional	(A)	18	133.44	47.74	<1
Low Superego	Intentional	(A)	22	137.36	59.21	
High Superego	Incidental	(A)	18	138.56	42.49	<1
Low Superego	Incidental	(A)	22	127.73	41.78	
High Superego	Intentional	(B)	17	160.82	33.25	<1
Low Superego	Intentional	(B)	16	167.69	36.73	
High Superego	Incidental	(B)	17	115.94	34.59	<1
Low Superego	Incidental	(B)	16	103.88	55.45	

Table 40

Number of Words Given by High and Low Blocking Subjects on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Blocking	Intentional	(A)	24	128.25	51.36	<1
Low Blocking	Intentional	(A)	29	135.72	59.36	
High Blocking	Incidental	(A)	24	115.33	57.12	1.14
Low Blocking	Incidental	(A)	29	131.79	47.83	
High Blocking	Intentional	(B)	20	167.30	44.70	<1
Low Blocking	Intentional	(B)	31	159.06	43.93	
High Blocking	Incidental	(B)	20	83.25	43.15	1.05
Low Blocking	Incidental	(B)	31	97.74	50.82	

Table 41

Number of Words Given by High and Low Blocking Males on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Blocking	Intentional	(A)	8	122.00	28.84	1.92
Low Blocking	Intentional	(A)	12	161.17	52.20	
High Blocking	Incidental	(A)	8	123.12	75.01	< 1
Low Blocking	Incidental	(A)	12	135.00	49.86	
High Blocking	Intentional	(B)	10	159.10	51.74	< 1
Low Blocking	Intentional	(B)	15	156.27	41.07	
High Blocking	Incidental	(B)	10	84.50	42.94	< 1
Low Blocking	Incidental	(B)	15	94.93	53.75	

Table 42

Number of Words Given by High and Low Blocking Females on Intentional and Incidental Recall

Group	Recall Instruction	Condition	N	Mean	S.D.	t
High Blocking	Intentional	(A)	16	131.38	60.21	<1
Low Blocking	Intentional	(A)	17	117.76	58.86	
High Blocking	Incidental	(A)	16	111.44	48.25	1.08
Low Blocking	Incidental	(A)	17	129.53	47.77	
High Blocking	Intentional	(B)	10	175.50	37.32	<1
Low Blocking	Intentional	(B)	16	161.69	47.64	
High Blocking	Incidental	(B)	10	82.00	45.65	<1
Low Blocking	Incidental	(B)	16	100.38	49.52	

Analysis of Afterthoughts

Subjects were asked to identify any afterthoughts occurring in their recall by placing them in a set of parentheses. Such afterthoughts, it was reasoned, reflect momentary forgetting since they indicate that although the subject has learned the item well enough to give it, it was temporarily omitted at the time it should have occurred in the reproduction. The afterthoughts, however, were not a major focus in this study. They were presented to subjects as a secondary concern and, therefore, it is difficult to determine how seriously subjects took these instructions. Furthermore, the procedure was not designed to provide a fully controlled analysis of the afterthoughts since subjects varied in the number of jokes they recalled and thus possibly in the opportunity for giving afterthoughts. Nevertheless, it was hoped that some preliminary findings could be demonstrated relating afterthoughts to the variables of interest in the study.

In all, 92 out of 197, or almost half the subjects, identified at least one instance of an afterthought in their recall of either the jokes or the Twin Story. A comparison was made of the proportion of subjects in the High Superego and High Blocking groups giving afterthoughts as compared with the proportion of subjects in the Low Superego and Low Blocking groups giving afterthoughts. The data were analyzed separately for men and women and are given in Table 43. No difference was found between the High and Low Superego groups on the proportion of subjects giving afterthoughts for either men or women. Also, no difference was found between High and Low Blocking females. For male

Table 43

Proportion of Subjects Indicating Afterthoughts in Recall

	High Superego		Low Superego		
	p	N	p	N	
Males	.43	28	.45	29	
Females	.55	38	.49	41	
	High Blocking		**Low Blocking**		
	p	N	p	N	
Males	.54	22	.31	43	z=1.70
Females	.50	28	.50	36	

subjects, the proportion of High Blocking subjects giving afterthoughts (p= .54) was greater than the proportion of Low Blocking subjects giving afterthoughts (p= .31), although the difference did not quite reach statistical significance (z=1.70, $p < .10$). Inspection of the entire table reveals that this difference is probably due to fewer than average subjects in the Low Blocking group giving afterthoughts rather than a greater than average number of subjects in the High Blocking group giving afterthoughts.

A further analysis was performed regarding the mean number of afterthoughts given by each of the subject groups. None of the differences shown in Table 44 was significant, though again Low Blocking males tended to be somewhat lower than High Blocking males.

Although it was hoped that comparisons could be made of the information value of the afterthoughts given by the different subject groups, this was not possible because a few subjects recalled entire jokes as afterthoughts which influenced the mean of that group disproportionately. It was hoped, too, that the afterthoughts for intentional vs. incidental recall could be compared. However, the number of afterthoughts seemed too small to warrant such a comparison.

Analysis of Jokes

One unexpected finding reported above was that of a significant difference in recall between the odd and even sets of jokes. Thus, although the two sets of jokes were intended to be comparable, it was found that the even numbered items elicited greater recall than the odd numbered items. This fact seemed interesting enough to warrant further exploration.

Table 44

Mean Number of Afterthoughts for High and Low Superego and High and Low Blocking Subjects

Group	Sex	N	Mean	S.D.	t
High Superego	Male	28	.86	1.33	
Low Superego	Male	29	.79	1.18	<1
High Superego	Female	38	1.11	1.39	
Low Superego	Female	41	.90	1.48	<1
High Blocking	Male	22	1.05	1.36	
Low Blocking	Male	32	.56	1.01	1.51
High Blocking	Female	28	.75	1.08	
Low Blocking	Female	36	1.03	1.58	<1

Since the orienting task in this experiment involved rating each joke for humorousness, it was possible to compare the jokes on the basis of how funny subjects found them. Each rating was assigned a value from one to five, with a score of one corresponding to the choice "not funny at all" and score of five corresponding to the choice "hilarious". The mean ratings of humorousness for the twelve jokes are given in Table 45. In general, the jokes did not seem particularly funny to the subjects, but this was not surprising in view of the fact that jokes of a highly sexual or aggressive nature were not used. For each subject an average rating was computed for the odd numbered jokes vs. the even numbered jokes and a t-test for correlated measures was used to compare these average ratings. The odd numbered jokes received an average rating of 1.72 and the even numbered jokes received an average rating of 2.11. The difference, though small, was consistent and therefore highly significant ($t=10.46$, $p<.001$ with 171df). An additional finding was that of a sex difference in the ratings of humorousness of the jokes, with the mean rating for males, in most cases, being higher than for females. For four of the items (numbers 1, 4, 6 and 7) the difference was significant.

The jokes were also analyzed in relation to the number of subjects recalling each item and the average accuracy score for the subjects who remembered the item. These data are shown in Table 46. One question of interest here was whether the degree of recall (as measured by either of these two scores) related to subjects' perception of how funny the item was. The rank order correlation between the rating of humorousness

Table 45

Mean Ratings of Humorousness for Jokes

Item No.	N	Mean	S.D.
A)	170	1.68	0.68
B)	169	2.00	0.57
1)	172	1.73	0.55
2)	172	2.27	0.80
3)	172	1.82	0.59
4)	172	1.38	0.46
5)	172	1.64	0.60
6)	172	2.03	0.82
7)	172	1.56	0.56
8)	172	2.70	1.07
9)	172	1.85	0.76
10)	172	2.16	0.89

Table 46

Number of Subjects Recalling Each Joke

and Mean Accuracy Scores

Item No.	N	Mean	S.D.
A)	70	17.36	4.43
B)	118	21.40	5.69
1)	113	17.13	5.26
2)	135	17.04	6.08
3)	101	18.47	4.14
4)	109	15.38	4.74
5)	103	19.86	6.22
6)	85	18.83	6.10
7)	84	17.88	5.65
8)	113	26.74	5.27
9)	90	23.69	4.43
10)	120	21.71	6.23

and the number of subjects recalling the item for the 12 jokes was .54 ($p < .08$) and the rank order correlation between the rating of humorousness and the average accuracy score for each of the jokes was .51 ($p < .10$). Both correlations, based on only 12 pairs of numbers, approach significance and therefore suggest that the level of recall of the jokes was indeed related to subjects' judgment of their humorousness. One joke in particular, number 8, stands out as the funniest and the most remembered in terms of accuracy scores. Subjects who self-instructed themselves to recall an item often chose this one (see Appendix L).

Finally, a simple analysis was done to determine whether the individual jokes differed in the proportion of High versus Low Superego subjects recalling the item. The data, included in Appendix L, show no differences among the jokes in the proportion of High and Low Superego subjects recalling them under intentional recall. Significant differences, using Chi-Square, were found among the jokes under incidental recall. This finding might be an interesting one to follow up in future research.

Other Analyses

In addition to the above, various other analyses were tried on a tentative basis, but none yielded results of a significant nature. 1) The experimenter tried dividing High and Low Blocking and High and Low Superego groups at the median instead of taking only the top and bottom ends of the distribution. This did not change the nature of the results.

2) A measure was computed for each subject representing the ratio of intentional recall to total recall (intentional plus incidental recall). No differences were found using this score.

3) An average intentional accuracy score and average incidental accuracy score were computed for each subject representing the comparative completeness of response for the two types of recall irrespective of the number of items given in each category. This yielded no difference.

4) Protocols for the 15 or so highest Blocking and Superego subjects were examined qualitatively, but no significant observations were noted.

5) On the basis of the difference score (intentional minus incidental accuracy score) the 20 highest and 20 lowest subjects were compared as to their blocking and superego scores. Both t-tests were nonsignificant. It is interesting to note that the subject with the highest difference score (D=141) and the subject with the lowest difference score (D= -134) received virtually identical scores on both the blocking and superego scales.

Chapter 6

Discussion

The purpose of this dissertation was essentially twofold: first, to present some theoretical ideas explaining those instances of momentary forgetting not adequately accounted for by the existing theory of repression; and second, to investigate experimentally some of the variables believed to be important in the mechanism. The experiment that was done, it should be emphasized, in no way attempted to provide a definitive test of the theoretical notions. Rather, it represented merely one possible approach to the problem, that of using laboratory techniques and group testing of subjects. As it turns out, some serious problems were encountered in the study both in terms of the general line of experimentation and the specific procedure used, and the results of the study were, for these reasons, rather inconclusive. The methodological problems will be taken up later. At this point we will review the findings in order to see what light the study did shed on the questions of interest in this paper.

Findings

Of particular interest in this study was the way in which a strongly motivated intention to remember would be handled by people with strict superego standards, since it was theorized that the intention to remember can itself cause forgetting to occur, especially when superego conflicts are involved. Of interest, too, was the way in which the same intentional situation would be handled by individuals who experience frequent blocking of memory, again since it was proposed

that momentary forgetting is often due to the disruptive effects of an overly strong intention to remember. Finally, it was hoped that some direct evidence of momentary forgetting would be found in subjects' reports of the afterthoughts they had during recall, and that these afterthoughts would relate statistically to the subject variables of superego severity and blocking proneness. As noted in the previous chapter there was little evidence of a hard, statistically significant nature to support these experimental hypotheses. Nevertheless, there were some trends in the predicted direction and no real clear-cut evidence to the contrary.

The clearest positive finding of a statistical nature was that of a positive relationship between superego severity and memory blocking, as measured by the responses to the questionnaires. This was true both for the total population and the male and female subpopulations. This finding in itself, however, should be interpreted cautiously since it can be argued that both measures derive from self-report instruments with no reference to actual behavior. It is possible that the positive relationship between the two variables could reflect test-taking attitudes or a generalized tendency to devalue the self. However, assuming a certain level of face validity in the instruments the results here, while they do not conclusively prove a relationship between the two variables, at least support the hypothesis as stated.

Though most of the other results in the study failed to reach statistical significance there were some highly encouraging findings, particularly for male subjects where, despite the methodological limitations of the study, definite trends were found in the predicted direc-

tion. Male subjects who were identified as High Superego or High Blockers tended to show lower intentional recall scores than their Low Superego or Low Blocking counterparts. The findings were particularly consistent in Condition (A), with the results being exactly as predicted for both variables (i.e., intentional recall for High Superego and High Blocking subjects was lower than for Low Superego and Low Blocking subjects, with no difference in incidental recall). Since the intentional material in this condition was rated less funny by the subjects and, in general, elicited poorer recall, it can be speculated that the disruptive effects of an intention to remember may show up most clearly if the material seems difficult for one reason or other. This interpretation is exactly in line with Bartlett's (1932) observation in the picture writing experiment that the difficult signs were the ones which elicited a special determination to remember and were later forgotten. In terms of our general discussion of momentary forgetting, too, the interpretation is consistent in the sense that the High Superego individual may make a special effort to remember certain material not only because it is linked to some striving toward his ideal image, but also because of the fact that he recognizes a potential difficulty in recall. His added determination, it is suggested, makes recall even more difficult. These findings are, of course, highly tentative and would warrant further exploration.

Although sex differences were not tested directly in this study, there was throughout the data a clearly discernible difference in the trends for men and women. For female subjects, in contrast to male subjects, there were no findings which supported the hypotheses beyond

that of a positive correlation between superego severity and blocking proneness. Intentional recall was found to be completely unrelated to the superego variable. And for the blocking variable there was a significant result in the opposite direction which derived primarily from incidental recall being lower for the High Blocking subjects. In Condition (B) the results were in the opposite direction for intentional recall as well, with the High Blocking group showing slightly higher recall than the Low Blocking group.

In terms of the theoretical notions underlying the present thesis it should be noted that the psychoanalytic literature from which many of the ideas, particularly on the superego, were drawn relates almost exclusively to the male. It was Freud's contention, for example, that women for biological reasons failed to develop as stable and well internalized superegos as men. He attributed this to the relative absence of castration anxiety, which is conceived of as one of the determining factors in superego development (Freud, 1925). For this reason Freud's writing on the superego applies essentially to the male. Other writers seem to follow his lead. Today, however, many serious questions are being raised about Freud's formulations in regard to women (e.g. Millett, 1970). In relation to superego theory, particularly, the need for careful reexamination is obvious.

The data of this experiment show no difference whatsoever in the superego scores for men and women on the questionnaire that was given, as perhaps might be suggested from the Freudian description. This is not surprising, though, when one considers that the questionnaire used here dealt with areas of superego functioning not involving morality

issues, the ones to which Freud primarily addressed himself. In terms of those aspects of superego functioning relating to standards for perfection and strivings toward an ideal image of oneself, social and cultural factors are obviously more important than any biological factors, and in this respect college women could be expected to differ in many ways from other women and likewise be expected to show certain similarities to college men.

Beyond the similarity in their superego scores, though, men and women did not perform congruently in the rest of the experiment. As mentioned above, High Superego males showed a definite tendency toward lower intentional recall, but no relationship was found for females between superego severity and either intentional or incidental recall. This finding was surprising in the sense that there was no particular reason to hypothesize sex differences in the analysis. Casual observation of the mechanism of blocked recall in everyday life does not reveal any obvious sex differences and in a theoretical sense, also, there is no reason to believe that superego standards for perfection once they are developed (even granting that they may develop differently in the two sexes, which is itself questionable), would operate differently in men and women. In fact, it could be argued that women might tend more than men to show the disruptive effects of intentional behavior since they are faced with more pervasive external prohibitions against success, which no doubt lead to some internalization of these prohibitions. This raises the question, then, as to why the effect did not show up for women in this experiment. One possibility is that the instructions used to motivate subjects were not sufficiently ego-

involving for the women. For one thing, men in our society are judged more consistently by performance and achievement than women, and might therefore be more readily affected by an experimentally induced intention to remember. More specifically, the joke situation chosen for this study may not have engaged the female subjects since women as a group may not view the ability to remember and tell jokes well as an important aspect of popularity to the same extent as men.* In either case, the predicted results would fail to show up since the detrimental effects on recall of an intention to remember are predicated on a strong, ego-involved state of motivation.

In relation to the blocking variable the results for women again differed from the results for men and were completely unsupportive of the hypotheses. The major finding was that High Blocking women showed less incidental recall than Low Blocking women. In Condition (B) they showed a tendency toward greater intentional recall as well. Again, an explanation for these results might be based on the possibility that the intentional condition was not strongly motivated enough for the females for the predicted effects to occur. High Blocking females, cognizant of their tendency toward forgetting, may have made a somewhat greater effort to recall the intentional material, but not so great an effort as to disrupt recall. With increased focus on the intentional condition, incidental recall could easily suffer through a narrowing of attention. Some additional support for this formulation

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*It was thought that a simple question to this effect put to a group of undergraduates might provide simple verification of this notion. However, no clear sex difference emerged.

is given by the findings on the Twin Story recall, which was designed specifically to test subjects on a low to moderate level of intentionality. High Blocking subjects (both male and female) had slightly, though non-significantly, higher scores than Low Blocking subjects, which could easily be the result of a mild tendency to try harder.

The rest of the findings in the study were essentially negative. For instance, in addition to the analysis of intentional and incidental recall, an attempt was made to study actual instances of temporary forgetting appearing as afterthoughts in the recall protocols. Although a fair number of afterthoughts were reported by the subjects, there was no evidence that High Superego or High Blocking subjects experienced them more frequently. On the other hand, as discussed in the last chapter, the results here cannot in any way be considered definitive since there were too many factors limiting the use of this measure. The study does show that afterthoughts can probably be a useful way of studying momentary forgetting provided that the method used gives greater control over the reporting of the event than was the case in this study.

Methodological Problems

Since the findings of this study were in many ways inconclusive, it is necessary to ask what problems in the study may have contributed to the lack of positive results. Of course, research involving psychodynamic concepts is always difficult. When individuals are studied by means of free association and other methods traditionally associated with the treatment situation the procedures are often attacked as being unscientific. At the very least they are time consuming and often

impractical unless the research is secondary to other goals, usually treatment. Luborsky's study on momentary forgetting (1967) is a good example of this. His work is important because he studied actual instances of momentary forgetting as they occurred in real life. The results, however, as discussed in the introductory section, are questionable. And he was able to study only 69 instances of momentary forgetting in over 2000 hours of observation.

On the other hand, the approach taken here, in which an attempt was made to tease out some of the major variables thought to underly the mechanism and submit them to experimental manipulation on a group basis, is hardly the ideal way either. In general, the major shortcoming of this approach stems from the difficulty of creating in the laboratory a situation which still relates meaningfully to the everyday life experience that is really of interest. The intentional vs. incidental recall procedure employed here is certainly a widely recognized experimental method, but in relation to momentary forgetting it is much too artificial to capture the flavor of the experience. In this respect it was hoped that the analysis of afterthoughts would serve as a link to the actual phenomenon of blocked recall and that the major part of the experiment would serve to explore the broader question of whether or not a relationship exists between superego severity or proneness to blocking and problems of intentionality. Even within these more limited goals, however, the following problems with the study prevented the finding of more conclusive results.

Noncomparability of Joke Sets

Although there was no reason to suspect beforehand that the alternate sets of jokes used for recall material would differ in any important way, consistent differences were found between the two sets of jokes. The differences, moreover, statistically overshadowed the relationships actually under investigation and created problems in the interpretation of the data.

Subjects found the even numbered jokes slightly, but significantly, funnier than the odd numbered jokes, and, as a result apparently, had greater recall for this set (i.e., more subjects recalled these items and the accuracy scores were generally higher). Other studies have also found that preference is a significant factor in the recall vs. forgetting of jokes (e.g., Lee & Griffith, 1963). The findings indicate the need for more careful pretesting of recall material to assure true comparability of the alternate sets used.

Problems of Motivation

It is difficult to evaluate just how effective the ego-involving instructions used in this experiment were in inducing a strong self-instruction to remember on the part of the subjects. Although time did not permit detailed questioning about this, informal discussions with subjects afterwards seemed to indicate that most took the experiment at face value. This was also indicated by the responses to the Post-Experimental Inquiry. And, certain, every effort was made to be convincing in the delivery of the instructions. Still, it would be naive to assume that one set of instructions of the sort used here

could actually arouse a strong personal motive in so many different individuals, and the success of the procedure did not rest on this assumption. Rather, it was assumed that the High Superego and High Blocking groups would, on the average, be more likely to be overmotivated by the instructions than the Low Superego and Low Blocking groups. The lack of positive results in the study, however, may certainly be due, in part at least, to the fact that the intentional condition was not highly motivating for enough subjects. This is especially true with regard to female subjects.

Other problems of motivation relate to different aspects of the procedure. Subjects were recruited on a non-volunteer basis in order to avoid biasing the sample in any way, especially in relation to the variable of superego severity. Subjects were, therefore, captive participants in the procedure. In addition, the experiment took a full class hour, during which subjects had to do a considerable amount of remembering of material they judged to be only mildly to moderately funny--not such pleasant work after all. For these reasons subjects may not have been enthusiastic enough participants in the experiment to be very highly motivated (even though care was taken in the analysis to exclude from consideration anyone who was openly negative). It is hard to see how these particular difficulties might have been avoided in the present study where jokes were chosen for recall material. The jokes were of necessity not terribly funny because highly sexual and aggressive material could not be used, and this is precisely what makes most jokes funny. Perhaps jokes were not such a good choice of material after all, and certainly the amount of material used (although it was clearly a feasible amount for recall) should have been less to

keep up subject morale.

Strategies of Response

The chief comparison of interest in this study was, of course, that between intentional and incidental recall. While this is, as stated before, a traditional experimental method, its use here raises certain problems relating to possible strategies of recall employed by subjects. Subjects were asked by the experimenter to reproduce all the jokes that they heard, not just the ones they were told would be tested. They were asked in effect to give as complete a recall as possible of both intentional and incidental material. In order for the hypothesized decrement in intentional memory to appear it would be necessary for subjects to in fact give complete or very nearly complete reports of what they recalled, since if they gave less than complete recall data there would immediately be a question as to what material they chose to report vs. what they left unreported.

Under the conditions of this experiment there were definitely factors which may have influenced subjects to give only partial recall data. As mentioned before, subjects were not highly enthusiastic about participating in the experiment and they found the task a lot of hard work. How scrupulous would they be, then, in giving complete recall reports? Then too, although the time allotted for recall seemed sufficient for most subjects to give what they wanted to give, there were always slow people who had to be rushed at the end.

Various strategies of response are possible, but all would influence the outcome of the experiment in relation to intentional vs. incidental recall. A subject may have, for instance, given prominence

to intentional material because he spent all that effort committing it to memory and may have paid less attention to giving a complete record of his incidental recall. Accuracy scores for a subject of 99 or more for intentional recall and zero for incidental recall (which occurred occasionally in the study) clearly imply some such strategy since it is hard to believe that the person really had no incidental recall whatever. Or on the other hand, a subject might have begun by giving the incidental material first so as not to forget it and then been too lazy to finish reporting all the intentional material he retained. Surely, other strategies are possible as well. The fact is that in this study there was not enough control over recall to ensure complete protocols.

Lack of an Appropriate Control Condition

The analysis of variance technique used in this study did not employ a control condition in the strict sense of the word. Rather, with interest centered on intentional recall, incidental recall served as the comparison situation for each subject. However, it may be argued that the lack of intentionality of the incidental condition does not necessarily imply that this is the only or the most appropriate control situation. The incidental condition could, itself, have been influenced in other ways by the variables of superego severity and proneness to blocking, and in that sense would really be a second experimental condition. Thus, although no hypotheses were put forth concerning differences in incidental recall, there were apparently effects operating here which helped obscure the main effects of interest, namely those on intentional

recall. High Superego males, for example, showed an extremely low score for incidental recall in Condition (B), and for female subjects in the blocking analysis the effects on incidental recall were clear in both (A) and (B).

In relation to a concept of motivation effects as following a U shaped curve, the two memory conditions in the analysis would really represent the high and low ends of the continuum, without the middle. In this study the middle level of motivation was represented not by the average of intentional and incidental recall (which is mathematically what happens in the analysis of variance), but by the Twin Story recall. Direct comparison between Twin Story recall and intentional or incidental recall, however, was not possible. Instead, correlation had to be used for this.

Further Research

In view of the problems encountered in this study some guidelines for future research are apparent. One thing clearly indicated is a need for greater control over the recall material. Two highly comparable sets of material are necessary and this would have to be determined by pretesting. The use of material other than jokes is probably also indicated to avoid confounding the results with a preference factor. An interesting addition would be to have two or three different levels of stimulus difficulty to explore the way in which this is related to intentional disruption. But the total amount of material subjects are required to recall would need to be reduced because of the motivational problems. In this last respect, instructions need to be carefully designed to ensure that they are truly ego-involving to all the

different groups of subjects tested--males, females, blacks and whites.

Perhaps a different line of research, altogether, would be most fruitful. Especially interesting would be a study in which more intensive individual testing is employed. This would enable the experimenter to induce stronger motivation more in line with subjects' ego ideals. This might be done in connection with professional goals or the like. In addition, the method might involve a study of the ongoing process of recall, using a tape for example, so that momentary forgetting in the form of afterthoughts could be studied in a more rigorous fashion. The advantage of a taped record of recall would be that it would allow the experimenter to observe the vicissitudes of the memory process directly without relying on subjects' reports of the process. This kind of research might also provide greater assurance that total recall is presented to the experimenter and response strategies would, therefore, be less of a problem. Important material could be highlighted in some way in the presentation of the stimulus material and the fate of this material could be followed as compared with the fate of other, less important, material.

If possible, real life situations should be explored. One feasible area might be school, where teachers often fall prey to momentary forgetting during their lectures, blocking on names of authors, titles of books, etc. It might be possible to monitor lectures for such occurrences. This could conceivably be done on a large enough scale to yield sufficient data.

Finally, in a wholly different vien, further research might pursue other areas of performance adversely affected by superego standards.

One recent study by Shaham (1970) explored the relationship between superego patterns and reactions to success and failure. Many other studies are possible.

Appendix A

Jokes

A) The professor/ looked/ disapprovingly/ at the student/
and asked:/ "Are you cheating/ on this exam?"/
"No/ sir,"/ the student replied/ quickly,/ "I was only/
telling him/ his nose/ was dripping/ on my paper."/

B) A new/ couple/ moved into/ the neighborhood/ and Mrs. Fenwick/
was very much/ interested in them./
"They seem/ so devoted,"/ she reported/ to her husband./
"He kisses her/ every time/ he goes out,/ and waves to her/ from the
sidewalk./ Why don't you do that?"/
"Good Lord,/ Grace,"/ replied her husband/ in astonishment,/
"I don't even/ know/ the woman/ yet."/

1) Harvard University/ is considered to be/ one of/ the nation's/
greatest/ storehouses/ of knowledge,/ and its president/ had a ready/
explanation./ "We're adding more/ knowledge/ every/ semester/,"
he declared/. "The freshmen/ bring us/ so much of it/ and the seniors/
take away/ so little."/

2) A student government/ officer/ at the University of California/ wrote to/ Stanford/ concerning/ the use/ of the honor system/ during exams/ and received/ this reply:/ "Stanford University/ abandoned/ the honor system/ several/ years ago/ when it became evident/ that the professors/ had the honor/ and the students/ had the system./

3) A phone operator/ icily/ informed/ a persistent/ college/ boy,/ "I'm sorry/ sir,/ but the number/ you were trying/ to reach/ has been taken out."/

"I know/ darn well/ she's / been taken out,/ wailed the boy/ in despair./ "What I'm trying/ to find out/ is by whom?"/

4) A man/ rushed into/ a doctor's office/. The lobe/ of his left/ ear/ was bleeding./

"Quick,/ Doc,"/ he said;/ "I bit/ myself."/

"That's impossible,"/ the doctor replied;/ "how could you/ bite/ yourself/ in the ear?"/ And the man came back:/

"I was standing/ on a chair./

1 2 3 4
5) A traveler/ in the middle/ of the Sahara Desert/ came upon/

5 6
a man/ in a swimming suit./

7 8 9
"Where on earth/ are you going?/" he asked./

10 11
"Swimming,"/ was the reply./

12 13 14 15
"But,"/ argued the traveler,/ "you're a hundred/ miles/

16
from the sea."/

17 18 19 20 21
"Yes,/ agreed the swimmer./ "Wide/ beach,/ isn't it?"/

1 2 3 4 5
6) A company/ president/ called/ the personnel/ manager/

6 7 8 9 10
into his office/ and said:/ "I want you/ to search/ the organization/

11 12 13 14 15 16 17
for an alert/, aggressive/ young/ man/ of executive/ caliber/ who could/

18 19 20 21
step into/ my shoes--/ and when you find him,/ fire him.

1 2 3 4
7) The football/ coach,/ who had a reputation/ for optimism,/

5 6 7 8 9 10
came into/ the locker room/ to give/ the boys/ a pre-game/ pep talk./

11 12 13 14 15
"All right, boys,"/ he cried/ cheerily,/ "Here we are,/ unbeaten,/

16 17 18 19 20 21
untied,/ and unscored upon--/ and ready/ for the first/ game/ of the

season./

8) A professor/ once gave/ a pre-Christmas/ examination./
On one of/ the papers/ he found written/ the following words:/ "God/
only knows/ the answer/ to this question./ Merry Christmas."/
He returned/ the paper/ with the notation:/ "God/ gets an A;/
you/ get an F./ Happy New Year./

9) Two/ men/ were seated/ together/ in a crowded/ subway train./
One of them/ noticed/ that the other's eyes/ were closed./ "What's the
matter,/ Bill,"/ he asked,/ "are you feeling ill?/"
"I'm all right,"/ answered Bill,/ "it's just that/ I hate/
to see/ ladies/ standing."/

10) They were discussing/ modern/ music/ and dancing/ and the
young/ woman/ said:/
"I don't like/ dancing/ to the new/ rock./ Why it's nothing
but/ sex/ put to music./
"Humph," said the young/ man./ "What is there/ about that/

19
you don't like?"/

20 21
"The music,"/ replied the girl./

Appendix B

Rating Sheets

Code _____

RATING SHEET

	Not funny at all	Mildly amusing	Moderately funny	Quite funny	Hilarious
Warm up: a)					
b)					
1. REMEMBER THIS JOKE					
2.					
3. REMEMBER THIS JOKE					
4.					
5. REMEMBER THIS JOKE					
6.					
7. REMEMBER THIS JOKE					
8.					
9. REMEMBER THIS JOKE					
10.					

Code _____

RATING SHEET

	Not funny at all	Mildly amusing	Moderately funny	Quite funny	Hilarious
Warm up: a)	_____	_____	_____	_____	_____
b)	_____	_____	_____	_____	_____
1.	_____	_____	_____	_____	_____
2. REMEMBER THIS JOKE	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4. REMEMBER THIS JOKE	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6. REMEMBER THIS JOKE	_____	_____	_____	_____	_____
7.	_____	_____	_____	_____	_____
8. REMEMBER THIS JOKE	_____	_____	_____	_____	_____
9.	_____	_____	_____	_____	_____
10. REMEMBER THIS JOKE	_____	_____	_____	_____	_____

Appendix C

Post-Experimental Inquiry

Code _____

In this study you were specifically told to remember only 5 of the jokes on the tape. However, you were also asked to recall 5 other jokes that you were previously told you would only have to rate for humorousness. My intention was for you to try to remember half the jokes and not try to remember the other half. Nevertheless, it is quite possible that some students may have anticipated my procedure, or for some other reason tried to remember the "other" jokes. It would be important for me to know this.

The following questions ask you to think back to your state of mind during the tape. They are intended to be a check on the conditions of the experiment only and are not meant as a test of sophistication, intelligence, personality or anything like that. Please be as frank as you can in answering them.

1. When you were asked to recall <u>all</u> the jokes, how surprised were you?

   ( ) Extremely surprised
   ( ) Quite surprised
   ( ) A little surprised
   ( ) Not surprised at all

2. During the tape, how much did you anticipate that you would be asked to do something other than the instructions stated?

   ( ) Not at all
   ( ) Had an inkling
   ( ) Had a strong feeling
   ( ) Was certain

   What did you think it would be? _____

3. During the tape, how much would you say you anticipated the specific task of having to recall the "other" jokes?

   ( ) Not at all
   ( ) Had an inkling
   ( ) Had a strong feeling
   ( ) Was certain

4. During the tape, to what extent did you make an effort to remember those "other" jokes?

   ( ) Made no effort at all
   ( ) Made a slight effort
   ( ) Made a real effort
   ( ) Made as much effort as for the ones I was told would be tested

5. Did you for any reason instruct yourself to remember any particular one(s) of the "other" jokes (say because you liked it a lot or wanted to tell it to someone)?

( ) Yes ( ) No

If yes, which one(s)? Identify by content, not number_____

_____

6. Turning now to the jokes you were told to remember, did you use any special techniques or methods to help you remember?

( ) Yes ( ) No

If so, what did you do?_____

_____

7. Did you rehearse the ones you were trying to remember as you went along?

( ) Yes ( ) No

8. Do you feel that your performance today was substantially and significantly influenced by any special circumstances or stresses, such as feeling ill, having something important on your mind, etc.?

( ) Yes ( ) No

Appendix D

Twin Story

The Twin Story

Theme 1: An American/ boy/ named Douglas/ entered/ the American Navy,

Theme 2: and his twin/ brother/ Horace/ entered/ the Navy.

Theme 3: They separated/ from each other/ for the first time/ in their lives,

Theme 4: and Douglas/ became/ a radar/ technician.

(GAP ONE: Douglas was sent to Greenland.)

Theme 5: During/ a Navy/ exercise/ in Greenland,

Theme 6: he became separated/ from a twenty-three man/ squad,/ and he was lost.

Theme 7: Nine/ days later,/ some natives/...discovered him.

Theme 8: (natives) who were hunting/ seals/ in a river,

Theme 9: He was alive,/ and he was delerious.

Theme 10: The natives/ returned him/ by dogsled/ to a Navy/ base.

(GAP TWO: Douglas was hospitalized, and recovered.)

Theme 11: Even after/ he was discharged/ from the general/ hospital,

Theme 12: Douglas/ forever/ remained convinced/ that he was/ his twin brother/ Horace,

Theme 13: and he remained convinced/ that he never had/ a brother/ by the name of Douglas.

Appendix E

Blocking Questionnaire

Code_____

Memory Survey

I am interested in finding out how people remember and forget things. It would help if you would answer the following questions concerning your memory as accurately as you can. Please answer all the questions, even if they seem difficult or repetitious, and try to give as many examples as you can. Feel free to make any additional comments that you feel would be relevant.

1. In general, would you say your memory is:

( ) Excellent ( ) Very Good ( ) Good ( ) Fair

( ) Poor

2. Do you excel in any aspects of memory? ( ) Yes ( ) No

If so, what are they?

3. Do you have any sort of problem with remembering and forgetting?

If so, what? ( ) Yes ( ) No

4. Are there certain situations in which you tend to forget things?

If yes, what situations and what sort of things? ( ) Yes ( ) No

5. Do you usually feel confident that you will remember what you want to without making an effort? Do you make a special effort to remember? (Check below)

( ) Very confident, make no effort to remember
( ) Quite confident, make little effort to remember
( ) Not so confident, make some effort to remember
( ) Not confident, make lots of effort to remember

6. How much memory do you have for your pre-school years? Your first year of school?

	Pre-school years	1st year of school
A great deal	( )	( )
Quite a bit	( )	( )
A moderate amount	( )	( )
Very little	( )	( )
Nothing	( )	( )

7. How often are you aware of dreaming? (If it varies, pick the best approximation).

( ) Several times a night
( ) Once a night
( ) Several times a week
( ) Once a week
( ) Once a month
( ) Less than once a month
( ) Never

8. When you are aware of having had a dream, how much of it do you usually remember? (If it varies, pick the best approximation).

( ) The whole thing
( ) Quite a bit
( ) A moderate amount
( ) A few fragments
( ) Am aware of dreaming, but remember nothing of the dream itself.

In additon to the general aspects of memory surveyed above, I am also interested in the extent to which you experience certain particular types of forgetting that people experience from time to time.

9. For instance, there are times when a person forgets something he is sure he knows. When trying to recall it the person might say, "I know that, but it has just slipped my mind." Does this happen to you
( ) Quite frequently
( ) Frequently
( ) Occasionally
( ) Only very occasionally
( ) Never

Can you give any examples of when this has happened to you lately?

When something "slips your mind" like this, do you generally remember it again:

( ) A minute later ( ) An hour later ( ) Much later
( ) Never

10. Sometimes a person forgets the name of someone he is introducing despite the fact that he really knows the person's name well enough. Does this happen to you:

( ) Quite frequently
( ) Frequently
( ) Occasionally
( ) Only very occasionally
( ) Never

Can you give any examples of when this has happened to you lately?

11. Sometimes a person forgets the next thing he was about to say or loses a thought he just had. Does this happen to you:

( ) Quite frequently
( ) Frequently
( ) Occasionally
( ) Only very occasionally
( ) Never

Can you give any examples of when this has happened to you lately?

11. continued

Do you usually remember the thought again:

( ) A minute later ( ) An hour later ( ) Much later ( ) Never

12. On an exam, a person may forget a point that he just had in his mind a minute ago. Does this happen to you:

( ) Quite frequently
( ) Frequently
( ) Occasionally
( ) Only very occasionally
( ) Never

Can you give any examples of when this has happened to you lately?

Do you usually remember the point again:

( ) Before you finish the exam
( ) After you leave the room
( ) Much later
( ) Never

13. Sometimes a person forgets something he had previously felt he particularly wanted to remember (e.g., a name or place, a story he liked, something he wanted to tell or write someone). Does this happen to you:

( ) Quite frequently
( ) Frequently
( ) Occasionally
( ) Only very occasionally
( ) Never

Give examples of when this has happened to you lately.

Do you usally remember the thing again:

( ) A minute later ( ) An hour later ( ) Much later ( ) Never

14. Sometimes when a person is trying to remember something he experiences a state where the thing is not yet remembered, but he nevertheless feels it is close. He says, "It's on the tip of my tongue." Does this happen to you:

( ) Quite frequently
( ) Frequently
( ) Occasionally
( ) Only very occasionally
( ) Never

15. Did you find yourself blocking or forgetting while trying to give examples for this questionnaire?

( ) Yes ( ) No

Appendix F

Scoring Manual

for

Blocking Questionnaire

Question	Responses	High Points	Low Points
Q. 3 or 4 "mem. probs"	Spontaneous mention of blocking difficulty	5 ea.	
Q. 9, 10, 11, 12, 13, 14 "slipped my mind" losing a thought, etc.	Quite frequently	5 ea.	
	Frequently	4 ea.	
	Only very occasionally		-4 ea.
	Never		-5 ea.
	Additional score for total number of these questions scored 4 or 5	1-6	
Q. 15 Blocking on this questionnaire	Yes	5	
Q. 5 Confidence	Very confident		-2
	Quite confident		-1
	Not so confident	1	
	Not confident	2	
Q. 12	After you leave the room	1	
	Much later or never	2	
Q. 9, 10, 11, 12, 13 "slipped my mind" losing thought, etc.	Examples given	2 ea.	
	(Unless questionable)	1 ea.	
	Clearly non-applicable examples scored		0

SCORE EQUALS ARITHMETIC SUM OF ALL POINT VALUES

Appendix G

Superego Scale

Note: The 45 scored items of the scale are indicated by underlining of a T or F choice. The choice underlined corresponds to the 4 point or high superego response.

Items from the Grunes Scales are indicated by the letter G before the item.

Neither the underlining nor the letter G appeared on the scale when it was presented to subjects.

Code_____

Attitude and Experience Inventory

The study in which you are participating is an inventory of various attitudes and experiences. It is being conducted anonymously, that is, in such a manner that no one who has access to the information you provide will know your name. It is hoped that the confidential nature of your responses will allow you to respond with a maximum degree of freedom and frankness; since, to a great extent, the value of the study depends upon the honesty with which you reflect your attitudes and experiences.

Before going ahead please answer the following questions:

1. What is your age?

2. What is your sex?

3. What is your approximate grade point average?

Instructions:

You can respond to the statements that follow in one of four ways by circling the appropriate letter or letters. (T) indicates that you feel that the statement is true. (ST) indicates that you feel that the statement is somewhat or mildly true, but still more true than false. (F) indicates that you feel the statement is false. (SF) indicates you feel the statement is somewhat or mildly false, but still more false than true. So that:

T=True
ST=Somewhat or mildly true, but more true than false

F=False
SF=Somewhat or mildly false, but more false than true.

Make sure to answer every statement, and circle only one of the choices for each question.

1.	I have faith in most of the people I know.	T	ST	SF	F
G2.	Life seems exciting and interesting to me.	T	ST	SF	F
3.	I feel I should do things to the best of my ability no matter how small and insignificant they may be.	T	ST	SF	F
G4.	I usually wait until the last minute before starting an assignment.	T	ST	SF	F
G5.	I get a feeling of pleasure from the successes of my friends.	T	ST	SF	F
6.	My way of doing things is sometimes misunderstood by others.	T	ST	SF	F
G7.	There are days, when for no good reason, I feel crushed and useless.	T	ST	SF	F
G8.	Other people seem to get away with things a good deal more than I do.	T	ST	SF	F
9.	I am interested in world affairs.	T	ST	SF	F
10.	I am easily embarrassed.	T	ST	SF	F
G11.	If I do certain things, I just lose all respect for myself.	T	ST	SF	F
G12.	I think the things people say about me when I am not there to hear them are just as complimentary as the things they say to my face.	T	ST	SF	F
13.	It is hard for me to enjoy my leisure hours without thinking about things I ought to be doing.	T	ST	SF	F
14.	I hardly ever lose my temper.	T	ST	SF	F
15.	I feel that the world is in a sad state, but that there is little or nothing that individuals can do about it.	T	ST	SF	F
G16.	I can work at a difficult task for a long time without getting tired of it.	T	ST	SF	F
G17.	I tend to play down the value and importance of things I have done when I talk to other people about them.	T	ST	SF	F

18.	I am a good mixer.	T	ST	SF	F
G19.	When I meet poeple for the first time, my tendency is to feel that they will be critical of me.	T	ST	SF	F
G20.	I usually feel fresh, vigorous, and ready for anything.	T	ST	SF	F
G21.	I have little difficulty being the kind of person I want to be.	T	ST	SF	F
22.	As a child, I liked school.	T	ST	SF	F
G23.	I rarely regret anything I have done.	T	ST	SF	F
24.	Dirt bothers or irritates me.	T	ST	SF	F
25.	I daydream very little.	T	ST	SF	F
26.	Other people seem to require less of themselves than I do.	T	ST	SF	F
G27.	When becoming acquainted with a person I notice traits and actions which show whether he is inferior or superior to me.	T	ST	SF	F
G28.	I stick to a plan of action which I have decided upon without feeling burdened.	T	ST	SF	F
G29.	I react to criticism without becoming hurt or angry.	T	ST	SF	F
G30.	I have a vague feeling of uneasiness, as if I had done wrong and will be found out.	T	ST	SF	F
31.	The sight of a violent fight or quarrel produces in me a mixture of uneasiness and excitement.	T	ST	SF	F
G32.	I forget about "scenes" and "blunders" very quickly.	T	ST	SF	F
G33.	I go at things with considerable zest and gusto.	T	ST	SF	F
34.	I could be happy living all alone in a cabin in the woods or mountains.	T	ST	SF	F
G35.	I have little difficulty living up to the expectations of my parents.	T	ST	SF	F

G36.	I am inclined to feel fully satisfied about the quality of any piece of work I do.	T	ST	SF	F
37.	I enjoy gambling for small stakes.	T	ST	SF	F
G38.	I find it hard to get over punishment or rebuke, feeling resentful and humiliated for quite some time afterward.	T	ST	SF	F
39.	I expect too much from myself.	T	ST	SF	F
G40.	I hesitate to speak out in a group.	T	ST	SF	F
41.	It is always good to be frank.	T	ST	SF	F
G42.	When I am working I like to stop frequently to do things like going to the refrigerator, listening to the radio or watching television.	T	ST	SF	F
43.	I tend to demand perfection of myself in certain areas.	T	ST	SF	F
G44.	I am bothered by feelings of my own unworthiness.	T	ST	SF	F
45.	It makes me angry to have people hurry me.	T	ST	SF	F
G46.	I get more satisfaction from the sense of having done a piece of work well than from any recognition or praise that others may give me for it.	T	ST	SF	F
G47.	I become sad or depressed only when something really tragic has happened in my life.	T	ST	SF	F
G48.	Once I have started a piece of work, the excitement is over and I find it hard to finish.	T	ST	SF	F
49.	Sexual things tend to make me feel uneasy.	T	ST	SF	F
50.	I often feel that I am not successfully living up to the standards I set for myself.	T	ST	SF	F
G51.	I tend to see life as an opportunity for fun and pleasure rather than as a serious affair.	T	ST	SF	F

G52.	I do most things because I really want to and not because I have to.	T	ST	SF	F
53.	I do not shrink from facing a crisis or difficulty.	T	ST	SF	F
54.	Most of the restrictions that I feel are set by the external world.	T	ST	SF	F
55.	I worry over possible misfortunes.	T	ST	SF	F
G56.	I feel free to do whatever I please whenever I want to do it.	T	ST	SF	F
57.	A person is better off minding his own business than fighting injustices which don't concern him.	T	ST	SF	F
G58.	There were periods in my life when I had at least one of the following frightening nightmares: I was being pursued, mutilated, devoured or punished.	T	ST	SF	F
G59.	I take my work as if it were a matter of life and death.	T	ST	SF	F
60.	I do not blush easily.	T	ST	SF	F
61.	I often ask myself, "Have I done well?"	T	ST	SF	F
62.	I like people who are highly unconventional.	T	ST	SF	F
G63.	Even when I am practically certain that I can do a thing well, I hesitate to put my ability to a test.	T	ST	SF	F
64.	At times I feel like smashing things.	T	ST	SF	F
G65.	I alternate between feeling that no one cares very much about me and the feeling that I am admired.	T	ST	SF	F
G66.	Whenever I feel guilty there is a good reason for it.	T	ST	SF	F
G67.	I find little fault with myself.	T	ST	SF	F
68.	I have periods in which I feel unusually cheerful without any special reason.	T	ST	SF	F

69. I find it easy to ask favors of others. T ST SF F

70. I have strong political opinions. T ST SF F

Appendix H

Scoring Manual for Jokes

A) Cheating

4. boy=0
8. "I wasn't cheating" for No=1

B) New Couple

2. family=1; neighbors, people=0
5. Mrs. F. or any name beginning with F=1
6. much=1
7. curious about them=1
8. they are=0
9. so in love=1; but - affectionate, romantic=0
10. told, remarked, commented=1; said=0
13. whenever, always, every morning=1
14. leaves=1; goodbye=1 (as in "he always kisses her goodbye")
22. don't=1; hardly=1
24. her=1

1) Harvard

1. Harvard=2; University=1; Howard=1; College=0
2. known as, said to be, has been noted as, supposed to be=1
   claims to have=0
4. world's=0
5. the best, highest=1; huge=0
6. store=1
10. reason=1
11. rising, increasing=1
13. each=1
13, 14 - all the time=0
14. year=1
15. said, made the statement=1; remarked=0
17. come in with=1
18. much=1
19. graduates=1
20. go out with, leave with, take out=1
20, 21 - leave some behind=0
21. very little=2; little=1; any=0

2) Stanford

1. college government, government (where clearly implying student
   government)=1; government (where clearly not implying student
   government)=0
1. 2 - student=0
2. official=1; representative=0

3. California (state), a California University=1
3. college=1
6. about=1
12. college=1
13. abolished=1
14. system (second reference, as short for honor system)=2
15. some, a few, 7 (probably a mishearing)=1
15, 16 - long ago=0
16. years back=1
17. we discovered, it was found=1; because=0
19. honors, have the honors=0
21. get the system=1

3) Phone - Note: Presistent operator gets 0 for persistent

1. operator=2
2. icy tone=1
3. told=1; said to, explaining to=0
5, 6 - college student=2+0=2; student (alone)=1; guy, young man=1; man=0
9. party=1
11. dial, call, get=1
12. gone out, is out=1; disconnected=1
13. yes=0
16. gone out, is out=1
19, 20 - want to know=1+1=2
21. with whom=2

4) Doctor - Note: The major distinction in this one is that the doctor's question, "How could you bite yourself in the ear?" is in response to the man's saying he bit himself. Variations of this are scored as synonyms. However, if the doctor says "How did it happen?", meaning how come your ear is bleeding, it is not counted. In other words, "How did you do that?" as an opening question by the doctor to which the patient replies, "I bit myself"=0. The real question is, "How did you bite yourself", not "How come your ear is bleeding?"

2. came into, walked into, went to, goes into=0
3. doctor=1
4. bottom=1
7. bloody=1
8. hurry=1
9. doctor=1
12. my ear lobe=0
13. not possible=2; The doctor said he couldn't have bitten it=1
15, 16, 17, 18 - How did you do that=2+1=3; How did it happen=2+0=2; How is that possible=2+1=3

17. your=1
19. replies=1

5) Sahara

1. man travelling=1; stranger=0
3. Sahara=2; desert=1
4. came across=2; saw, met, found=1
5, 6 - swimmer=1
6. swim suit, swim clothes, swimming trunks=1; beach clothes, diving suit=0
7. where=1
11. replied=2
16. water=1
17. I know=1
19. large, big=1; rye, dry or any other mishearing=2

6) Company president

1. business, corporation, firm=1
2. official=0
3. executive, boss=1
5. officer=1; executive=0
7. told him=1
9. look for, find, pick out=1
11. intelligent, bright=0
12. ambitious, energetic, with drive=1
13, 14 - an executive (as in "search for an executive")=0
14. person=0
16. material=1
17. would be able to=1; would=0
18. fit into=1
18, 19 - take over my job=1+0=1; take his place=1+1=2; replace him=1+1=2
20. when you do=1

7) Football

8. team, men=1
9. prior to game time=1
10. a cheer-up=1; a talk, talking to=0
11. O.K. boys=1
13. with a big grin=1
14. "we are"=0; but "we are now"=1
19, 20, 21 - beginning of the season=1+2=3
21 year=1

8) God only knows

1. teacher=1
2. gave=2
3. Christmas=1; before Christmas=1
4. exam=2
7. was written=1; found=1; wrote=0
9, 10 - only God knows=1+2=3
10. knows=1
12. this one (clearly referring to this question)=1
14. gave back=1
16. with this notice, with the words, with the comment, marked, with the remark, stated=1; wrote=0
17, 18 - God gets A's=2+1=3
18. receives an A=1; pass=0
20. fail=1

9) Subway

2. boys=0
3. sat, sitting=2
4. next to each other=1
6. subway=2; train=1
7. one (had his eyes closed)=2
8. realized, saw=1
10. covered=0
14. Are you ill?=2; Are you sick?=1; Are you feeling O.K.?=0; Don't you feel well?=0
15. nothing, no=0
16. replied=1
18. don't like to, can't bear, can't stand=1; don't want to=0
19. to look at, the sight of=1

10) Dancing

1. talking about=1
2. today's, new=1
5, 6 - girl=1
7. telling=0
8. don't care for, dislike=1
10. of today's=1
10, 11 - modern music=1+1=2
12. only, all=1; a lot, full of=0
15, 16 - guy, boy=1; date=0
17. which part=0
18. about it=1
17, 18, 19 - What's wrong with that?=2+1+2=5; What's wrong with it?=2+1+1=4

Appendix I

Scoring Manual for Twin Story

2. young man=1; man=0
4. enlisted, joined, went into=1
5. United States=1
6. naval=1; Army=0

```
   2       2          2                2 (+2)
Douglas entered the Navy and so did Horace.
                1          2 (+3)
(They both) joined the Navy.
```

9. Horris, Harris, Caroce=2; Norris=0
12. who had never been separated=2; (for separated)
13. from one another=2
15. ever=1
17. went on to be=1
18. radio=0
19. expert=0; operator, engineer=0
20. while on, on=1
22. maneuvers=1; training mission, practice, mission, expedition, assignment, patrol=0
24. lost contact with=1
26. squadron=2; group, team, crew, party of men, unit, company, outfit=1; troop, force, companions, patrol=0
28, 29 - (got lost for) 9 days=3; after x days=1; several weeks later=1 (for later; some days later=3
30. Eskimos=1
31. found=1
32. seal hunters=4; fishing=1
36. delerious after hospital=0
38. brought, took, taken (alone)=0; but - with back=1 (i.e., brought back); sent=0
39. bobsled, sled=1
40. naval=2; military=1
41. hospital=0 (unless hospital is not mentioned later, in which case it scores 2)
42. even when=1; when=0
43. came out, got out, was released, dismissed, left=1; recovered=0
47. from that time on, for the rest of his life, since that day=1
48. became convinced, was convinced, had the notion, maintained thought, continued to believe=1; insisted, claimed, swore, felt, declared=0
49. to be=2; his name was=1
50. brother=1
53. never remembered having, didn't have, had no, denied that he ever had, forgetting that he had=1; was no, never existed=1; never was=0
55. Douglas, called Douglas=1

Appendix J

Criteria for Elimination of Subjects

1. Strongly negative reaction to the experiment.

2. "Special Circumstances" checked on the Post-Experimental Inquiry, where either a good reason was given or the total recall for intentional and incidental recall was below 85. Note: The cut-off point was determined by examination of the distribution of scores and a t-test was done to determine that there was no difference in mean total recall (intentional + incidental) between subjects checking "special circumstances" who were left in the analysis (i.e., were not eliminated by the above criteria) and subjects who did not check "special circumstances".

3. Incomplete protocol.

4. Fragmented recall, e.g., giving only punch line or sketchy outline. Cut-off points were determined by examination of the distributions: Jokes-average of 10.5 points per joke. Twin-21 or less.

5. Third or fourth choice to question 4 of Post-Experimental Inquiry, i.e., made a real effort to remember the "other" jokes or made as much effort as for the intentional jokes.

6. Second choice to question 4 of Post-Experimental Inquiry, but choice 3 or 4 to question 3, i.e., made a slight effort to remember the "other" jokes, but strongly anticipated the incidental procedure, or was certain.

7. Instructed himself to remember too many of the incidental jokes (3 or more).

8. Knew too many of the jokes before (3 or more).

Appendix K

Data for Self-Instructing Subjects

Pro-rated Intentional and Incidental Accuracy Scores

for Self-Instructing Subjects

	Sex	Intentional	Incidental	Superego (SE) or Blocking (B)	Relationship between Intentional & Incidental Score*
Low Superego or Blocking	M	97	46	B	+
	M	127	70	SE & B	+
	M	78	77	SE	-
	M	85	53	SE	+
	F	142	28	SE & B	+
	F	106	29	B	+
	F	124	82	SE	+
	F	116	81	SE	+
	F	61	54	SE & B	-
	F	105	105	SE & B	-
	F	30	26	SE	-
	F	39	92	B	-
High Superego or Blocking	M	95	25	SE & B	+
	F	115	38	B	+
	F	98	57	SE & B	+
	F	77	99	SE	-
	F	30	26	B	-

*Signs were assigned as follows:

- = Incidental > intentional or intentional less than 20% greater than incidental
+ = all others

Appendix L

Item Analysis

			Proportion of Subjects Recalling Item			
	No. of Self-Instruction		Intentional		Incidental	
Joke #	High SE	Low SE	High SE	Low SE	High SE	Low SE
1	1	1	97	94	30	36
3			81	79	29	35
5			78	79	54	31
7			66	71	19	46
9			69	71	21	42
					Chi-Square = 21.84*** (with 5df)	
2		1	96	96	69	52
4			79	92	44	35
6		1	71	85	16	36
8	2	4	79	81	60	40
10		1	79	85	66	70
					Chi-Square = 14.29* (with 5df)	
A					41	42
B					72	67

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