

The Modification and Creation of Memories
in Regression to Early Childhood and the Uterus

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ABSTRACT

The Modification and Creation of Memories in Regression to Early Childhood and the Uterus

Kristina Kandyba

The use of hypnotic techniques in order to retrieve childhood memories from patients has become popular among psychotherapists. Many believe that "memories" reported during hypnotic age-regression constitute an accurate representation of, and sometimes an actual reliving of, the past. Some researchers, however, have disputed these claims. Many subjects have been shown to respond to demand characteristics in the form of indirect suggestions conveyed by the experimenter. The present study examined this possibility; the experimenter attempted to influence subjects' hypnotic behavior through suggestions. Forty-five subjects (age 17 to 40) were chosen from a larger pool of subjects who were administered the Harvard Group Scale of Hypnotic Susceptibility, Form A, and other questionnaires. Subjects were randomly assigned to one of three equal groups regardless of their hypnotizability levels. Subjects in two of these groups received suggestions from the experimenter concerning 1) the possibility of age-regressing to early childhood, 2) the possibility of remembering new information while regressed,

and 3) the content of their "memories". Subjects in a third "control" group received no suggestions. All subjects were hypnotically age-regressed to ages 5, and 1 and to the uterus. Results revealed that subjects who received the suggestions, 1) complied with the first suggestion 2) remembered as many new items as the third "control" group, and 3) complied with the third suggestion, when regressed to age 5 and the uterus, by reporting items that were consistent with the suggestions given. Hypnotizability and absorption interacted to predict a number of dependent variables. The study highlights the possibility of inadvertently influencing subjects' hypnotic recollections.

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In the last decade, a controversy has risen concerning whether or not therapists are able, inadvertently, to distort, or even create false memories in their patients. The issue presently being debated centres around the "recovery" of memories for past sexual abuse dating back sometimes to the first few months of life. In many cases, clients did not report such memories before therapy began. The controversy has affected the social acceptance of therapy, therapists, patients who have recovered memories, and many parents who believe that they have been wrongly accused of sexually abusing their children (Goldstein, 1992; Loftus, 1993a; Ofshe & Watters, 1994; Pendergrast, 1995).

On one side, many therapists believe that autobiographical memories, like video-tapes, are perfect copies of actual experiences. Sexual abuse memories are believed to hold a special property, unlike other autobiographical memories. They may be repressed in exact forms, and are believed to be capable of being entirely retrieved. The contemporary view of the theory postulates that complete copies of the abuse, including details, are kept out of consciousness until a later date, when they can be entirely retrieved. Many therapists therefore see it as their duty to search as much as possible for repressed memories by using suggestive techniques (Goldstein, 1992; Loftus, 1993a; Ofshe & Watters, 1994; Pendergrast, 1995).

Because many therapists believe that hypnosis is one of the most effective ways of retrieving lost memories, they often age-regress their patients to earlier times to "relive" specific episodes. Age-regression is a technique that involves the retrieval of past events by means of hypnosis, whereby the hypnotist suggests that the subject is of a given age. What is remembered by the patient is often not questioned by the therapist, but is assumed to be veridical, no matter how extraordinary the memory (Goldstein, 1992; Ofshe & Watters, 1994; Pendergrast, 1995).

Other therapists and researchers on autobiographical memory hold a different view concerning the way autobiographical memories are retrieved. They argue against the idea that autobiographical memories can be retrieved in perfect forms (Baddeley, 1990), and that memories can be retrieved from very early childhood (Nelson, 1993). In addition, they argue that techniques, such as hypnosis, are not effective in accurately retrieving them (McConkey, 1992) and that suggestive techniques may influence subjects' recollections (Orne, 1979).

However, the continuing use of suggestive techniques, as well as hypnotic age-regression as a memory retrieval technique, reflects the need for additional research in order to further understand their effects on

autobiographical memory (Goldstein, 1992; Ofshe & Watters, 1994). This thesis investigates the effects of pre-hypnotic indirect suggestions on subjects' autobiographical memories retrieved during hypnotic age-regression to ages 5, 1 and to the uterus. In the following sections, evidence will be presented examining whether or not: (a) autobiographical memories are copies of original events, (b) autobiographical memories can be retrieved from early childhood, (c) hypnosis can accurately enhance recall, (d) suggestions from an experimenter can influence recall.

Accuracy in Autobiographical Recall

Autobiographical memory is memory for previous experiences that forms one's personal life history (Nelson, 1993). For example, the first time one drove a car may form part of one's autobiographical memories.

A common belief among people is that all events are recorded in memory and can be recalled in their original form at a later point in time (Brewer, 1986; Laurence & Perry, 1988; Loftus, 1980; Ofshe & Watters, 1994). However, recent research argues that this popular belief concerning autobiographical memories is mistaken (Bartlett, 1932; Brewer, 1986; Laurence & Perry, 1983; Loftus, 1991). In 1980, Loftus & Loftus published a survey reporting the extent of this belief among psychologists and non-psychologists. Out of 169 people who were asked to agree with one of the following two statements, 84% of the 75

psychologists, and 69% of the 94 others agreed with the first (Loftus & Loftus, 1980).

1. Everything we learn is permanently stored in the mind, although sometimes particular details are not accessible. With hypnosis, or other special techniques, these inaccessible details could eventually be recovered.

2. Some details that we learn may be permanently lost from memory. Such details would never be able to be recovered by hypnosis, or any other special technique, because these details are simply no longer there. (p.410)

Other researchers have found similar findings (Labelle, Lamarche, & Laurence, 1987; Orne, Soskis, Dinges & Carota Orne, 1984). Recently, Legault and Laurence (1996), conducted a survey of professional therapists in Quebec, including psychiatrists, psychologists, and social workers. These researchers found that 71% agreed that "everything one experiences is permanently recorded in one's brain" and 65% agreed that "hypnosis can be used to recover memories of actual events from as far back as birth". These percentages were higher for social workers, and lower for psychiatrists (Legault & Laurence, 1996).

The contemporary "video tape" memory view originated from Penfield studies conducted in the 1930s. Penfield stimulated various cortical areas with electrodes, while

subjects underwent surgery for the relief of epilepsy (Loftus, 1980; Squire, 1987). At times, the stimulation induced very coherent images that the subjects claimed to be reliving. In Penfield's view, the stimulation elicited real experiences from the past, as though a "tape recorder were switched on at some arbitrary position" (Squire, 1987, p.77). Penfield believed that the experiences that were elicited were veridical reproductions of past experiences.

One problem with Penfield's interpretation is that he had no way of testing the accuracy of his subjects' reported experiences. As a result, the mental experiences recounted may not have been memories at all. They might have been dreams, fantasies, and/or reconstructions from fragments of information (Loftus, 1980).

In fact, subsequent experimental findings have disproved Penfield's interpretation of memory as veridical. They have revealed that most recollections of past events are not entirely veridical, because they are reconstructed from fragments (Barclay, 1986, 1993; Bartlett, 1932; Linton, 1986; Ross, 1991; Squire, 1987).

To study the process of remembering, Bartlett (1932) used the methods of serial reproduction and repeated reproduction. The serial reproduction method consisted of one subject reading a complex story and telling it to another subject, who in turn told it to someone else and so on. The repeated reproduction method consisted of having

the subject tell the story over and over again (Bartlett, 1932). Bartlett examined the stories obtained using each method and generally found that the reproductions became shorter, more concrete and more modern in phraseology (Bartlett, 1932). In addition, he found that his subjects quickly forgot unfamiliar information from the stories. He noted that the subjects "distorted the stories so that they fit into their own cultural conceptions of what is logical and conventional" (Bourne, Dominowski & Loftus, 1979, p. 85).

Other researchers have examined the accuracies in daily autobiographical memories, as well as in traumatic autobiographical memories. The research on autobiographical memories suggest that central features of both emotional and non-emotional events are remembered more accurately than are the details and the dates (Baddeley, 1990; Brewin, Andrews and Gotlib 1993; Christianson, 1992).

In an experimental study of her own memory, Linton (1986) found that over time, similar episodes merged together, and the details from her own memory disappeared. In addition, she found that memory for dates became inaccurate over time. Additional research has revealed that people generally tend to incorrectly report an event as having occurred more recently (Huttenlocher, Hedges & Prohaska, 1988).

An anecdotal example concerns the testimony by John Dean during the Watergate trials. When tapes of actual conversations that had taken place at the White House were compared to Dean's testimony, inaccuracies were found. His testimony was found to be inaccurate in its details and event sequences, but not in the overall report (Neisser, 1982).

Recently, Maestri and Perry (1996) examined the effects of repeated questioning in children concerning a non-stressful event that they had experienced. They found that direct questions which were non-leading, produced four times more errors in subjects' recall, compared to subjects' free-recall of the event. Further, over 50% of children responded to leading questions concerning an incident which did not take place during the event. Overall, children produced errors over a period of 6 months, following direct, as well as leading questions. Other researchers have found similar results (see Ceci & Bruck, 1993 for a review).

The accuracy of traumatic autobiographical memories has also been examined. Flashbulb memories or memories for traumatic news items were previously assumed to be entirely and accurately remembered over time, as were other factors, such as where individuals were and what they were doing when they heard the news (Brown & Kulik, 1977). A study by

Ulric Neisser however, shows how flashbulb memories change over time.

The day following the "Challenger" explosion on January 28, 1986, Neisser asked his psychology students to record how, where and when they had heard the news, as well as who was with them, and what they were doing at the time. Three years later, the same students were asked to fill out the same questionnaire. In addition, they were asked to rate their confidence from 1 to 5 (1 = just guessing, and 5 = absolute certainty) for each question. The questionnaires were then compared on a 7 point accuracy scale. Only 3 out of 44 students scored 7 while 11 students scored zero. The mean score for all students was 2.95. In addition, confidence scores in no way predicted accuracy. Students with zero accuracy had as much confidence in their responses as students with perfect accuracy.

Students were later interviewed and presented with both of their questionnaires. When presented with their original responses, none of the students changed their more recent stories in favour of the original. This study therefore clearly shows the extent to which people's memories surrounding the context in which they heard about the news, can change over time. In addition, the study shows the extent to which the belief in their "accuracy" remains (Neisser & Harsch, 1992). Other studies on

flashbulb memories have found that the memory for the reception of the news is less well remembered than the memory for the emotional event itself (see Christianson, 1992, for a review).

Researchers have also examined the accuracy of memories for trauma in children (Malmquist, 1986; Pynoos & Nader, 1989). In one such study, 133 elementary school children who had witnessed a sniper attack were each interviewed. Over a period ranging between six and sixteen weeks, many of their memories changed, without any apparent outside influence (Pynoos & Nader, 1989).

An additional study on the accuracy of autobiographical memories, concerns the creation of a traumatic childhood memory in 5 subjects (Loftus & Coan, 1994). For example, a subject recounted a false event to his younger brother, Chris, age 14, as though it had actually occurred. Chris was told that he had been lost in a shopping mall at the age of 5. His brother recounted how, eventually, he found his brother crying in the mall, while being led by an older man. The man had apparently been trying to locate the boy's parents.

Two days later, Chris recalled feeling scared at the time, and the following day, recalled what the man had been wearing. On the fifth day, Chris remembered a conversation with the man. Two weeks later, Chris recounted the entire

story in great detail, and characterized his memory as being clear and vivid (Loftus & Coan, 1994).

Although the likelihood of having actually been lost is possible, neither the older brother, nor the boy's mother could recall such an event. The event was therefore presumed to be false, and the memory recounted by Chris was said to have been created.

Autobiographical memories in adults, and in children (Maestri & Perry, 1996; Ornstein, Gordon & Larus, 1992) change over time and should not be assumed to be veridical. There is no empirical evidence for the "video-tape" theory of memory, or the idea that memories retrieved by people are perfect copies of original experiences. Rather, when people attempt to recall events or details of events from the past, they appear to reconstruct them by filling in the gaps from incomplete details, or by integrating bits and pieces of past experiences together (Bartlett, 1932; Larsen, 1993; Loftus, 1980; Neisser, 1986).

In addition to the lack of scientific evidence supporting the "video-tape" theory of memory, 60 years of scientific research on the concept of repression has failed to find support for the concept (Holmes, 1990). One should therefore not assume that completely recovered memories are accurate unless independent corroboration is found.

The Earliest Memory

As mentioned earlier, many therapists recover incidents of past sexual abuse dating back as far as the first few months of life (Goldstein, 1992; Ofshe & Watters, 1994; Pendergrast, 1995). To evaluate such claims, it is necessary to review the research on the age that peoples' earliest memories date from.

Freud suggested that a child's memories--those which survived into adulthood--dated from the age of 6 at the earliest (Loftus, 1993b). However, a review of early experimental research (Dudycha & Dudycha, 1941, as cited in Pillemer & White, 1989 and in Winograd & Killinger, 1983) found that the earliest memories dated from the age of 3½. It is noteworthy, though, that the methods used to arrive at this figure are open to criticisms. Subjects were either asked simply to report and date their memories, or were given cue words and asked to date any recollections that came to mind (as cited in Pillemer & White, 1989 and in Winograd & Killinger, 1983).

The problem with using these methods is that the results are entirely dependent upon the accuracy of the subjects in both remembering an experience, and in estimating the age at which they experienced it. As discussed earlier, people tend to incorrectly report an event as having occurred more recently (Huttenlocher, Hedges & Prohaska, 1988). Because no attempts were made to

verify either subjects' estimated ages, or the accuracy of their memories, the results should be taken with caution.

Sheingold and Tenney (1982) attempted to remedy these shortcomings. These authors not only questioned subjects about their early memories, but attempted to corroborate subjects' responses by having their mothers rate the accuracy of their child's reports.

Sheingold and Tenney (1982) examined the early memories of adults who, as children, had experienced the birth of a sibling. Subjects were given a set of 20 questions to answer. Questions were of the following sort: "Who told you that your mother was leaving to go to the hospital?" and "How did you find out that the baby was a boy or a girl?."

Their results revealed that most of the subjects (35 out of 39) who were 4 years old at the time of the birth reported information regarding a sibling birth. However, very few subjects who were younger than age 3 at the time of the birth reported remembering it (Sheingold & Tenney, 1982). The study therefore confirmed the earlier findings.

In a study by Winograd and Killinger (1983), subjects who were between 1 and 7 years of age in 1963 were asked what they remembered about the Kennedy assassination. The subjects who claimed to have remembered the event were asked several additional pertinent questions, such as where they were when they heard the news and what they were

doing. Subjects had to answer one question out of 7 in order to be classified as having "remembered" the event. Using this criterion, the authors found that one third of subjects who were 3 at the time reported at least one item, whereas one half of subjects who were 4½ did, and most who were at least 5 years old did (Pillemer & White, 1989).

Usher and Neisser, (1993) studied memories for four experiences. Memories for the birth of a sibling, the death of a family member, a family move to a new home, and a hospitalization of at least one night, were examined in four separate groups of subjects, known to have experienced these events. Subjects were asked a series of questions pertaining to their memory. To be classified as having remembered an event, subjects had to answer three or more questions out of a total number, ranging between 9 and 21, depending on the event.

The researchers assessed the amount of rehearsal pertaining to each event, and the existence of "external information sources" concerning the event, such as family pictures or slides, stories, and home movies. The mothers were contacted to corroborate the reports.

Usher and Neisser found that the memorability of an event varied with the type of event; it occurred at the age of 2 for a sibling birth and hospitalization, and at age 3 for a family death and family move. In addition, the authors found that the majority of subjects reported having

one or more external information source, the most common of these being family stories. However, subjects who were 3 or less at the time, answered fewer questions if they had access to external information, whereas subjects who were 4 or more at the time recalled more if they had access to external information. It is unclear how many subjects who were scored as having remembered the event actually relied on the external information, as a substitute for an early memory.

The research described above suggests that people cannot recall events prior to age 2. Certainly no research to date has shown that people can accurately remember events prior to the age of 2. Any memories recalled during therapy that date back prior to age 2 are therefore potentially false. Additional studies have supported these findings (Fivush, Hamond, Harsch, Singer, & Wolf, 1991; Howe & Courage, 1993; Loftus, 1993b; Nelson, 1992, 1993; Pillemer & White, 1989; Wakefield & Underwager, 1992; Waldvogel, 1982).

Hypnosis and Memory

Hypnosis has long been used by both therapists and police to retrieve and enhance memories. Many who use hypnotic techniques believe that hypnosis can be used both to accurately retrieve and enhance memories (Loftus & Loftus, 1980).

Hypnosis is defined as "a situation in which the subject is asked to set aside critical judgement without abandoning it completely, and to indulge in fantasy and make-believe" (Perry, Laurence, D'Eon & Tallant, 1988, p. 129). Research findings have consistently shown that 10-15% of subjects respond highly to hypnosis, 10-15% respond minimally and 70-80% respond moderately (Hilgard, 1965; Perry, 1992).

Over the last decade, research conducted on the effects of hypnotic procedures to enhance memory has focused on three issues: hypnotic distortions in memory, hypnotic hypermnesia and hypnotic pseudomemory.

One area of study concerns the extent to which hypnosis increases distortions in memory when leading and non-leading questions are given to subjects (McConkey, 1992). A typical study involves presenting subjects with a videotape, and then questioning them either in a waking condition, or during hypnosis. During the questioning, subjects are either given misinformation or no misinformation. Misinformation about the event, is given in the form of leading questions (Loftus, 1991). The results of such studies consistently show that leading questions produce a larger number of errors during hypnosis than in a waking condition. However, subjects in either condition do not differ in their levels of confidence for information recalled. Despite the increase in errors of

memory in the hypnotic subjects, their confidence remained unchanged from subjects in the waking condition (McConkey, 1992; Putnam 1979, Zelic & Beidelman, 1981; Sanders & Simmons, 1983).

A common belief about hypnosis is that it can create a "hypermnestic" effect on memory, that is, it can enhance accurate memories, especially in highly hypnotizable subjects (Laurence & Perry, 1988; McConkey, 1992).

"Hypermnnesia can be said to occur when the repeated testing of memory leads to an increased degree of recall or recognition" (McConkey, 1992, p.411). A typical paradigm involves asking subjects to recall, both prior to and then during hypnosis, items that they had previously memorized.

In an early study by Stalnaker & Riddle (1932), 12 highly hypnotizable subjects were hypnotized and asked to recall pieces of poetry that they had learned one year earlier. Although results showed that subjects on average remembered 53.82% more in hypnosis, careful examination of subjects' responses revealed several errors (as cited in McConkey, 1992).

Other studies have since examined the hypermnestic effect in low, medium and highly hypnotizable subjects. Some studies have found that hypnotic procedures lead to an increase in recall, whereas other have not. Of those reporting an increase in recall however, some report an increase in both correct and incorrect information

(McConkey & Kinoshita, 1988), whereas others report an increase in incorrect information (Nogrody, McConkey & Perry, 1985). However, these studies and others have consistently found that the increase in productivity is accompanied by an increase in confidence in the veracity of information, regardless of the accuracy of recall, especially in highly hypnotizable subjects (Laurence & Perry, 1988; McConkey, 1992; Wagstaff, 1982).

Hypnosis can create the illusion of hypermnesia. However, the increase in productivity is associated with a higher number of errors for which subjects maintain high levels of confidence in their accuracy. As several studies have shown, this finding is more pronounced in highly hypnotizable subjects (Butt 1986; Dywan & Bowers, 1983; Kihlstrom, 1985; Laurence & Perry, 1988; McConkey & Kinoshita, 1988; Nogrody et al. 1985). These studies therefore highlight the importance of independently corroborating information that is recalled in hypnosis.

The third issue surrounding the use of hypnosis and memory involves the creation of memories in response to suggestions from the experimenter. A hypnotic pseudomemory is a memory which is created during hypnosis, following a specific suggestion from the experimenter, that is subsequently reported as being veridical by the subject (McConkey, 1992). Although studies on memory creation during hypnosis usually use an age-regression technique,

which will be discussed later, they are described here since they pertain to the present discussion on memory and hypnosis.

In a study on memory creation in hypnosis, Laurence and Perry, (1983) age-regressed 27 highly hypnotizable subjects to a night during the previous week. The subjects were asked to describe their activities during the half hour preceding their going to sleep. The experimenter then subtly suggested that they might have been awakened by some loud noises, and asked them to report if they heard some loud noises. If the subject reported no noises, the question was repeated a second time. Subjects who reported hearing noises were asked to describe them. In a separate interview, another experimenter questioned the subjects about the events of that night.

The researchers found that 13 subjects accepted the suggestion, and following hypnosis, stated that the event had actually taken place. Of the 13, 6 were highly confident in their memory (Laurence, 1982; Laurence & Perry, 1983; Laurence, Nadon, Nogrady & Perry, 1986).

In a series of studies, Sheehan (Sheehan, Statham & Jamieson, 1991, a, b; Sheehan, Statham, Jamieson & Ferguson, 1991), attempted to create pseudomemories in low, medium and highly hypnotizable subjects in both hypnotic and waking conditions. Overall, they found that more subjects in the hypnotic than in the waking conditions

reported false memories, and of these, more were highly hypnotizable. Other studies have found additional support for the creation of false memories in highly hypnotizable subjects (Labelle, Laurence, Nadon & Perry, 1990; Spanos, Gwynn, Comer, Baltruweit & de Groh 1989; McConkey, Labelle, Bibb & Bryant, 1990; Sheehan, Statham, Jamieson & Ferguson, 1991).

The use of hypnosis to retrieve and enhance memory is therefore not justified because memories retrieved during hypnosis are more likely than not to be reconstructed or created (Laurence & Perry, 1988).

Several researchers have attempted to identify other characteristics, in addition to hypnotizability, that are involved in the creation of false memories. One such characteristic that has been examined, is the degree of absorption in subjects. Absorption is defined as "a total attention involving a full commitment of available perceptual, motoric, imaginative, and ideational resources to a unified representation of the attentional object" (Tellegen & Atkinson, 1974, p. 274). It is measured by the Differential Personality questionnaire (DPQ) (Tellegen & Atkinson, 1974). The DPQ has been found to correlate between .27 and .42 with hypnotizability, and has significantly predicted hypnotizability in several studies (Nadon, Laurence & Perry, 1987; Spanos, Brett, Menary & Cross, 1987; Tellegen & Atkinson, 1974).

In a study by Labelle, Laurence, Nadon and Perry (1990), absorption and hypnotizability together predicted memory creation in hypnosis. Subjects who were high on both scales were more likely to report a pseudomemory in hypnosis (Labelle et al. 1990). This finding was replicated (Labelle, 1994).

The role of social psychological variables.

The role of experimenter demands has been examined as a possible explanation for pseudomemory creation in highly hypnotizable subjects. Orne (1959) defined demand characteristics as implicit cues in the design and/or in the procedure of an experiment which communicate the experimental hypothesis to the subject. Demand characteristics include the subjects' beliefs, as well as the information received from the experimenter during the procedure (Orne, 1979). For instance, indirect suggestions offered to subjects from the experimenter may act to create expectations in the subject as to how he/she should respond (Bowers 1991; Kampman, 1976; Lynn, Weekes, & Milano, 1989; Perry, Laurence, Nadon & Labelle, 1986; Spanos & McLean, 1986). As Binet (1896) observed, a subject will perform a task required of him "to the best of his ability, with no other desire than that of pleasing the person from whom he has received the suggestion" (p. 258).

In addition, contextual cues may play a large part in producing responses that are in line with experimental

demands. The mere mention of "hypnosis" may create an expectancy in subjects that they will remember information not previously available to them (Perry, Laurence, D'Eon, & Tallant, 1988).

The likelihood that a pseudomemory will be accepted appears to be related to the contextual plausibility (whether it is an everyday occurrence) as well as to the verifiability of the suggested pseudomemory. In one study, (Lynn, Weekes & Milano, 1989), it was suggested to a group of highly hypnotizable subjects during hypnosis, that a telephone rang during the session (when none had in fact rung). None of the subjects reported the phone as having actually rung. The authors suggested that this was because the suggested pseudomemory was both a common experience, and was publicly verifiable (Lynn, Weekes & Milano, 1989).

Overall, studies indicate that both hypnotizability of subjects and demand characteristics are factors which influence the acceptance of false memories. Medium and highly hypnotizable subjects are more likely to respond to subtle suggestions for memory creation. Although social psychological variables play an undeniable role in subjects' hypnotic responses, it is unclear to what extent they interact with subjects' cognitive abilities, such as hypnotizability and absorption, to produce these responses (Bowers, 1976; Perry, Laurence, D'Eon & Tallant, 1988).

In a therapeutic context, the beliefs and expectations of both therapists and patients are also at play (Laurence, 1982). The patient believes that the therapist is competent to treat their problem and expects him/her to know how to help them (Frank, 1973). This complex relationship also involves a certain degree of motivation on the part of both parties; the therapist may be motivated to "help" and the patient may be motivated to "be helped". The patient may therefore be vulnerable to the influence from the therapist, especially if he/she employs procedures, such as hypnosis, that can alter a patient's subjective state (Mott, 1982).

In a forensic context where hypnosis is sometimes employed in questioning witnesses and victims of crimes, both the hypnotists and witnesses are motivated to "recall" crucial information, necessary to either convict the accused, or solve a case. However, unless the information is independently corroborated, "one can never be certain whether what is elicited from a crime victim or witness, from a suspect, from a clinical patient, or from a laboratory subject is fact, falsehood, confabulation, or created pseudo-memory" (Perry and Laurence, 1989, p. 24)

Hypnotic Age-Regression

In many situations where hypnosis is used, such as the therapeutic or forensic contexts, as well as in experimental studies, such as the Laurence & Perry (1983)

study, age-regression techniques are used. Such techniques are believed by many to enable people to relive an event that occurred at an earlier age, in order to enhance their memory (Laurence & Perry, 1988). Because the experience can seem very real, people have often thought that age-regression constitutes an actual reliving of the experience.

If a person is age-regressed to childhood, his/her voice and mannerisms may change and become more childlike. In addition, the age-regression experience may be accompanied by strong emotions. These subjectively convincing changes have led many researchers to believe that age-regression constitutes an actual reliving of an event (Nash, 1987).

Although it may seem subjectively real for subjects and hypnotists, age-regressed subjects behave more like adults who are role playing the part of children. In one study, for instance, one subject's vocabulary was too sophisticated to be that of a child, and another age-regressed subject could not reproduce a drawing that had been drawn at the age of 6 (Orne, 1951; Orne, Soskis et al. 1984). However, following a review of over 100 studies, spanning 60 years of research, Nash (1987) has concluded that age-regression is not a reliving of an event, whereby previous infantile psychological structures are reinstated. Age-regression should therefore be understood as a hypnotic

technique that may elicit convincing changes in a subject. However, although they appear to be reliving an event, they are not in fact doing so (Nash, 1987).

A second issue concerns the accuracy of reports obtained in age-regression. It is often thought that memories recalled in age-regression are accurate. Studies have consistently found both that reports are unreliable, and that subjects can be manipulated through inadvertent cuing by the experimenter (Perry, Laurence, Nadon & Labelle, 1986). According to Laurence & Perry, (1988), what is recalled may be veridical, reconstructed, or completely false. In the latter case, it may constitute a pseudomemory that has been unintentionally cued by the hypnotist (Laurence & Perry, 1988).

In an early study on age-regression in 1949, True age-regressed his subjects to different childhood ages. Ninety-two percent of subjects could recall the day of the week on which their 10th birthday fell, 84% recalled their 7th, and 62% recalled their 4th. At the time, this study seemed to support the idea that age-regression was an accurate re-living of an event. However, further examination of the study revealed that the hypnotist had inadvertently cued his subjects into answering correctly. For instance, True had asked subjects "is it Monday?..Is it Tuesday?.." and so on until the subject replied "yes" (Orne, Soskis et al. 1984). Furthermore, the experimenter

was not blind to the correct answer because during his questioning, he would verify the accuracy of subjects' responses by examining a calendar which lay on his desk. One could therefore suspect that subjects might have been cued into answering correctly (Orne, Soskis et al. 1984).

Studies have since found that when age-regressed subjects are asked to identify the specific date of a previous experience, they either do not know it, or they answer incorrectly (Barber, 1970).

In a study designed to examine the accuracy of recall of age-regressed subjects, Nash, Drake, Wiley, Khalsa & Lynn (1986) age-regressed 14 highly hypnotizable subjects to the age of 3 and asked them to identify their transitional object(s) (teddy bears, blankets, etc...). Every subject reported at least one object. He compared their reports with those of their parents and found that out of a total of 15 objects reported, only three matched the mothers' reports. Subjects were again questioned after hypnosis, and reported a total of 22 objects. Only five matched the mothers' reports. A control group consisting of 10 low hypnotizable subjects who were asked to simulate hypnosis, yielded different results. Four control subjects reported an object, and out of a total of six objects reported, half were confirmed by the mother. The remaining subjects claimed not to have had transitional objects, and the mothers agreed. The highly hypnotizable subjects

therefore reported more items than the control subjects, and fewer of these were confirmed by the mothers. Overall, these results suggest that hypnotic subjects were both more productive and less accurate than controls (Nash, et al. 1986).

There is therefore no scientific evidence for the idea that age-regression to childhood is an actual reliving of an event, nor is there scientific evidence that childhood material remembered during age-regression is accurate (Nash, 1987). This is especially so if subjects are age-regressed prior to the age of 2. Given the earlier discussion on the age of earliest memories recalled in adulthood, any reports obtained during hypnotic age-regression that date back prior to age 2 are likely to be inaccurate. In addition, there has been no scientific evidence suggesting that people can accurately recall memories from before birth.

In an age-regression study of four case reports by Cheek (1992), subjects were age-regressed to their mothers' uterus. During age-regression, subjects could "see" and "hear" images and voices from outside the womb. For instance three subjects claimed to be able to see what their mother was wearing, and hear voices from the outside. The author later claimed to have verified the memories with the mothers, and found agreement. The author therefore suggested that the reports constituted evidence that

fetuses register information from the moment their mothers learn of their pregnancy (Cheek 1992).

An alternative explanation of these reports suggests that subjects created the womb memories. Subjects were motivated to remember: they wanted to be hypnotized in order to remember from the womb, because they believed that their memories would explain current problems in their lives. Furthermore, the implicit belief communicated by the hypnotist was that through age-regression, they could remember events from the womb. Finally, during hypnosis, the hypnotist subtly suggested to subjects that they would be able to see, hear, feel, and understand events going on outside of the womb (Cheek, 1992). Careful examination of the hypnotic transcripts reveals several cues from the hypnotist, suggesting that the "fetus" could see, hear, and feel things that were going on in the room.

Given that age-regression does not constitute an accurate reliving of an event, and given that the earliest memories do not date back before age 2, the "memories" obtained by subjects during hypnotic age-regression to the womb should be assumed to be false. In the study by Cheek (1992), subjects' "memories" were likely unintentionally created as a result of the demands of the setting, the subjects' motivation to discover the root of their problems, and subtle suggestions from the hypnotist communicating his own expectations.

Several studies have examined the effects of indirect suggestions in altering memory during age-regression. In a series of experiments, Spanos manipulated subjects' expectations concerning past-life reincarnations. In the first of these experiments, half of his subjects received expectations about the characteristics of past-life identities by the experimenter via indirect suggestions. He found that a significant number of subjects who were provided with information regarding the characteristics of past-life identities incorporated the information into their past-life reports, obtained during regression to previous lives (Spanos, Menary, Gabora, DuBreuil & Dewhirst, 1991; Spanos, Burgess, & Burgess, 1994).

In a second experiment, subjects in one group were told that it was very common for children in earlier times to have been abused. Subjects in the control group were given neutral information, which was not intended to guide their recall. A significant number of subjects in the "suggestion" group gave reports of child abuse during regression (Spanos et al. 1991; Spanos et al. 1994).

Similarly, in a third study, subjects in one group were told that past-life reincarnations were scientifically proven, and subjects in another group were told that past-life reincarnations were largely a product of the imagination. Subjects in both groups reported past-lives during regression, but subjects in the "imagination" group

were more likely to attribute less credibility to their reports (Spanos et al. 1991; Spanos et al. 1994).

The Present Study

The goal of the present study was to examine the effects of indirect suggestions communicated by the experimenter, prior to hypnosis, on subjects' behavior during hypnosis. The suggestions in the current study fall in the category of indirect suggestions, as opposed to direct suggestions. Direct suggestions have been defined as involving the overt communication of the experimenters' wishes to the subject. The subject is aware that he/she is being influenced. On the other hand, indirect suggestions are intended to influence a subject without the subject being aware of it (Georghiu & Fiedler, 1977). Unlike other studies, the present study sought to influence subjects' recall for events from their childhood, and from prior to their birth. As discussed earlier, previous research has suggested that in general, autobiographical memories are reconstructed, and do not date back prior to age 2 at the earliest. Furthermore, the research discussed earlier strongly suggests that autobiographical memories retrieved during hypnosis are also subject to distortions and creation. The distortions and creations of memories in hypnosis appear to be caused by an interaction between the individual (hypnotic levels) and the situation (demand characteristics) (Laurence & Perry, 1983; Orne, 1959, 1979;

Spanos et al., 1994). The present study examines the possibility of manipulating subjects' expectations in three distinct ways: the first concerns their ability to age-regress; the second concerns their ability to recall previously forgotten material; and the third concerns the content of their memories retrieved during hypnotic age-regression to ages 5, 1 and the uterus.

To clearly differentiate between subjects' already existing memories and possible deviations from them, records of their recollections were obtained prior to hypnosis. Subjects recorded all memories dating back prior to age 5 in individual "log books". Any deviations from these memories, as well as any additional recollections obtained during hypnosis were then identified as increases in productivity. In addition, any potential reports from ages 1 and from the uterus were identified as pseudomemories.

Forty-five subjects were equally divided into a total of three groups (group 1, group 2, and group 3). Subjects in each of these three groups received a separate set of manipulations. In the first and second groups (group 1 and group 2), subjects were given three separate suggestions, each of which intended to influence their behavior during hypnosis. The first suggestion (suggestion A), implied that they would be able to age-regress to their childhood, prior to age 1. The second suggestion (suggestion B),

implied that they would be able to "remember" information that they had previously forgotten. The third and final suggestion (suggestion C), implied that they "remembered" specific types of information during the regression. The only difference between group 1 and group 2 was in the specific types of information suggested during suggestion C. The third, and final group (group 3), was a control group. Subjects in this group received none of the three suggestions.

Results were examined in all subjects regardless of their hypnotizability levels, and whether or not they successfully age-regressed, given that the goal of the study was to examine the effects of experimenter's influence on all subjects. Since the goal of the present study is to make inferences to therapeutic and forensic settings, the indirect suggestions were given to subjects of all hypnotizability levels, by an experimenter blind to these levels.

The majority of studies examining the effects of indirect suggestions on subjects' reports during regression have either divided subjects into groups based on hypnotizability levels, or have selected medium and highly hypnotizable subjects (Spanos et al. 1991), or have tested only highly hypnotizable subjects (Laurence & Perry, 1983). In therapeutic and forensic settings though, people are regressed, without the prior knowledge either by the

person, or by the hypnotist, of their hypnotizability levels. People are exposed to a context of hypnotic regression, and are given suggestions, regardless of their hypnotizability levels. They are not asked whether they regressed or not. They are simply asked to remember an event, and if they report information, it is often assumed that they did regress.

Four hypotheses posed in this study, then, were as follows:

Hypothesis 1: It was hypothesized that more subjects in the groups that received suggestions from the experimenter (groups 1 and 2) than in the control group (group 3) would age-regress to the uterus following the suggestion (suggestion A) that "people can age-regress further back than previously thought."

Hypothesis 2: It was hypothesized that more hypnotic reports given by subjects in groups 1 and 2 compared to group 3 would be "new," following the suggestion (suggestion B) that "people tend to remember things that they'd completely forgotten." "New" reports were those that were not previously recorded in subjects' log books,

Hypothesis 3: It was hypothesized that subjects in groups 1 and 2 would report more items consistent with suggestions (suggestion C) concerning what people generally remember, as compared to subjects in group 3. The suggestions involved "objects" and "people and events" for

ages 5 and 1, as well as "sounds" and kinaesthetic sensations in regression to the uterus.

Hypothesis 4: Given the findings of Labelle et al. (1990) and Labelle (1994), it was hypothesized that absorption would interact with hypnotizability to predict hypnotic responses to the specific suggestions given during regression. That is, subjects with high scores on both scales were predicted to produce more information in hypnosis than subjects with low scores on both scales.

Method

Subjects

Following ethical approval for this study, 45 subjects in total were recruited (18 males and 27 females). They ranged in age from 17 to 40 years of age, with a mean age of 23.31 years (SD = 6.15). Subjects were recruited from a larger subject pool at the Concordia University Hypnosis Lab. This larger pool was originally recruited from an ad in the Concordia University "Link" student newspaper in the fall term of 1994, which requested "paid" participants for hypnosis research. Subjects who telephoned the hypnosis lab were screened for, and accepted only if there was no evidence of overt psychopathology, or psychopharmacological treatment. Subjects who passed this initial screening were given information concerning both hypnosis as well as the Harvard group scale of hypnotic susceptibility session.

Following each Harvard group hypnotic susceptibility session, subjects completed a demographic questionnaire where they were asked to indicate their interest in participating in a study on age-regression (see Appendix A for a copy of the demographic questionnaire). Those who expressed interest in participating in the study were telephoned and recruited for the present study. During the telephone conversation, subjects were briefly informed of the study and its purpose (see Appendix B for a copy of the telephone script).

Subjects who agreed to participate were scheduled for a first session, and following it, were randomly assigned to one of three groups regardless of their Harvard Hypnotic Susceptibility score. Subjects were paid \$6.00 for their participation in the Harvard group session, and \$10.00 for their participation in the present study.

Materials and Apparatus

Subjects were given several questionnaires to complete at the beginning of each Harvard group session. Among them, were the Differential Personality Questionnaire: Scale Ab (DPQ), (Tellegen & Atkinson, 1974), the Individual Differences Questionnaire (IDQ), (Paivio & Harshman, 1983), the Paranormal Experiences Questionnaire (PEQ) (Nadon & Kihlstrom, 1987) and the Attitudes Towards Hypnosis Questionnaire (Spanos, Brett, Menary & Cross, 1987). The IDQ, PEQ, and attitudes questionnaires were given to subjects for the purposes of another study, and were therefore not analyzed for this study (see Appendix C for descriptions of each).

DPQ. The Differential Personality Questionnaire: scale Ab, measures subjects' degree of "absorption" in their daily experiences. The questionnaire contains 34 statements, to which subjects must respond with either true or false answers. The 34 statements concern everyday events, and how subjects experience them. The questionnaire is scored by adding all "true" answers, and

the total score therefore ranges between 0 and 34.

Examples of items include: "I can be greatly moved by eloquent or poetic language," "I like to watch cloud shapes change in the sky" and "the crackle and flames of a wood fire stimulate my imagination." Isaacs (1982) reported an internal consistency coefficient of reliability of 0.89 for the DPQ (see Appendix D).

HGSHS:A. Subjects were tested for their hypnotizability levels on the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) (Shor & Orne, 1962). The scale is used to introduce subjects to the experience of hypnosis, and therefore serves as an initial estimate of hypnotic responsiveness. It is administered to a group of about 10 to 20 subjects via audiocassette, and takes approximately one hour to complete. The original scale consists of 12 items which are ordered according to their difficulty, from least to most difficult. (see Appendix E for a list of the items). The scale is scored by each subject following hypnosis, by indicating on a questionnaire whether he/she responded to each item. The scores therefore range between 0 and 12.

The Concordia University Hypnosis Laboratory has slightly modified the scale, by omitting one item; the "Head falling" item which is the first one on the original scale. The total score on the modified scale is therefore out of 11. Subjects scoring between 0 and 3 are classified

as "low" hypnotizable, those scoring between 4 and 8 are classified as "medium," and those scoring between 9 and 11 are classified as "high."

SHSS:C. In addition to the HGSHS:A, subjects were administered the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C) (Weitzenhoffer & Hilgard, 1962) (see Appendix F for a copy of the script). It is also composed of 12 items which become progressively more difficult, and takes approximately 1 hour to administer.

The SHSS:C differs from the HGSHS:A in several ways. It contains more difficult cognitive items (10 out of 12). It is administered individually to subjects, by an experimenter. In addition, the SHSS:C session is videotaped and scored by the experimenter. Every item that the subject appears to respond to is scored as a "pass" by the experimenter. The SHSS:C score consists of totalling all "pass" items, and scores range from 0 to 12. The classification into low, medium, and high is identical to that of the Harvard group scale.

The SHSS:C is a more valid measure of hypnotizability than the HGSHS:A for several reasons. Because the HGSHS:A serves as an introduction to hypnosis, subjects' performance may be influenced by anxiety or misconceptions concerning hypnosis. In addition, subjects' performance may be affected by being in a group with other subjects as opposed to being alone with the experimenter. Finally,

since the SHSS:C contains more cognitively difficult items, it may more accurately measure hypnotizability than the HGSHS:A. The HGSHS:A however, is a necessary first measure of hypnotizability since it serves as an introduction to hypnosis.

The Concordia University Hypnosis Laboratory has modified the twelfth item on the SHSS:C by replacing the anosmia-to-ammonia item by a posthypnotic suggestion that the subject will stand up when a cue is given (Perry, Nadon, & Button, 1992). For the purposes of the present study, the seventh item on the SHSS:C scale-- the age-regression item--was replaced by the age-regression manipulation for the present study (see Appendix G for a copy of the age-regression scripts for each group).

GSS 2. Subjects were given the Gudjonsson Suggestibility Scale (GSS 2) as a measure of their interrogative suggestibility level (Gudjonsson, 1987). The purpose of the scale is to assess an individual's response to leading questions and negative feedback instructions when asked to report a factual event from recall.

The scale consists of a narrative paragraph which is read to subjects. The story contains 40 distinct ideas, involves a distinct event and comprises men, women and children. It consists of a couple, who, on their way to work, spot a boy heading down a slope on his bicycle and appearing to be out of control. They chase him and

eventually help him stop (see Appendix H for a copy of the story). For the purposes of the present study, the story was administered via audiocassette in order to control for consistency of style and intonation. To enable subjects to clearly distinguish the voice on the tape from that of the female experimenter, the story was recorded by a male. The procedure for administering the GSS 2 was as follows:

Subjects were seated and told the following: "I want you to listen to a short story. Listen carefully because when I am finished I want you to tell me everything you remember."

The audiocassette of the story was then played. Following the story, the subjects was told the following: "Now tell me everything you remember about the story." Following the free recall, the subjects were told that they are going to be asked questions about the story, and that they must answer them as accurately as they can. Fifteen out of twenty questions are leading, in that they contain misleading suggestions, whereas five are true questions (see Appendix I for the questions).

Following the responses to the questions, the experimenter reviewed them and told the subject that "you have made a number of errors. It is therefore necessary to go through the questions once more, and this time try to be more accurate." This was said to subjects regardless of the number of errors they made. The 20 questions were then repeated and answers were recorded.

Two components of suggestibility were scored. All changes in replies from the first trial were scored as "shifts" and the extent that subjects responded to a suggested question was scored as a "yield." The total suggestibility score consisted of the sum of each "yield" response on trial 1 and each "shift" score on trial 2. The suggestibility scores ranged between 0 and 35 (20 possible "shifts" and 15 possible "yields") (Gudjonsson, 1987).

Log books.

The log book consisted of a duo-tang containing 10 "loose-leaf" pages, on which appeared a space for "today's date," three questions with a choice of answers, as well as sufficient space to record subjects' memories. Subjects were asked to record all of their memories prior to the age of 6. They were asked to indicate their age at the time, or estimate it if unsure. In addition, for each recorded memory, subjects were asked to answer three questions: "how clear is the memory?," on a scale from 1 (very vague) to 5 (very clear), "did your parents or siblings ever tell you stories relating to your memory?," on a scale from 1 (never) to 5 (more than 10 times), and "indicate how confident you are that this is really a memory of an experience you have had, rather than a memory 'induced' by photographs, stories, etc...," on a scale from 1 (not at all) to 5 (very confident). In addition, subjects were asked not to rely on anyone for help, but rather to try and

remember on their own (see Appendix J for a sample log book). Responses to the three questions were not analyzed for the present study.

The apparatus consisted of one audiocassette player in order to administer the HGSHS:A and the GSS 2 story, as well as one audiocassette recorder in order to record subjects' free recall of the GSS 2 story, and to record the age-regression item during the SHSS:C session. One videocassette recorder was employed to record the age-regression item during the SHSS:C session and one lapel microphone was used in order to record subjects' verbal responses during hypnosis. Finally, a watch was used during the SHSS:C in order to monitor the time.

Procedure

During the first Harvard group session, subjects first completed the DPQ, IDQ, PEQ, and attitudes towards hypnosis questionnaire. The experimenter then briefly discussed general issues concerning hypnosis with subjects. Before beginning the group hypnosis session, subjects were given an opportunity to ask questions. The audiocassette was then commenced, and the experimenter sat quietly in a corner and monitored the session. Following the session, subjects completed the Harvard questionnaire as well as a subject demographic information sheet. On it, they were asked to indicate their interest in participating in a study on age-regression.

Subjects who expressed interest in the study were contacted and given more information about it. Throughout the entire experiment, the experimenter was blind to the subjects' hypnotizability levels in order to ensure that all subjects were treated in a consistent manner. Subjects were told that the goal of the study was to examine their early memories outside hypnosis with those remembered during hypnosis in order to examine any differences. Subjects who remained interested in participating were individually scheduled for two sessions, with one week in between each.

Experimental session 1.

Subjects were first given a consent form to sign (see Appendix K). They were then administered the GSS 2. Following the GSS 2, subjects were given the log book in which to record all early childhood memories prior to the age of 5. Subjects were asked to return the log book during the next (second) session, one week later.

Following the first session, and prior to the second session, subjects were randomly assigned to one of three groups. The first and second groups were experimental groups and the third was a control group.

Experimental session 2.

The second session began with a discussion during which time, subjects were informed as to what would take place during the session. For this purpose, one of three

versions of the Stanford Protocol sheet (see Appendix L) was read to the subjects, depending on their assigned group. It included information about the SHSS:C and outlined some differences between it and the HGSHS:A. The protocol for each group (1, 2 or 3) included suggestion A, suggestion B and suggestion C.

Suggestion A was that "researchers believe that people can age-regress further back than previously thought." Subjects were told that they would be age-regressed to the ages of 5, 1 and further back to see what they remembered. Suggestion B was for enhanced recall in hypnosis: "people tend to remember things that they had completely forgotten."

Suggestion C contained information regarding what people generally remember during age-regression. The specific suggestions that group 1 received for ages 5 and 1 were reversed in group 2. To lend credibility to the suggestions, a fictitious reference to Piaget's theories of development was given to both groups. For instance, subjects in groups 1 and 2 were told the following: "what's interesting is the degree to which people's early memories correspond to Piaget's stages of development. For instance, Piaget's first stage is sensory-motor stage, from birth to age 2, where children learn how to manipulate objects. It's hardly surprising then, that when people are age-regressed back to age 1, their memories concern

mostly..." Subjects in group 1 were told that the memories concern mostly "people and events since the child is only learning to manipulate objects and doesn't yet understand them." Subjects in group 2 were told the memories concern mostly "objects, since they are learning how to manipulate them at that age." For age 1 then, the specific items suggested to group 1 were "people and events" and those suggested to group 2 were "objects".

Subjects in groups 1 and 2 were then given the suggestion for recall at age 5: "between ages of 2 and 7 is the pre-operational thinking stage, where children have already become familiar with objects, so it's hardly surprising that when age-regressed to the age of 5..." Subjects in group 1 were told that "they have mostly vivid memories of objects, such as toys, TV shows, etc..." while subjects in group 2 were told "they have mostly vivid memories of people and events, since they have already learned about objects." Both groups were then told: "don't be surprised then, if you suddenly remember something you had completely forgotten, and if it is similar to what other people remember." For age 5 then, the specific items suggested to group 1 were "objects" and those suggested to group 2 were "people and events".

Subjects in group 3 were not given suggestions A, B, or C: they were not given a suggestion for age-regression prior to the ages of 1 (suggestion A), nor were they given

a suggestion for increased recall during age-regression (suggestion B). Finally, they did not receive suggestions to recall specific items (suggestion C). Rather, they were told "you may or may not remember, or even be able to go back. If you don't remember anything, that's fine. We are simply trying to see if it's possible." All subject were told that during age-regression, they would be given the choice of either remembering an event which they wrote down in their log book, or remembering a new one.

After the Stanford Protocol was read to each subject, his/her log book memories were read out-loud by the experimenter. This procedure enabled the experimenter to familiarize herself with their memories and include any additional information provided by each subject.

Subjects in groups 1 and 2 began the Stanford Hypnotic Susceptibility Scale, and while hypnotized, received all items on the scale. When given the age-regression item (item 7 out of 12), the suggestions for "objects," "people" and "events" were repeated briefly in order to prevent subjects from confusing them. It was suggested to subjects that they might recall mostly objects, or events and people, depending on the group, and the age. Subjects were then age-regressed to the ages of 5, 1, and to their mothers' uterus, one month before their birth. All subjects received the age-regression inductions for each

age, regardless of whether they successfully age-regressed or not.

Once the experimenter completed the age-regression induction for each age, subjects were asked to indicate when they felt they were there again, by raising their index finger. Once raised, they asked the following questions: "Are you there now? What is your age? Tell me what is happening?" In the event that a subject did not raise his/her finger after approximately two minutes, the experimenter asked him/her what was happening. Subjects would either want more time to "get there" or would express difficulty in age-regressing.

All information given by subjects was recorded, regardless of whether they successfully age-regressed or not. For instance, if a subject reported not being "there again," but reported information, such as the details from a photograph, it was recorded.

Following the age-regression induction to age 1, subjects were then told that they would be age-regressed to their mothers' uterus: "As I mentioned to you earlier, researchers have shown that people can age-regress further back than previously thought, all the way back into their mother's uterus, about 1 month before their birth." They were then given specific suggestions regarding what they might remember. These suggestions differed in groups 1 and 2. Subjects in group 1 were told that "you might find that

you will be able to hear the sounds around you, such as your mother's heartbeat. That is fine." Subjects in group 2 were told that "you might find that you will be able to feel yourself floating, that you might feel the temperature and pressure around you. That is fine."

Following the age-regression item on the Stanford, subjects received the remaining items on the SHSS:C. Following hypnosis, all subjects were interviewed regarding their experiences. They were asked to describe their age-regression experiences and "memories." In addition, they were asked to rate their confidence in the authenticity of their reports on a scale from 1 (not at all confident) to 5 (very confident) (see Appendix M).

Subjects were given a final questionnaire asking the following information: "What was the goal of the study? Do you feel that relaxation technique enhanced your memory? Did you have any expectations from the study? if so, what were they?."

At the end of the session, subjects were fully debriefed and given \$ 10.00 (see Appendix N for a copy of the debriefing script).

Scoring of age-regression reports.

To properly score subjects' recollections during hypnosis, all audiocassette memories were transcribed. All additional information gained during the post hypnotic interview, and recorded on paper by the experimenter, was

also included in the transcripts, but distinguished from the hypnotic recollections. To prevent experimenter bias in scoring, subjects' group numbers were not included in the transcriptions of their memories. Subjects were identified only by their subject numbers, which were unrelated to their group numbers.

Once transcribed, subjects' memories were coded based on their content. A detailed scoring scheme was both created and relied on in order to ensure consistent scoring by both the experimenter and a rater, blind to the experimental hypotheses. The scoring protocol was created for the purposes of the present experiment, in that it clearly defined objects, people, events, for ages 5 and 1, as well as sounds, pressure, temperature and floating for the uterus memories. Additional categories were defined in order to score other information for future purposes, some of which were based on those of Fivush, Hamond, Harsch, Singer and Wolf (1991) (see appendix 0 for a copy of the scoring protocol).

The experimenter and the rater initially coded approximately five subjects' memories together, in order to clearly understand and agree on the scoring protocol. The remaining subjects were scored by each rater separately. The total number of items in each category were finally summed for each subject separately. The interrater reliability for objects, people, events, for ages 5 and 1,

as well as sounds, pressure, temperature and floating for the uterus memories was 92%. The interrater reliability for the additional categories was 70.5%.

For each age-regression item, subjects were scored as having either "successfully" age-regressed, "not successfully" age-regressed, or as having "imagined" their experience.

Age-regression was scored, by assigning either a "pass," "fail," and "imagined" scores for age 5, 1, the uterus to each subject. Subjects who successfully age regressed were scored as having "passed" if they indicated, during the post-hypnotic interview, that they felt as though they were "there again" at either age 5, 1 or in the uterus as opposed to feeling like an adult observer. Age-regression was scored as "fail" if subjects reported not feeling as though they were "there again." Subjects were scored as having "imagined" their experience if they reported, either during hypnosis, or following hypnosis, not feeling "there again," but rather reported imagining their experience.

Results

The data for this study are described below, as are the statistical analyses conducted for each hypothesis .

Age Regression "further back"

To evaluate the first hypothesis--that more subjects in groups 1 and 2 than in group 3 would age-regress to age 5, 1 and the uterus--the total number of subjects in each group who were scored as having passed age regression, were compared to one another (see Table 1). Because subjects in groups 1 and 2 received the same suggestion, they were merged together and compared to group 3 using a Chi-Square test of independence.

Results suggest that significantly more subjects in group 1 and 2 passed age-regression to the uterus compared to those in group 3, $\chi^2 (1, N = 45) = 3.85, p < .05$. In addition, significantly more subjects in groups 1 and 2 passed age-regression to age 1, $\chi^2 (1, N = 45) = 6.42, p < .05$ and to age 5, $\chi^2 (1, N = 45) = 5.86, p < .05$. These results support hypothesis 1.

Reporting New Items

Hypothesis 2 predicted that more subjects from groups 1 and 2 than from group 3 would report "new" memories as opposed to memories previously remembered and described in their log books.

The data needed to evaluate hypothesis 2 were obtained by comparing the memories recorded in each log book, with

Table 1

Number of subjects in each group, and at each age regressed
who passed, failed or imagined age-regression

	age	Pass	Fail	imagined	Total (pass)
	5	11	4	0	73.3%
G1	1	7	8	0	46.6%
	U	4	9	2	26.6%
	5	12	3	0	80.0%
G2	1	13	2	0	86.6%
	U	6	7	2	40.0%
	5	6	9	0	40.0%
G3	1	4	11	0	26.6%
	U	1	11	3	0.06%

Note. G1, G2, G3 = group 1, group 2, group 3.

5, 1, U = age 5, age 1, uterus.

the reports obtained during age-regression. Subjects' hypnotic reports were coded as being "log book" recollections if subjects simply reiterated during regression, a memory that they had previously written in their log book. Hypnotic reports were coded as "new" recollections, if they had not been previously included in subjects' log books. If the reports contained information derived from the log books, but also included additional information not contained in the log books, they were coded as "log book and new" (see Table 2).

A Chi-Square test for independence was conducted in order to compare the total number of "new" memories between group 1, group 2 and group 3. Because subjects in groups 1 and 2 received the same suggestion, the number of "new" reports in each were merged together and compared to those in group 3.

Results suggest that the vast majority of hypnotic age-regression reports in all groups, for the three ages were coded as "new". As many reports from subjects in group 3 were coded as "new," as from subjects in groups 1 and 2, $\chi^2 (1, N = 100) = .506, p > .05$. Hypothesis 2 was therefore not supported.

Reporting Specific Information

Subjects in groups 1 and 2 received a suggestion (suggestion C) concerning what they might recall in hypnosis. The items contained in the suggestion consisted

Table 2

The total number of hypnotic reports deriving from log books compared to "new" reports

		<u>log book</u>	<u>new</u>	<u>log+new</u>
	5	0 (50)	15	0
G1	1	0 (4)	13	0
	U	0	8	0
	5	2 (41)	8	4
G2	1	2 (3)	12	0
	U	0	14	0
	5	1 (41)	10	2
G3	1	1 (2)	10	0
	U	0	10	0

Note. Hypnotic log book reports are the number of reports obtained in hypnosis, that refer to memories described in subjects' log books. Numbers in brackets refer to the total number of memories described in subjects' log books for ages 5, and 1.

of either "objects," or "events and people" for ages 5 and 1, depending on the groups. The items suggested to subjects in the uterus consisted of "sounds" for group 1 and kinaesthetic sensations for group 2. The data needed to evaluate this hypothesis therefore consisted of 1) the mean number of "objects," "events" and "people" reported by subjects in all three groups, for ages 5 and 1, and 2) the mean number of "sounds" and kinaesthetic sensations (references to pressure, temperature and floating) reported by subjects in each group. These data are referred to as "items" throughout this section.

The items examined for hypothesis 3 were analyzed along a series of steps. These are described below. They were first tested for outliers, and then were examined for violations of normality and homogeneity of variance.

Outliers, normality and homogeneity of variance.

Data (number of "objects," "events," "people," "sounds," "pressure," "temperature," and "floating" items) reported in hypnosis) were initially standardized and all items reported by subjects which exceeded three standard deviations from the mean were identified. A total number of 4 outliers were identified and changed to a number that corresponded to three standard deviations above the mean (Tabachnick & Fidel, 1989).

All distributions were verified for normality. Although some showed slight positive skewing, all were

slightly skewed in the same direction, and none of the distributions were significantly skewed (Tabachnick & Fidel, 1989).

Fmax ratios were computed for variances in each group for each comparison. None of the ratios between largest to smallest variance exceeded 5:1, therefore homogeneity of variance was not violated (Tabachnick & Fidel, 1989).

Several statistical analyses were then conducted on the items reported at age 5 and 1. A factorial MANOVA (multivariate analysis of variance) was conducted on items obtained during regression to ages 5 and 1 (objects, people and events). The MANOVA, which permitted the analysis on all three dependent variables together, was conducted because the three DV's were not independent of one another.

The factorial MANOVA consisted of a 2-way (3 X 2) with one between and one within subjects independent variable (IV). The between subjects IV consisted of the three groups of subjects (group 1, group 2, and group 3), and the within subjects IV consisted of the two ages at which subjects were regressed (age 5 and age 1). The data for the MANOVA consisted of the three DV's (objects, events and people).

Significant interactions were further analyzed by conducting a series of univariate analyses of variance (simple effects). Simple effects were conducted on each DV separately, at each level of age (for age 5 and 1

separately) and compared the mean number of items in each group. A total of 8 simple effects were conducted.

Significant simple effects were followed by simple, or planned comparisons. Two planned comparisons were therefore conducted for each significant simple effect. The first compared group 1 with group 2. The second compared either group 1 with group 3, or group 2 with group 3, depending on the group that received the suggestion.

MANOVA results.

The multivariate analysis of variance revealed a significant main effect of age, $F(1, 42) = 14.409$, $p < .001$ and a significant main effect of items, $F(2, 84) = 31.874$, $p < .001$. The main effect of group was not significant, $F(2, 42) = 2.67$, $p = .08$ (see Table 3 for means)

The analysis revealed a significant two-way interaction between group and items, $F(4, 84) = 3.503$, $p = .011$ and a significant three-way interaction between group, age, and items $F(4, 84) = 4.055$, $p = .005$ (See Appendix P for summary table). No other significant effects were found.

Simple effects and planned comparisons at age 5 and 1.

All simple effect, and planned comparison source tables can be found in appendix Q.

Means and standard error of means for "events" reported at ages 5 and 1 are listed in table 4. The simple

Table 3

Mean number of overall items

	<u>Objects</u>	<u>Events</u>	<u>People</u>
<u>M</u>	6.10	3.70	1.87
<u>SE</u>	1.57	0.98	0.43

	<u>Age 5</u>	<u>Age 1</u>
<u>M</u>	5.14	2.64
<u>SE</u>	2.05	1.13

Table 4

Mean number of "events" reported at ages 5 and 1

	Age 5			Age 1		
	G1	G2	G3	G1	G2	G3
<u>M</u>	2.60	7.47	4.80	2.13	3.40	1.80
<u>SE</u>	0.74	1.63	1.45	0.72	0.92	0.45

Note. G1, G2, G3 = group 1, group 2, group 3.

effect for "events" reported at age 5 revealed a significant effect of group, $F(2, 42) = 3.372$, $p = .044$, and an effect size of $R^2 = .138$. The significant effect of group indicated a significant difference between two or more of the three means compared (mean number of "events" for each group, at age 5). Two planned comparisons were then conducted, one between group 1 and 2, and a second between group 2 and 3. The first revealed that subjects in group 2 reported significantly more events than those in group 1, $F(1, 42) = 6.723$, $p = .013$, but that subjects in group 2 did not report significantly more events than those in group 3. Subjects in group 2 had received a suggestion which implied that they might recall "events" at age 5, and results suggest that they reported significantly more "events" than subjects in group 1 only. Hypothesis 3 was therefore only partially supported for the suggestion involving "events" at age 5. A simple effect for "events" at age 1 did not reveal significant differences between the number of "events" reported by the three groups.

Table 5 lists the mean number of "people" reported by subjects at ages 5 and 1. A simple effect for "people" reported at age 5 revealed a significant effect of group, $F(1, 42) = 7.018$, $p = .002$, with an effect size of $R^2 = .25$. The main effect indicated a significant difference between two or more of the three means compared (mean number of "people" for each group, at age 5). Two planned

Table 5

Mean number of "people" reported at ages 5 and 1

	Age 5			Age 1		
	G1	G2	G3	G1	G2	G3
<u>M</u>	1.33	4.27	2.07	1.93	1.00	0.67
<u>SE</u>	0.48	0.78	0.41	0.56	0.31	0.27

Note. G1, G2, G3 = group 1, group 2, group 3.

comparisons were then conducted, one between group 1 and 2, and a second between group 2 and 3. They revealed that subjects in group 2 reported significantly more people than subjects in group 1, $F(1, 42) = 12.956, p = .001$, and subjects in group 3, $F(1, 42) = 7.288, p = .01$. Subjects in group 2 had received a suggestion which implied that they might recall "people" at age 5, and results suggest that they reported significantly more "people" than subjects in both group 1 and group 3. Hypothesis 3 was therefore supported for the suggestion involving "people" at age 5.

Simple effects for "people" at age 1 did not reveal significant differences between the number of "events" reported by the three groups.

Because "events" and "people" were suggested together, two additional simple effects were conducted on both items combined (see Table 6 for means). A simple effect at age 5 revealed a significant effect for group, $F(2, 42) = 5.281, p = .009$, with an effect size $R^2 = .20$. Two planned comparisons were then conducted, one between group 1 and 2, and a second between group 2 and 3. The planned comparisons revealed that, subjects in group 2 reported significantly more combined "people and events" than subjects in group 1, $F(1, 42) = 10.35, p = .002$ and subjects in group 3, $F(1, 42) = 4.029, p = .051$. Both findings support the hypothesis that subjects in group 2

Table 6

Means for items "people" and "events" combined, for ages 5 and 1

	Age 5			Age 1		
	G1	G2	G3	G1	G2	G3
<u>M</u>	3.93	11.73	6.87	4.07	4.40	2.47
<u>SE</u>	1.08	2.19	1.68	0.98	1.12	0.64

Note. G1, G2, G3 = group 1, group 2, group 3.

would report more "events" and "people" than subjects in groups 1 and 3.

A simple effect for "events" and "people" combined, at age 1, revealed no significant differences between the mean number of combined "events" and "people" for each group. The hypothesis that subjects in group 1 would report more "events" and "people" than subjects in group 2 and 3 was therefore not supported.

Mean number of "objects" reported by subjects at age 5 and 1 are listed in table 7. Simple effects for "objects" at age 5 did not reveal significant findings for age 5, and for age 1. The lack of significance at each of the ages suggests that the mean number of "objects" reported in each group did not differ. However, because "objects" and "events" were found to be highly correlated at age 5, $r = .559$, $p = .01$ and at age 1, $r = .784$, $p < .001$, the two simple effects for "objects" were once again conducted, with "events" as a covariate. The adjusted least squares mean number of "objects" for each group are listed in table 8.

A simple effect at age 5 revealed a significant effect of group, $F(2, 42) = 6.701$, $p = .003$, which indicated a significant difference between two or more of the three means. The two planned comparisons revealed that subjects in group 1 reported significantly more objects than subjects in group 2, $F(1, 41) = 7.794$, $p = .008$, and

Table 7

Mean number of "objects" reported at ages 5 and 1

	Age 5			Age 1		
	G1	G2	G3	G1	G2	G3
<u>M</u>	10.40	8.67	4.67	3.87	6.33	2.67
<u>SE</u>	2.50	2.42	1.11	1.10	1.28	0.91

Note. G1, G2, G3 = group 1, group 2, group 3.

Table 8

Mean number of "objects" with "events" as a covariate for
ages 5 and 1

	Age 5			Age 1		
	G1	G2	G3	G1	G2	G3
<u>M</u>	12.94	5.62	5.18	4.57	4.88	3.42
<u>SE</u>	1.64	1.66	1.59	0.73	0.74	0.71

Note. G1, G2, G3 = group 1, group 2, group 3.

subjects in group 3, $F(1, 41) = 12.099, p = .001$. Subjects in group 1 had received a suggestion which implied that they might recall "objects" at age 5, and results suggest that they reported significantly more "objects" than subjects in both group 2 and group 3. These results therefore support hypothesis 3 for the suggestion involving "objects" at age 5. Simple effects for "objects" at age 1 with events as a covariate revealed no significant differences between either of the three groups. This result does not support hypothesis 3.

Simple effects and planned comparisons for the uterus.

To examine the effects of suggestion C on reports from the uterus, two separate simple effects analyses were conducted on two separate means. The first compared the mean number of sounds in each group, and the second compared the mean number of kinaesthetic items (sum of pressure, temperature and floating items) in each group. Any significant simple effects were followed by planned comparisons. The first compared group 1 with group 2, and the second compared either group 1 with group 3, or group 2 with group 3, depending on the group which received the suggestion. Source tables for the planned comparisons can be found in appendix R.

Means and standard deviations are listed in table 9. A simple effect analysis the item "sounds" revealed a significant effect of group, $F(2, 42) = 4.868, p = .013$

Table 9

Mean number of "sounds" reported for the uterus

	GROUP 1	GROUP 2	GROUP 3
	sounds	sounds	sounds
<u>M</u>	0.87	0.13	0.13
<u>SE</u>	0.31	0.09	0.09

with an effect size of $R^2 = .188$. Two planned comparisons were conducted, one between group 1 and 2 and one between group 1 and 3. They revealed that subjects in group 1 reported significantly more sounds than did subjects in group 2, $F(1, 42) = 7.302$, $p = .01$, and subjects in group 3, $F(1, 42) = 7.302$, $p = .01$. Since subjects in group 1 who received the suggestion for "sounds," reported more than subjects in group 2 and 3, these findings supported hypothesis 3 for the suggestion involving "sounds" in the uterus.

Because of the relatively small numbers of "pressure," "floating," and "temperature" items reported, they were grouped together and simple effects were conducted on these items combined. Means are listed in table 10. A simple effect revealed a significant effect of group $F(2, 42) = 5.250$, $p = .009$, indicating that two or more of the three means differed. Two planned comparisons were then conducted, one between groups 1 and 2, and one between groups 2 and 3. They revealed that subjects in group 2 reported significantly more "pressure, floating, and temperature" items than did subjects in group 1, $F(1, 42) = 5.452$, $p = .024$, and subjects in group 3, $F(1, 42) = 9.692$, $p = .003$. Since subjects in group 2 who received the suggestion for "pressure, floating and temperature" items, reported more than did subjects in group 1 and 3, hypothesis 3 was supported for the suggestion involving

Table 10

Mean number of "pressure," "floating" and "temperature"
items reported in the uterus

	GROUP 1	GROUP 2	GROUP 3
	<u>pre+flo+tem</u>	<u>pre+flo+tem</u>	<u>pre+flo+tem</u>
<u>M</u>	0.53	1.13	0.33
<u>SE</u>	0.19	0.21	0.13

kinaesthetic items. Overall, hypothesis 3 was supported for the items suggested at age 5, and in the uterus.

Predictors of Productivity and Confidence Scores

It was hypothesized that subjects' absorption levels and hypnotizability levels would interact to predict hypnotic responses. Since an interaction between absorption and hypnotizability was found to predict the creation of a hypnotic pseudomemory in a previous study, it was hypothesized that they would again interact to predict subjects' productivity in hypnosis.

Multiple regressions were conducted to test for predictors (hypnotizability and absorption) of subjects' productivity scores (total number of items reported in hypnosis), and confidence scores for hypnotic reports. Multiple regressions were conducted according to Cohen & Cohen (1983), and Tabachnick & Fidell (1989).

Specifically, hierarchical multiple regressions were conducted to determine whether hypnotizability scores and DPQ (absorption) scores predict productivity and confidence scores for ages 5, 1 and for the uterus. Appendix S displays the correlations between the three variables and appendix T shows the regression tables for the following analyses.

Regression results for "objects" at age 5 are as follows: After step 1, with HGSHS:A in the equation, $R^2 = .001$, $t(1, 43) = .024$, $p = .87$. After step 2, with DPQ

added to prediction of objects at age 5, $R^2 = .026$, $t = (2, 42)$, $p = .30$. Addition of DPQ to the equation did not reliably improve R^2 . After step 3, addition of the interaction to the equation resulted in a significant increment in R^2 and accounted for 13.4% of unique variance in objects at age 5. The significant interaction of DPQ and HGSHS:A added to the prediction of objects for age 5, $R^2 = .16$ (Adjusted $R^2 = .099$), $t(3, 41) = -2.558$, $p = .014$.

According to the regression slopes, the interaction indicates that low hypnotizable subjects with high levels of absorption have a higher probability of reporting objects at age 5 than do subjects who have low hypnotizability scores and low absorption scores. Therefore, absorption levels play an important role in low hypnotizable subjects, for age 5. However, subjects with high levels of hypnotizability and low levels of absorption have an equally high probability of reporting objects at age 5, as low hypnotizable subjects who are highly absorbed. That is, absorption does not play an important role if subjects are highly hypnotizable to begin with.

The regression results for objects at age 1 are described below. After step 3, with all IVs in the equation, $R = .425$, $F(3, 41) = 3.008$, $p = .041$.

After step 1, with SHSS:C in the equation, $R^2 = .056$, $t(1, 43) = 1.597$, $p = .19$. After step 2, with DPQ added to the prediction of objects at age 1, $R^2 = .071$, $t(2, 42)$

= .835, $p = .41$. Addition of DPQ to the equation did not reliably improve R^2 . After step 3, addition of the interaction resulted in a significant increase in R^2 . The interaction of SHSS:C and DPQ added to the prediction of objects for age 1, $R^2 = .18$ (Adjusted $R^2 = .120$), $t(3, 41) = 2.335$, $p = .025$, and accounted for 11% of unique variance. Specifically, the interaction indicates that subjects who are both highly hypnotizable and high in absorption have a higher probability of reporting objects at age 1, than subjects with high levels of hypnotizability alone and subjects with low scores on both predictors. This finding supports hypothesis 4 for "objects" only. Regression results for "events" and "people" reported at age 5 and 1 were not significant.

Regression results for total productivity in the uterus are described below. After step 3, with all IVs in the equation, $R = .475$, $F(3, 41) = 3.99$, $p = .014$.

After step 1, with SHSS:C in the equation, $R^2 = .166$, $t(1, 43) = 2.926$, $p = .005$. The total variance in productivity in the uterus accounted for by SHSS:C was therefore 16.6%. After step 2, with DPQ added to the prediction of productivity in the uterus by SHSS:C, $R^2 = .167$, $t(2, 42) = .193$, $p = .848$. Addition of DPQ to the equation did not reliably improve R^2 . After step 3, addition of the interaction did not significantly improve R^2 , but accounted for an additional 5.9% of unique

variance. The interaction of SHSS:C and DPQ added to the prediction of productivity in the uterus by SHSS:C and DPQ, $R^2 = .226$ (Adjusted $R^2 = .169$), $t(3, 41) = 1.772$, $p = .084$. Results therefore indicated that highly hypnotizable subjects are more likely to report items in the uterus.

Regression results for confidence scores in the uterus, are described below. After step 3, with all IVs in the equation, $R = .636$, $F(3, 41) = 9.298$, $p < .001$.

After step 1, with SHSS:C in the equation, $R^2 = .327$, $t(1, 43) = 4.576$, $p < .001$. Hypnotizability therefore accounted for 32.7% of total variance in confidence scores in the uterus. After step 2, with DPQ added to the prediction of confidence scores in the uterus by SHSS:C, $R^2 = .341$, $t(2, 42) = .913$, $p = .366$. The addition of DPQ did not reliably improve R^2 . After step 3, addition of the interaction to the equation resulted in a significant increase in R^2 , and accounted for 6.4% of unique variance. The interaction of SHSS:C and DPQ added to the prediction of confidence scores in the uterus by SHSS:C and DPQ, $R^2 = .405$ (Adjusted $R^2 = .361$), $t(3, 41) = 2.105$, $p = .041$.

Examination of the interaction slopes revealed that subjects with high scores on hypnotizability and absorption have a greater probability of showing high levels of confidence in the uterus, than do subjects with low scores on both predictors. Hypothesis 4 was therefore supported for confidence scores in uterus memories.

Additional Findings

Table 11 displays the number of high, medium, and low hypnotizable subjects in each group as measured from their SHSS:C scores. The proportions of high, medium and low subjects in each group did not differ $\chi^2 (4, N = 45) = 4.74, p > .05$. That is, there were no significant differences between the number of "high" hypnotizable subjects in each group, "medium" hypnotizable subjects in each group, and "low" hypnotizable subjects in each group. Suggestibility scores, as measured by the Gudjonsson Suggestibility test, were not correlated with hypnotizability, productivity or confidence at either of the three ages.

Subjects' ability to age-regress at age 5 correlated significantly with SHSS:C scores at age 5, $R = .481, p = .012$ at age 1, $R = .457, p = .024$ and in the uterus, $R = .474, p = .015$. Subjects' productivity at ages 5, and 1 did not correlate with hypnotizability scores, however, productivity in the uterus did $R = .407, p = .005$. The correlation indicates that higher productivity scores in the uterus are associated with higher hypnotizable subjects.

Subjects' confidence in the veracity of their hypnotic reports were as follows: $M = 3.99, SD = 1.69$ for age 5, $M = 2.96, SD = 1.90$ for age 1, and $M = 1.38, SD = 1.42$ for the uterus ($N = 45$). Subjects' confidence in the veracity of

Table 11

The total number of high, medium and low hypnotizable subjects as measured by SHSS:C

Hypnotizability

GROUP	HIGH	MEDIUM	LOW
1	2	12	1
2	6	8	1
3	4	8	3

their memories for ages 5 and 1 did not correlate with hypnotizability scores. However, subjects' confidence for uterus memories correlated with SHSS:C scores, $R = .572$, $p < .001$, indicating that higher degrees of confidence in the veracity of uterus memories were associated with higher hypnotizable subjects.

Finally, the average earliest age of recall, obtained from subjects prior to hypnosis, and recorded in their log books, was an estimated 3.1 years of age $SD = 1.18$. Subjects' confidence in the veracity of this memory was $M = 4.00$, $SD = 1.49$. This indicated that on average, subjects were "quite confident" in the veracity of their earliest memory.

Discussion

Age-Regression "further back"

The first hypothesis which predicted that more subjects in groups 1 and 2 than in group 3 would regress "further back" following a suggestion from the experimenter (suggestion A), was supported. Significantly more subjects regressed to the uterus in groups 1 and 2 than did in the third control group.

The significant finding supports the idea put forth by Perry, Laurence, D'Eon and Tallant (1988) that subjects may enter a hypnotic context with the belief that hypnosis can enable them to regress. The mere mention of hypnosis may therefore create the expectation in subjects that they can age-regress. This expectation might have been made more credible by the suggestion to regress "further back" (Spanos, 1991). Since no similar suggestion was given to the control group, there was no further similar legitimization of their expectations. The data indicate that providing the suggestion, appears to either reinforce an already existing belief or create one. Further research is necessary in order to clarify this issue.

Reporting New Items

The second hypothesis, that more reports from subjects in groups 1 and 2 would be "new," compared to those from group 3, was not supported. Although the vast majority of

reports from subjects (94%) were "new," the number of "new" reports was approximately the same in each group.

This finding supports previous research which found that the majority of professionals and the lay public hold the belief that hypnosis can enable people to recall previously forgotten material. According to both the Loftus and Loftus (1980) survey, and the Legault and Laurence (1996) survey described in the introduction, this belief is as prevalent today, as it was in 1980. All subjects in the current study likely entered the hypnotic context with this belief. Although subjects' hypnotic abilities play a role, the hypnotic context is also important in leading people to "recover" new information. Telling subjects that they could recall "new" information was therefore not necessary in order to influence their reports.

An alternative explanation, however, may explain the large number of "new" reports in group 3. Prior to hypnosis, subjects in group 3 were given the choice of going back to a memory they had described in their log book, or of going back to a new memory. In giving them this choice, the experimenter may have unintentionally communicated the possibility of recalling "new" information. This might have been sufficient to reinforce an already existing belief that hypnosis can enable people to recall new information. The comparison between the

three groups therefore examined the effects of two different types of suggestions, one of which was indirect (given to groups 1 and 2), and one of which was unintentional (given to group 3). Further studies are needed to fully examine subjects' beliefs both prior to hypnosis, before the administration of any suggestions by the experimenter as well as following hypnosis.

Reporting Specific Information

Overall, the third hypothesis which predicted that subjects in groups 1 and 2 would report more items consistent with the suggestions given than subjects in group 3, was supported for age 5 and for the uterus. Subjects in groups 1 and 2 reported significantly more "objects," "events," and "people" at age 5, than subjects in group 3 (control).

As was discussed in the introduction, if subjects are asked to recall autobiographical memories, they will tend to reconstruct past events. Similar events may be merged together, and details and dates may be inaccurate (Baddeley, 1990; Bartlett, 1932; Brewin, Andrews & Gotlib, 1993; Neisser, 1982). Studies have also found that age-regressed subjects either do not know previous dates of specific experiences, or answer incorrectly (Barber, 1970).

Lynn et al. (1989) suggested that the likelihood of a memory being incorporated is qualified by whether or not it can be verified (Lynn & al. 1989). In the current study,

no attempt was made to verify subjects' reports from age 5 and 1, and reports from the uterus could not be verified. The knowledge that no verification by the experimenter of reported memories was possible, could therefore have prompted subjects to follow the suggestions.

The effect of suggestion C on reports from age 5 and from the uterus, adds further support to the concept of demand characteristics, postulated by Orne (1959; 1979). Subjects in the present study were influenced by the implicit suggestions from the experimenter concerning what was expected of them. This effect might have been further influenced by the rapport between the experimenter and the subjects, due to the individual testing of subjects. Further studies could examine the effect of rapport with the experimenter, by testing in groups as well as individually.

The effects of suggestion C support the previous conclusions drawn by authors concerning the effects of cuing on subjects (Kampman, 1976; Spanos & McLean, 1986; Perry, Laurence, Nadon & Labelle, 1986; Orne, Soskis et al., 1984). Similarly, the results concerning the third hypothesis further support those by Spanos et al. (1994), as well as Laurence and Perry (1983). Both authors found that subjects can be influenced by indirect suggestions from the experimenter. In addition, they support the findings of Nash et al. (1986). These authors found that

subjects' reports obtained in hypnotic age-regression contained inaccuracies and were more productive than those of simulating controls.

Given that the vast majority of the new reports were consistent with the suggestions, it is therefore likely that many from age 5 were either partially, or entirely inaccurate. Although subjects were on average "quite confident" in their memories, one cannot rely on their confidence levels as indicators of accuracy (Laurence & Perry, 1988; McConkey, 1992).

In the introduction, it was noted that people's earliest memories sometimes date back to age 2 (Usher & Neisser, 1993). In the current study, the reports obtained by subjects from age 1 and from the uterus were therefore most likely false, especially given that the items reported from the uterus by subjects in groups 1 and 2 conformed to the suggestions given.

One problem with the current study concerned the suggestion to recall "events". When subjects received the suggestion to recall events, they also reported many objects. The initial simple effect on "objects" at ages 5 was therefore not significant due to the high correlation between "objects" and "events". However, covarying "events" out of "objects" resulted in significant findings. The suggestion for "events" inevitably involved reporting objects. For instance, in the phrase "I'm playing with my

red truck," "playing" is an event, and "truck" is an object. In the phrase, "I'm on the floor, and there are toys all around me, like my toy phone, my truck, race track, and my sister's dolls" there are clearly at least four objects, and no events. Further studies should ensure that the types of information suggested to subjects do not overlap with one another.

The reason for the lack of significant differences between groups at age 1 is unclear. Perhaps the lack of significant differences between groups for age 1 could be accounted for by the lower levels of productivity in subjects. Overall, subjects were much less productive when regressed to age 1, and although there were differences between the means across groups at age 1, the lower levels of productivity could have prevented significant findings from emerging.

Subjects' lower levels of productivity at age 1 could have been due to a belief that they could not yet verbally communicate at age 1. This belief could have come from the knowledge that in general, children have not yet learned to verbally communicate at age 1.

Subjects also had lower productivity when regressed to the uterus; however, subjects in groups 1 and 2 with very few exceptions, reported items that had been suggested to them, without reporting any additional items. For instance, a subject in group 1 who received the suggestion

for "sounds," would report hearing sounds, without reporting any of the items that were suggested to subjects in group 2. Likewise, most subjects in group 2 would report items that were suggested without reporting any sounds. Although the mean number of items reported were not numerous, there were clear differences between reports from subjects across groups.

Predictors of Productivity and Confidence Scores

Although hypnotizability as a predictor of "objects" reported at ages 5 and 1 did not account for a significant amount of unique variance, both interactions with absorption did. However, the interaction patterns at both ages were quite different from one another.

The interaction slopes for age 5 revealed that absorption levels play a large role in predicting the number of objects reported in low hypnotizable subjects. Low hypnotizable subjects with high levels of absorption have an equally high probability of reporting objects at age 5 as highly hypnotizable subjects with low levels of absorption. These findings suggest that absorption was not necessary to report objects at age 5 in highly hypnotizable subjects, but was necessary in low hypnotizable subjects. This result has not been found elsewhere (Labelle et al. 1990; Labelle, 1994).

The interaction slopes at age 1 revealed quite a different pattern. Subjects with high levels of

hypnotizability and absorption had greater probabilities of reporting objects at age 1 than did subjects with low levels on both predictors. These findings support those of Labelle et al. (1990; Labelle, 1994) who found a significant interaction between hypnotizability and absorption in predicting memory creation.

Hypnotizability alone as a predictor of productivity and confidence for uterus reports accounted for a significant amount of unique variance. However, its interaction with absorption accounted for an additional amount of unique variance for confidence in uterus reports only. A subject with high levels on both absorption and hypnotizability had a greater likelihood of reporting greater degrees of confidence in uterus "memories," than did a subject with low levels on both predictors.

The findings that a combination of both hypnotizability and absorption play a role in hypnotic productivity for objects at age 1, as well as productivity and confidence scores for uterus reports, support the synergistic view of hypnotic responding (Nadon, Laurence & Perry, 1991). This view emphasizes an interaction between subjects' cognitive skills, and social-psychological variables, such as the demands of the hypnotic context, subjects' beliefs, attitudes, and expectations in accounting for hypnotic responsiveness. That is, the ability to produce information during regression to age 1 and the

uterus involves both hypnotizability and absorption whereas the ability to do so while regressed to age 5 requires one or the other, but not both.

The interaction for objects at age 5 suggests that different processes are operating from those at age 1, and in the uterus. This may be explained by the fact that subjects know that their memories for age 5 are potentially more verifiable than any memories they might have for either age 1 or for the uterus. Subjects could, after a while, recall information from age 5 prior to hypnosis, whereas they could not recall information from age 1 and from the uterus. Future studies must therefore further examine the possible differences in cognitive processes operating in regression to early childhood.

Additional Findings

The average age of earliest recall prior to hypnosis was found to be 3 years of age. This is consistent with previous research (Fivush et al. 1991; Howe & Courage, 1993; Loftus, 1993; Nelson, 1992; Pillemer & White, 1989; Sheingold & Tenney, 1982; Wakefield & Underwager, 1992; Waldvogel, 1989; Winograd & Killinger, 1983).

GSS 2 scores were not correlated with age-regression scores, productivity scores, confidence scores or hypnotizability scores. Subjects' interrogative suggestibility levels are therefore not related to their hypnotic susceptibility levels. The lack of a relationship

between hypnotizability and GSS scores has been found elsewhere (Gudjonsson, 1986, 1987b; Register & Kihlstrom, 1988).

Conclusion

The overall findings from this study quite clearly highlight the dangers inherent in employing age regression techniques to elicit childhood memories from subjects. One important finding was that the vast majority of hypnotic reports were not recalled prior to hypnosis. These reports were therefore subject to being inaccurate. For instance, at age 5, out of 42 memories reported, 33 were new. At age 1, out of 38 memories reported, 35 were new. In the uterus, all 32 memories reported were new.

In addition, it was found that most subjects, including low hypnotizable subjects, could report information during regression, and hence be influenced by the hypnotist. In the current study, several low subjects reported information in hypnosis. As measured by the HGSHS:A, ten low subjects reported items while regressed to the uterus. As measured by the SSSS:C, 3 low hypnotizable subjects reported such information. The current findings support previous conclusions concerning the larger effects of suggestions on medium and highly hypnotizable subjects (McConkey, 1992). However, the present findings suggest that low hypnotizable subjects are also affected by them, although to a lesser extent.

Finally, the content of subjects' reports can be influenced by indirect communication from experimenter. The mere *suggestion* that subjects *might* report information is sufficient to influence their hypnotic reports when regressed to age 5 and to the uterus.

In one instance, during the hypnotic interview, subject #48 who was in group 2 reported that during regression to age 1, she "saw" her brother looking down at her as she lay in her crib. However, she reported remembering that she "shouldn't see people," and therefore focused her attention on the "objects" surrounding her during the remainder of the regression.

This finding seems to confirm Binet's claim, quoted in the introduction, that subjects in hypnosis often act with no other aim than that of pleasing. However, in doing so, they integrate and believe their "creations". Professionals who practice hypnotic age regression techniques should therefore be made aware of the tremendous ease with which they can modify memories, and induce pseudomemories in their hypnotic subjects.

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Appendix A

Subject Sheet

Name: _____

Address: _____

Phone number Home: _____

Work: _____

When is the best time to call you? _____

Student ID: _____

Age: _____ Sex: _____

What is your study programme and discipline (ex. B.A. in psychology): _____

Mother Tongue (language you first learned): _____

When you attended primary school, what was the language of instruction?

English: _____ French: _____ Other: _____

Are you presently or have you ever taken (Psych) Research Methods 1?

Yes: _____ No: _____ If yes, what year? _____

Would you be interested in participating in other hypnosis studies?

Yes: _____ No: _____

We are presently looking for subjects to participate in a study on Age Regression (regressing to an earlier age) in hypnosis. You are eligible to participate regardless of your experience in hypnosis today. All participants will be paid. If you are interested please indicate so below.

Yes: _____ No: _____

If Yes, someone will try to contact you in the next few weeks in order to set up an appointment with you. Thank you again for your participation today and in the future. We hope that you will enjoy your experience.

Signature: _____ Date: _____

Appendix B
Phone Script

Hello, my name is Kristina, and I'm calling from the hypnosis Lab at Concordia University. When you came for the group hypnosis session, you expressed interest in participating in a study on age regression. Are you still interested?

Ok, Let me tell you a little about it.

Basically, it will involve two sessions, with one week in between each. During the first session, I'll give you a short memory quiz. At the end of the session, which should last between 20 and 30 minutes, I'll leave you with a booklet, which you will take home with you. In it, you will be able to record your early recollections (if any) prior to the age of 6.

The second session is one week later, and will involve the administration of another hypnosis session, similar to the Harvard group hypnosis scale you already experienced. The hypnosis will be administered by a researcher on an individual basis (no group, and no tape recorder). One of the items on the scale is the age-regression item. That session should last no longer than 2 hours.

Are you still interested?

Ok, let's set a date for both sessions.

I'll call you the night before to confirm the date with you.

Is that Ok?

Thank you....

Appendix C
Other Questionnaires

The Individual Differences Questionnaire (IDQ)

The individual differences questionnaire, measures subjects' imagic style of thinking. The questionnaire contains 21 statements concerning the use of mental imagery while thinking (13 items), solving problems (two items) as well as daydreaming and imagination (six items). Subjects are asked to circle their answer, on a scale from -2 (extremely uncharacteristic) to +2 (extremely characteristic).

Individual Differences Questionnaire
(From Paivio, 1971)

Name: _____

Date: _____

The statements on the following pages represent ways of thinking, studying and problem solving. No two statements are exactly alike, so consider each statement carefully before answering. You are asked to rate each item on a 5-point scale which relates to how characteristic the statement is of you. Circling a rating of -2 indicates that the statement is extremely uncharacteristic of you, a rating of +2 indicates that the statement is extremely characteristic of you, a rating of 0 indicates that the statement is neither characteristic nor uncharacteristic of you.

It is important that you answer as frankly and as honestly as you can. Your answers will be kept in the strictest confidence.

+-----+-----+-----+-----+
-2 -1 0 +1 +2

Extremely
Uncharacteristic

Extremely
Characteristic

- | | | |
|----|--|---------------|
| 1. | Listening to someone recount their experiences does not usually arouse mental pictures of the incidents being described. | -2 -1 0 +1 +2 |
| 2. | By using mental pictures of the elements of a problem, I am often able to arrive at a solution. | -2 -1 0 +1 +2 |
| 3. | I enjoy visual arts, such as painting, more than reading. | -2 -1 0 +1 +2 |
| 4. | My daydreams are so vivid I feel as though I actually experience the scene. | -2 -1 0 +1 +2 |
| 5. | I do not have a vivid imagination. | -2 -1 0 +1 +2 |
| 6. | I can easily picture moving objects in my mind. | -2 -1 0 +1 +2 |
| 7. | I can form mental pictures to almost any word. | -2 -1 0 +1 +2 |
| 8. | I have only vague impressions of | -2 -1 0 +1 +2 |

scenes I have experienced.

9. I think that most people think in terms of mental pictures whether they are completely aware of it or not. -2 -1 0 +1 +2
10. My powers of imagination are higher than average. -2 -1 0 +1 +2
11. I can close my eyes and easily picture a scene I have experienced. -2 -1 0 +1 +2
12. When someone describes something that happens to them I find myself vividly imagining the events that happened. -2 -1 0 +1 +2
13. I seldom dream. -2 -1 0 +1 +2
14. I never use mental pictures or images when trying to solve problems. -2 -1 0 +1 +2
15. I find it difficult to form a mental picture of anything. -2 -1 0 +1 +2
16. My dreams are extremely vivid. -2 -1 0 +1 +2
17. My thinking often consists of mental pictures or images. -2 -1 0 +1 +2
18. My daydreams are rather indistinct and hazy. -2 -1 0 +1 +2
19. I enjoy the use of mental pictures to reminisce. -2 -1 0 +1 +2
20. I often use mental images or pictures to help me remember things. -2 -1 0 +1 +2
21. I do not form a mental picture of people or places while reading of them. -2 -1 0 +1 +2

The Personal Experiences Questionnaire (PEQ)

The Personal Experiences Questionnaire contains 23 questions which measure subjects' paranormal experiences, such as experiences in reincarnation, telepathy, and other experiences, both in adulthood and in childhood. All "yes" answers are summed for a total possible score out of 23. Nadon and Kihlstrom (1987) report Cronbach's alpha = .82 as a reliability index for the measure.

Personal Experiences Questionnaire
 NADON, REGISTER, & KIHSTROM SCALE

The following questions are about various experiences you may have had as a child and/or as an adult. Do not include any experiences you may have had while under the influence of alcohol or drugs. Please circle your answer for both parts of each question.

NAME: _____

- 1) Have you ever had, while awake, as a child: yes no
 a strong feeling, impression, or as an adult: yes no
 "vision" that a previously
 unexperienced event had happened,
 was happening, or was going to happen?
- 2) Have you ever felt that a dream as a child: yes no
 "vision," or definite feeling, as an adult: yes no
 provided you with information
 about an event or another person
 which you could not have gotten in
 any "normal" or conventional way?
- 3) Have you ever seen or thought you as a child: yes no
 saw an object move with no as an adult: yes no
 "natural" or physical means of motion
 that you could discover?
- 4) Have you ever had an experience as a child: yes no
 in which you felt that "you" were as an adult: yes no
 located "outside of" or "away from"
 your physical body, i.e., the feeling
 that your consciousness, mind, or center
 of awareness was at a different place
 than your physical body?
- 5) Have you ever had, while awake, a as a child: yes no
 vivid impression of seeing, as an adult: yes no
 hearing, or being touched by another
 being, whose impression, as far as you
 could discover, was not due to any external
 physical or "natural" cause (exclude
 religious experiences)?
- 6) Have you ever felt that you were as a child: yes no
 in communication with someone as an adult: yes no
 who had died?
- 7) Have you ever felt that you were as a child: yes no
 being controlled or were possessed as an adult: yes no

by a spirit?

- 8) Have you ever lived in a house that you felt was haunted? as a child: yes no
as an adult: yes no
- 9) Have you ever had what felt to be a memory of a previous lifetime? as a child: yes no
as an adult: yes no
- 10) Have you ever had the strong feeling or impression that you had been someplace or in the same situation before, even though you had never actually been there before or were experiencing the event for the first time in "real life"? as a child: yes no
as an adult: yes no
- 11) Have you ever seen light or lights around or about a person's head, shoulders, hands, or body which, as far as you could tell, were not due to "normal" or "natural" causes? as a child: yes no
as an adult: yes no
- 12) Have you ever felt that you were able to receive thoughts through telepathy? as a child: yes no
as an adult: yes no
- 13) Have you ever felt that you were able to transmit thoughts through telepathy? as a child: yes no
as an adult: yes no
- 14) Have you ever felt that you were able to receive information through a "sixth sense"? as a child: yes no
as an adult: yes no
- 15) Have you ever felt that your body was emitting light or energy? as a child: yes no
as an adult: yes no
- 16) Have you ever felt that some inanimate objects have consciousness? as a child: yes no
as an adult: yes no
- 17) Have you ever experienced God in a profound or mystical way? as a child: yes no
as an adult: yes no
- 18) Have you ever felt that God was communicating with you directly? as a child: yes no
as an adult: yes no

- 19) Have you ever felt that a particular occurrence or feeling was a sign or an omen of the future? as a child: yes no as an adult: yes no
- 20) Have you ever felt that all events are interdependent and that nothing that happens, has happened, or will happen is purely accidental? as a child: yes no as an adult: yes no
- 21) Have you ever felt that you were able to directly influence others through your thoughts? as a child: yes no as an adult: yes no
- 22) Have you ever felt that you were being influenced directly by someone else's thoughts? as a child: yes no as an adult: yes no
- 23) Have you ever felt that you were able to make something happen solely because you willed it? as a child: yes no as an adult: yes no

Attitudes towards hypnosis questionnaire

The Carleton Attitude Scale measures subjects' overall views, beliefs, and desires concerning hypnosis, and their abilities to become hypnotized. The questionnaire contains 14 statements which are scored on a scale from 1 (not at all true) to 7 (very true). Questions are divided into three types: positive beliefs about hypnosis, fearlessness concerning hypnosis, and mental stability of hypnotizable people. Spanos et al. (1987), report Cronbach's alpha = .81 as a reliability index for the measure.

Attitudes Towards Hypnosis Questionnaire

Please answer each of the following statements by circling the number on the scale which best describes you.

1. I find the whole idea of becoming hypnotized an attractive prospect.

1	2	3	4	5	6	7
(not at all true)						(very true)

2. I would like to become deeply hypnotized.

1	2	3	4	5	6	7
(not at all true)						(very true)

3. I would not mind being known as someone who can be deeply hypnotized.

1	2	3	4	5	6	7
(not at all true)						(very true)

4. I am totally open to being hypnotized.

1	2	3	4	5	6	7
(not at all true)						(very true)

5. One's ability to be hypnotized is a sign of their creativity and inner strength.

1	2	3	4	5	6	7
(not at all true)						(very true)

6. I wonder about the mental stability of those who become deeply hypnotized.

1	2	3	4	5	6	7
(not at all true)						(very true)

7. Those who are easily hypnotized are weak people.

1	2	3	4	5	6	7
(not at all true)						(very true)

8. Those who can become deeply hypnotized are as normal and well adjusted as anyone.

1	2	3	4	5	6	7
(not at all true)						(very true)

9. Intelligent people are the least likely to get hypnotized.

1	2	3	4	5	6	7
(not at all true)						(very true)

10. I have some apprehensions about hypnosis and being hypnotized.

1	2	3	4	5	6	7
(not at all true)						(very true)

11. If someone attempted to hypnotize me, I would tend to hold myself back rather than let myself get carried away by the process.

1	2	3	4	5	6	7
(not at all true)						(very true)

12. I'm not afraid of becoming hypnotized.

1	2	3	4	5	6	7
(not at all true)						(very true)

13. I am wary about becoming hypnotized because it means giving up my free will to the hypnotist.

1	2	3	4	5	6	7
(not at all true)						(very true)

14. A deeply hypnotized person is robotlike and goes along automatically with whatever the hypnotist suggests.

1	2	3	4	5	6	7
(not at all true)						(very true)

Appendix D
Tellegen's Differential Personality Questionnaire
Scale Ab (DPQ)

Differential Personality Questionnaire: Scale Ab
 Auke Tellegen, Ph.D.
 University of Minnesota, 1978

In this booklet you will find a series of statements a person might use to describe his or her characteristics. Each statement is followed by two choices--True and false. Read the statement and decide which choice better describes you. Then circle your answer beside each statement.

Please answer every statement, even if you are not completely sure of the answer. Read each statement carefully, but do not spend too much time deciding on the answer.

- | | | | |
|-----|--|------|-------|
| 1. | Sometimes I feel and experience things as I did when I was a child. | True | False |
| 2. | I can be greatly moved by eloquent or poetic language. | True | False |
| 3. | While watching a movie, a television show or a play, I may become so involved that I forget about myself and my surroundings and experience the story as if it were real and as if I were taking part in it. | True | False |
| 4. | If I stare at a picture and then look away from it, I can sometimes "see" an image of the picture, almost as if I were still looking at it. | True | False |
| 5. | Sometimes I feel as if my mind could envelop the whole world. | True | False |
| 6. | I like to watch cloud shapes change in the sky. | True | False |
| 7. | If I wish, I can imagine (or daydream) some things so vividly that they hold my attention as a good movie or story does. | True | False |
| 8. | I think I really know what some people mean when they talk about mystical experiences. | True | False |
| 9. | I sometimes "step outside" my usual self and experience an entirely different state of being. | True | False |
| 10. | Textures--such as wool, sand, wood--sometimes remind me of colors or music. | True | False |
| 11. | Sometimes I experience things as if they | True | False |

were doubly real.

12. When I listen to music, I can get so caught up in it that I don't notice anything else. True False
13. If I wish, I can imagine that my body is so heavy that I could not move it if I wanted to. True False
14. I can often somehow sense the presence of another person before I actually see or hear him or her. True False
15. The crackle and flames of a wood fire stimulate my imagination. True False
16. It is sometimes possible for me to be completely immersed in nature or in art and to feel as if my whole state of consciousness has somehow been temporarily altered. True False
17. Different colors have distinctive and special meanings for me. True False
18. I am able to wander off into my own thoughts while doing a routine task and actually forget that I am doing the task, and then find a few minutes later that I have completed it. True False
19. I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again or almost so. True False
20. Things that might seem meaningless to others often make sense to me. True False
21. While acting in a play, I think I could really feel the emotions of the character and "become" him or her for the time being, forgetting both myself and the audience. True False
22. My thoughts often don't occur as words but as visual images. True False
23. I often take delight in small things like the five-pointed star shape that appears when you cut an apple across the core or the colors in soap bubbles. True False
24. When listening to organ music or other True False

powerful music, I sometimes feel as if I'm being lifted into the air.

25. Sometimes I can change noise into music by the way I listen to it. True False
26. Some of my most vivid memories are called up by scents and smells. True False
27. Certain pieces of music remind me of pictures or moving patterns of colors. True False
28. I often know what someone is going to say before he or she says it. True False
29. I often have "physical memories"; for example, after I've been swimming I may still feel as if I'm still in the water. True False
30. The sound of a voice can be so fascinating to me that I can just go on listening to it. True False
31. At times I sometimes feel the presence of someone who is not physically there. True False
32. Sometimes thoughts and images come to me without the slightest effort on my part. True False
33. I find that different odours have different colors. True False
34. I can be deeply moved by a sunset. True False

DO NOT FILL THIS PART

Score: _____ Scored by: _____ Double checked by: _____

Appendix E

List of HGSHS:A items

<u>Item</u>	<u>Suggestion</u>
1	Eye Closure
2	Hand lowering
3	Arm Immobilization
4	Finger lock
5	Arm rigidity
6	Hands moving together
7	Communication inhibition
8	Experience of fly
9	Eye catalepsy
10	Posthypnotic suggestion
11	Amnesia

Appendix F

SHSS:C Script (Without Age-Regression Item # 7)

STANFORD HYPNOTIC SUSCEPTIBILITY SCALE: FORM C

RELAXATION

First of all, just make yourself comfortable in the chair ... just move around until you find a comfortable position ... notice that the back of the chair is adjustable... just get comfortable and relaxed...

Unclasp your hands and let them just rest loosely on your lap, or the arm of the chair... and uncross your legs and let them find a comfortable position on the footrest of the chair... and if at any time during the session you find that this position is uncomfortable you can simply adjust it to a more comfortable one without in any way disturbing the hypnosis...

I'd like you to look at a dot on the door... and focus your vision on it. I will refer to the dot as the target. In the meantime, I'm going to give you some simple instructions that will help you to experience hypnosis. You will find the instructions easy to follow in that you will be able to experience the things I describe to you.

Indeed you will probably find that you will be able to experience these things with great vividness... with great intensity...

As you stare at the target, you may find that occasionally your gaze may wander or that your vision may even blur... If this happens, simply refocus your vision and continue staring evenly at the target...

Now take a deep breath in and hold it... then... just let it out very slowly... You find that you start to experience a comfortable feeling... a feeling of well being begins to develop as you continue to rest in the chair... looking at the target... listening to my voice...

Focus your attention closely on feelings on warmth and relaxation in various parts of your body... in your head and in your neck... your arms and in your legs... in your chest and in your back... and just breathe freely and evenly and deeply... freely... evenly... and deeply... not too quickly... not too slowly... just at a comfortable rate for your to notice that the relaxation increases gradually... and you breathe out... and just rest there for a moment experiencing the sensations... Continue relaxing your chest so that feelings of warmth and comfort irradiate to your back... your shoulders... and your neck... and your arms... and your legs...

You're probably starting to notice some changes in the target... changes that occur from staring at it for so long... sometimes the target may look as though it's moving up and down or from left to right... at times it may appear very distinct and clear, at other times it may appear fuzzy and blurred... and it may change color... you may see one of these things or even all of these things... whatever you see just continue staring at the target... continue

listening to my voice... continue to become more deeply relaxed... more deeply relaxed...

And as you watch the target your eyelids become heavier... your eyes become tired from staring... your eyelids start to feel very tired and heavy... as you sit there breathing freely and evenly... and deeply... breathing in... breathing out... freely and evenly and deeply... Your eyelids are becoming so heavy... so tired... that soon they will just close of their own accord... as if they were coated with lead paste... as if there were magnetic fields in the eyelashes... drawing your eyelashes together... Concentrate now... even more carefully... on feelings of relaxation and comfort in various parts of your body...

First of all think of relaxation in the muscles of your left leg... the left foot... the toes of your left foot... the left calf... the left thigh... and then relax the muscles of the right leg... the right foot... the toes of your right foot... the right calf... the right thigh...

Think of relaxation in each of these areas... and as you think of relaxation, the muscles become progressively more relaxed... and then relax the muscles of your back... your chest... your neck... relax each of these muscle groups... the back... the chest... and the neck...

And then relax the muscles of your left arm... your left hand... the fingers of your left hand... your left

forearm... your left upper arm...your left shoulder... And then relax the muscles of your right arm, your right hand... the fingers of your right hand... your right forearm... your right upper arm... your right shoulder...

And as you relax these muscles... your facial muscles will also relax and loosen of their own accord...

Just thinking about relaxation in each of these areas causes the muscles to become more relaxed... and you may even find an interesting thing happening... that the feelings of relaxation you feel in each of these areas of the body start to spread and irradiate... so that they may seem to join up... like the parts of a jigsaw puzzle... and you feel a deep feeling of overall relaxation... of contentment... and of well being... permeating the whole of your body...

IF EYES NOT CLOSED

And you have concentrated well on the target and your eyes have become tiered and strained from staring... there is no longer any need to strain them any more... they would soon close of their own accord... but you can just close your eyes now.

With your eyes closed... you're ready to experience hypnosis... to experience it more profoundly... but you'll find that no matter how deeply relaxed you ever feel... no

matter how deeply in hypnosis you ever feel... your mind is always clear... you're always aware of my voice and what I'm saying to you... you're always aware of what is happening to you... even though you are deeply relaxed... deeply in hypnosis...

And you will be able to speak to me when I speak to you... to open your eyes... and to move around while remaining deeply hypnotized... whatever you experience or do... you will remain deeply hypnotized... deeply in hypnosis...

You can now go even deeper in hypnosis... say to yourself, just by thinking it, "Now I'm going deeper and deeper." Think it to yourself... (PAUSE)... and imagine yourself standing at the top of an escalator ... Visualize the scene of the escalator ... of the steps moving down ...and picture the moving hand rail...

In a moment I'm going to ask you to count backwards to yourself, slowly from 10 to 1, imagining as you count, that you are stepping onto the first step of the escalator and standing with your hand on the railing while the steps move down... carrying you deeper and deeper... into hypnosis. You can plan it so that you reach 1 just as you reach the bottom and step off the escalator; and to indicate to me that you have reached 1, the index finger of your right hand will lift up slowly... and I'll know that you have

reached 1... more and more deeply relaxed as you start counting backwards to yourself... from 10 to 1...

(Wait for finger to lift)

You can just relax your finger now... deeply relaxed... deeply hypnotized...

BEGIN SUGGESTIONS

1. HAND LOWERING

Now hold your right arm out at shoulder height, with the palm of your hand up. there that's right... Attend carefully to this hand, how it feels, what is going on in it. Notice whether or not it is a little numb, or tingling; the slight effort it takes to keep from bending your wrist. Pay close attention to your hand now... Imagine that you are holding something heavy in your hand... maybe a heavy baseball or a billiard ball... something heavy... Shape your fingers around as though you were holding this heavy object that you imagine is in your hand. That's it... now the hand and arm feel heavy, as if the weight was pressing down... and as it feels heavier and heavier the hand and arm begin to move down... as if forced down... moving... moving... down... down... more and more down... heavier... heavier... the arm is more and more tired and strained... down... slowly but surely... down, down... more and more down... the weight is so great, the hand is so heavy... You feel the weight more and more...

the arm is too heavy to hold back... it goes down, down,
down... more and more down...

Wait at most 10 seconds

IF NOT ALL THE WAY DOWN

That's good... now let your hand go back to it's
original position, and relax. You probably experienced
much more heaviness and tiredness in your arm than you
would have if you had not concentrated on it and had not
imagined something trying to force it down. Now just
relax... Your hand and arm are now as they were, not
feeling tired or strained... All right, just relax.

IF ALL THE WAY DOWN

That's good... now let your hand return to it's
original position. Just let it rest there, and relax.
Your hand and arm are now as they were, not feeling tired
or strained. All right... relax.

2. MOVING HANDS APART

Now extend your arms ahead of you, with palms facing
each other, both hands close together but not touching...
Both arms, straight out in front of you with palms facing
each other. (if subject does not understand) Let me show
you... (take S's hands and place them into position).
That's right, hands close together but not touching...

I would like you to imagine a force acting on your
hands to push them apart, as though one hand was repelling
the other... You are thinking of your hands being forced

apart and they begin to move apart... separating...
separating... moving apart... wider apart... more and more
away from each other... more and more...

Wait at most 10 seconds

That's fine. You notice how closely thought and
movement are related. Just put your hands back on the arms
of the chair and relax.

3. MOSQUITO HALLUCINATION

You have been listening to me very carefully, paying
close attention. You may not have noticed a mosquito that
has been buzzing, singing, as mosquitos do... Listen to it
now... hear it's high pitched buzzing as it flies around
your right hand... It is landing on your hand... perhaps it
tickles a little... (PAUSE) there it flies away again...
you hear its high buzz... it's back on your hand
tickling... it might bite you... you don't like this
mosquito... you'd like to get rid of it... Go ahead, brush
it off... get rid of it if it bothers you...

WAIT AT MOST 10 SECONDS

It's gone... you are no longer bothered... the
mosquito has disappeared. Now relax, relax completely.

4. TASTE HALLUCINATION

A. Sweet taste

This time, I would like you to think of something
sweet in your mouth. Imagine that you have something sweet
tasting in your mouth, like a little sugar... and as you

think of this sweet taste you can actually begin to experience a sweet taste... It may be faint at first, but it will grow... and grow... (PAUSE) Now you begin to notice a sweet taste in your mouth... the sweet taste is increasing... sweeter and sweeter...

WAIT 10 seconds

Tell me, how much of a sweet taste is there in your mouth? (If subject indicates that s/he tastes sweet, determine how strong the taste is. How strong is the taste?

(If moderately strong, go on to B. Sour Taste; if no taste or very weak, continue as follows:)

It will get stronger... it often takes a few moments for such a taste to reach its full strength... It is now getting stronger... stronger... (PAUSE) There... how is it now? Stronger? (Note reply, and go on with B. Sour taste, starting with a. or b., depending upon the experience with sweet).

B. Sour taste

a. (IF LITTLE OR NO PERCEPTION OF SWEET TASTE)

That's all right. Some hypnotized persons can experience this sort of taste well and others can not. Let's see how you do with another taste (Go on with c.)

b. (IF SUBJECT REPORTED DISTINCT TASTE OF SWEET)

Now notice that something is happening to this taste... it is changing (Go on with c.)

c. You are now beginning to have a sour taste in your mouth... an acid taste, as if you had some lemon in your mouth... the taste in your mouth is getting more and more sour, more and more sour...

WAIT 10 SECONDS

Do you have that sour taste in your mouth now? (note reply. If "yes," ask "how strong is it?, how does it compare in strength with the sweet taste you experienced earlier?")

d. (IF SOUR TASTE NOT EXPERIENCED)

Not everyone can experience tastes like this when hypnotized. Your mouth feels quite normal... Just relax and don't think about tastes any more.. Just continue to relax...

e. (IF SOUR TASTE EXPERIENCED)

That's fine ... but note the sour taste is going away and your mouth feels just as it did before I mentioned any tastes at all... there, it's quite normal now... and you just continue to relax... more and more relaxed...

Record (+) if both tastes experienced, and either (a) one is accompanied by overt signs, such as lip movements or grimacing, or (b) one is reported as strong.

5. ARM RIGIDITY

Please hold your right arm straight out, and fingers straight out too... That's it, right arm straight out... Think of your arm becoming stiffer and stiffer... stiff... very stiff... as you think of it becoming stiff, you will

feel it becoming stiff... more stiff and rigid as though your arm was in a splint so the elbow cannot bend...

(PAUSE) stiff... held stiff..., so that it cannot bend. A tightly splinted arm cannot bend... Your arm feels stiff as if tightly splinted... Test how stiff and rigid it is... Try to bend it... Try...

Wait at most 10 seconds

(IF ARM BENDS)

That's fine. You will have an opportunity to experience many things. You probably noticed how your arm became stiffer as you thought of it as stiff, and how much effort it took to bend it. Your arm is no longer at all stiff. Place it back into position, and relax.

(IF ARM DOES NOT BEND)

Relax... don't try to bend your arm any more... It is not stiff any longer... Let it relax back into position. Just relax.

6. DREAM

We are very much interested in finding out what hypnosis and being hypnotized means to people. One of the best ways of finding out is through the dreams that people have while they are hypnotized. Some people dream directly about the meaning of hypnosis, while others dream about this meaning in an indirect way, symbolically, by dreaming about something which does not seem outwardly to be related to hypnosis, but may very well be. Now neither you nor I know what sort of dream you're going to have, but I am going to ask you to rest for a little while and you are going to have a dream... a real dream... just the kind you have when you are asleep at night. When I stop talking to you very shortly, you will begin to dream. You will have a dream about hypnosis. You will dream about what hypnosis mean... Now you are falling asleep... deeper and deeper asleep... very much like when you sleep at night... soon you will be deep asleep, soundly asleep. As soon as I stop talking you will begin to dream. When I start talking to you again you will stop dreaming, if you still happen to be dreaming, and you will listen to me just as you have been doing. If you stop dreaming before I speak to you again, you will remain pleasantly and deeply relaxed... Now sleep and dream...

(Pause 2 minutes)

The dream is over now; if you had a dream you can remember every detail of it clearly. Did you have a dream? (if yes) The dream is over, and you can remember every detail of it clearly. (if yes or no) You do not feel particularly sleepy or different from the way you felt before I asked you to fall asleep and to dream, and you continue to remain deeply hypnotized. Whatever you dreamed, you can remember quite clearly, and I'd like you to describe it to me from the beginning.

(IF SUBJECT HAS NO DREAM)

That's all right... not everyone dreams in hypnosis. (IF HE/SHE HESITATES, OR REPORTS VAGUELY, PROBE FOR DETAILS)

(IF SUBJECT HAS A DREAM)

That's all for the dream now.

7. AGE-REGRESSION (See Appendix G)

8. ARM IMMOBILIZATION (LEFT ARM)

You are very relaxed and comfortable, with a feeling of heaviness throughout your body. I would like you now to think about your left arm and hand. Pay close attention to them. They feel numb and heavy, very heavy. How heavy your left hand feels... even as you think about how heavy it is, it grows heavier and heavier... Your left arm is getting heavier... heavy...heavy... Your hand is getting heavier, very heavy. You might like to find out, a little later, how heavy your hand is... it seems much too heavy to move... but in spite of being so heavy, maybe you can move it a little, but maybe it is too heavy even for that... Why don't you see how heavy it is... Just try to lift your hand up, just try.

WAIT AT MOST 10 SECONDS

(IF HAND LIFTS)

That's fine. you see how it was harder to lift than usual because of the relaxed state you are in. Now place your hand back in it's original position. Your hand and arm feel normal again. They are no longer heavy. Just relax... relax all over.

(IF HAND DOES NOT LIFT)

That's fine... Stop trying... just relax. Your hand and arm now feel normal again. They are not heavy any more. Just relax... relax all over.

9. HALLUCINATED VOICE

I forgot to mention to you a while ago that there is someone in the office who wants to ask you some questions about yourself for our records, such as how old you are, where you were born, how many brothers and sisters you have, and a few other factual questions. I hope you don't mind answering these questions. The questions will be asked over a loud speaker microphone combination which is on the wall to your right. Please talk good and loud when you answer so that you can be heard clearly. The loud speaker has just been turned on... Here's the first question... Remember to answer good and loud so that you can be heard clearly...

WAIT AT MOST 10 SECONDS

(IF SUBJECT DOES NOT ANSWER)

Didn't you hear the question?

(IF HE/SHE HEARS NOTHING)

That's fine... Let's go on to something else. There is no voice asking questions.

(IF SUBJECT HEARS QUESTIONS BUT DOES NOT ANSWER ALOUD)

I could not hear what you said. Please answer so that I can hear you too (repeat if necessary)

(IF SUBJECT HEARS AND RESPONDS)

That's fine. I think you have answered enough questions and we had better go on to something else. There is no longer any voice asking questions.

10. NEGATIVE VISUAL HALLUCINATION: THREE BOXES

While you sit there with your eyes closed, I am placing a small table in front of you. (Place table and boxes).

In a little while, I am going to ask you to open your eyes and look at the table in front of you, remaining as hypnotized as you are now. I have placed two boxes on the table. In fact, that is all there is on the table: just two boxes. Two small boxes and nothing else (PAUSE)... All right, open your eyes slowly, and look at the two boxes. Do you see them?... Do you see anything else on the table?

(IF HE/SHE REPORTS THREE BOXES)

That's right... there really are three boxes. Now close your eyes and relax, as I take away the table and the boxes. (Go to Post-hypnotic Amnesia)

(IF HE/SHE REPORTS TWO BOXES)

That's right. You see just two boxes. Now I would like you to tell me what these boxes look like. Are they large? Are they alike? (Record colors)

That's right, they are (name colors). By the way, is the (color of one box) on the right or on the left of the (color of the other box)? That's right.

But now look hard... Aren't there really three boxes? There really are three boxes... What is the color of the third box?... That's right... Now close your eyes and relax as I take away the table and the boxes.

11. POST-HYPNOTIC SUGGESTION (STAND UP) & AMNESIA

Listen carefully to what I tell you next. In a little while I shall begin counting from 1 to 10. You will awaken gradually, but you will still be in your present state for most of the count. When I reach 7 you will open your eyes, but you will not be fully awake. When I get to 10 you will be entirely roused up, in your normal state of wakefulness. You will have been so relaxed, however, that you will have trouble recalling the things I have said to you and the things you did or experienced. It will prove to cost so much effort to recall that you will prefer not to try. It will be much easier just to forget everything until I tell you that you can remember. You will forget all that has happened until I say to you: "NOW YOU CAN REMEMBER EVERYTHING"... You will not remember anything until then. After you wake up you will feel refreshed... and relaxed. In a little while I will count from 1 to 10, at 7 you will open your eyes but not be fully awake until I reach 10. At 10, you will be fully awake... After a while, I shall stand up. When I do, you will stand up too, and stretch your arms as you sometimes do when you wake up. You will do this, but you will forget that I told you to do so, just as you will forget the other things, until I tell you "NOW YOU CAN REMEMBER EVERYTHING"... Take a few moments now to enjoy the warm and pleasant feelings of being in hypnosis and in a few moments I will ask you if you are ready to come out

of hypnosis. (wait 1 minute). Are you ready now?: 1-2-3-4-5-6-7-8-9-10.

(IF HE/SHE HAS EYES OPEN)

How do you feel?... do you feel wide awake? (if feelings of drowsiness)... The feelings will go away soon. Now you feel wide awake...

(IF HE/SHE KEEPS EYES CLOSED)

Wake up now... Wide awake... How do you feel? (if drowsy)... The feelings will go away soon. Now you feel wide awake... (PAUSE)

*****STAND UP*****

(IF SUBJECT DOES NOT STAND UP)

Just stand up now, and restore your circulation. That's fine. Now please be seated over here. I want to ask you a few questions about your experience.

(IF SUBJECT HAS STOOD UP AND STRETCHED)

You probably feel better now. Please take a seat over here. I want to ask you a few questions about your experiences. Go to post-hypnotic interview...

Appendix G
Age-Regression Script (#7) for Groups 1, 2, 3

7. Age Regression (GROUP 1)

Continue to go deeper and deeper in hypnosis while listening closely... I would like you to think about when you were younger, when you were 5 years old... In a little while, you will find yourself once again a little (boy/girl) of age 5. As I mentioned to you earlier, you might find that your memories from age 5 involve objects. This is perfectly normal. In a moment, I will begin to count backwards from 5 to 1 and at the count of 1 you will be back to the age of 5. When I reach 1, you might find yourself in a memory you described to me earlier, or you might find yourself being somewhere else. Somewhere pleasant that you had not remembered before. Whatever is more comfortable for you. (pause briefly, then begin counting) 5...You are going back into the past. It's no longer 1995, 1994, 1993, but much earlier. 4.. You are becoming increasingly younger and smaller... soon you will be a little 5 year old (boy/girl) again. 3... Getting younger and younger, smaller and smaller all the time. 2... Very soon you will be there... once again a little (boy/girl) of age 5. You are nearly there now... in a few moments you will be right back there. 1... You are now a small (boy/girl), feelings things that you felt at the time. When you are there can you let me know?

Pause (wait for subject to tell you)

1. Are you there now?
2. What is your name?
3. How old are you?
4. What is happening?

(regardless of what the responses have been)

That's fine... now we're going to try to go back further, back to the age of 1. As I mentioned to you earlier, you might find that your memories from age 1 involve events and people. This is perfectly normal. In a moment, I am going to count back again from 5 to 1 and when I reach 1 you will find yourself even younger, at age 1. (Pause briefly)

5... You are going further into the past. You are no longer 5 years old, but younger. 4.. You are becoming increasingly younger and smaller... soon you will be a little 1 year old (boy/girl) again. 3... Getting younger and younger, smaller and smaller all the time. 2... Very soon you will be there... once again a little (boy/girl) of age 1. You are nearly there now... in a few moments you will be right back there. 1... You are now a small (boy/girl), feeling things that you felt at the time. When you are there, let me know.

Pause (wait for subject to be there)

1. Are you there now?
2. How old are you?
4. What is happening?

(If Ss is age-regressed back to 1, try for the uterus)

Good. That's fine... As I mentioned to you earlier, researchers have shown that people can age-regress further back than previously thought, all the way back into their mother's uterus, about 1 month before their birth. Since you've been able to age-regress to the age of 1, you should be able to go back a little further back to that time. You will find it pleasant and comfortable, and very peaceful. You might find that you will be able to hear the sounds around you, such as your mother's heart beat. That is fine.

So, as I did before, I am going to count back again from 5 to 1 and when I reach 1 you will find yourself even younger, in your mother's uterus about 1 month before birth . (Pause briefly)

5... You are going further into the past. You are no longer 1 year old, but younger. 4.. You are becoming increasingly younger and smaller... 3... Getting younger and younger, smaller and smaller all the time. 2... Very soon you will be there... once again a little (boy/girl) in your mother's uterus. You are nearly there now... in a few

moments you will be right back there. 1... You are now very small (boy/girl), feeling things that you felt at the time.

1. Are you there now?
2. How old are you?
4. What is happening?

COMING BACK TO THE PRESENT

That's fine, now you can grow up again and come right back to 1995. I'm going to count from 1 to 5 and as I count, you will find yourself gradually growing up again, from age ____ to your present age. When you are ready for me to begin counting, let me know by raising your index finger.

Ok. 1... you're no longer a little (boy/girl), but you're getting older. 2... you are becoming increasingly older and older, soon you will be back to your present age. 3... Very soon you will be back. 4... you're almost back now. 5... you're now in 1995, no longer a little (boy/girl) but a grown up person, sitting in a chair, still deeply hypnotized.

1. Are you back?
2. How old are you?
3. What is the date?
4. Where are you?

That's right... today is (date) 1995, and you are (correct age) and this is the hypnosis lab at Concordia.

Fine, everything is back as it was. Now let's go on to something else.

7. Age Regression (GROUP.2)

Continue to go deeper and deeper in hypnosis while listening closely... I would like you to think about when you were younger, when you were 5 years old... In a little while, you will find yourself once again a little (boy/girl) of age 5. As I mentioned to you earlier, you might find that your memories from age 5 involve events and people. This is perfectly normal. In a moment, I will begin to count backwards from 5 to 1 and at the count of 1 you will be back to the age of 5. When I reach 1, you might find yourself in a memory you described to me earlier, or you might find yourself being somewhere else. Somewhere pleasant that you had not remembered before. Whatever is more comfortable for you. (pause briefly, then begin counting) 5...You are going back into the past. It's no longer 1995, 1994, 1993, but much earlier. 4.. You are becoming increasingly younger and smaller... soon you will be a little 5 year old (boy/girl) again 3... Getting younger and younger, smaller and smaller all the time. 2... Very soon you will be there... once again a little (boy/girl) of age 5. You are nearly there now... in a few moments you will be right back there. 1... You are now a small (boy/girl), feelings things that you felt at the time. When you are there can you let me know?

Pause (wait for subject to tell you)

1. Are you there now?
2. What is your name?
3. How old are you?
4. What is happening?

(regardless of what the responses have been)

That's fine... now we're going to try to go back further, back to the age of 1. As I mentioned to you earlier, you might find that your memories from age 1 involve objects. This is perfectly normal. In a moment, I am going to count back again from 5 to 1 and when I reach 1 you will find yourself even younger, at age 1. (Pause briefly)

5... You are going further into the past. You are no longer 5 years old, but younger. 4.. You are becoming increasingly younger and smaller... soon you will be a little 1 year old (boy/girl) again. 3... Getting younger and younger, smaller and smaller all the time. 2... Very soon you will be there... once again a little (boy/girl) of age 1. You are nearly there now... in a few moments you will be right back there. 1... You are now a small (boy/girl), feeling things that you felt at the time. When you are there, let me know.

Pause (wait for subject to be there)

1. Are you there now?
2. How old are you?
4. What is happening?

(If Ss is age-regressed back to 1, try for the uterus)

Good. That's fine... As I mentioned to you earlier, researchers have shown that people can age-regress further back than previously thought, all the way back into their mother's uterus, about 1 month before their birth. Since you've been able to age-regress to the age of 1, you should be able to go back a little further back to that time. You will find it pleasant and comfortable, and very peaceful. You might find that you will be able to feel yourself floating, that you might feel the temperature and pressure around you. That is fine.

So, as I did before, I am going to count back again from 5 to 1 and when I reach 1 you will find yourself even younger, in your mother's uterus about 1 month before birth . (Pause briefly)

5... You are going further into the past. You are no longer 1 year old, but younger. 4.. You are becoming increasingly younger and smaller... 3... Getting younger and younger, smaller and smaller all the time. 2... Very soon you will be there... once again a little (boy/girl) in your mother's uterus. You are nearly there now... in a few moments you will be right back there. 1... You are now

very small (boy/girl), feeling things that you felt at the time.

1. Are you there now?
2. How old are you?
4. What is happening?

COMING BACK TO THE PRESENT

That's fine, now you can grow up again and come right back to 1995. I'm going to count from 1 to 5 and as I count, you will find yourself gradually growing up again, from age ____ to your present age. When you are ready for me to begin counting, let me know by raising your index finger. Ok. 1... you're no longer a little (boy/girl) , but you're getting older. 2... you are becoming increasingly older and older, soon you will be back to your present age. 3... Very soon you will be back. 4... you're almost back now. 5... you're now in 1995, no longer a little (boy/girl) but a grown up person, sitting in a chair, still deeply hypnotized.

1. Are you back?
2. How old are you?
3. What is the date?
4. Where are you?

That's right... today is (date) 1995, and you are (correct age) and this is the hypnosis lab at Concordia.

Fine, everything is back as it was. Now let's go on to something else.

7. Age Regression (GROUP 3: control)

Continue to go deeper and deeper in hypnosis while listening closely... I would like you to think about when you were younger, when you were 5 years old... In a little while, you might find yourself once again a little (boy/girl) of age 5. In a moment, I will begin to count backwards from 5 to 1 and at the count of 1 you might be back to the age of 5. When I reach 1, you will have the choice of being in a memory you described to me earlier, or of being somewhere else. Somewhere pleasant that you had not remembered before. Whatever is more comfortable for you. (pause briefly, then begin counting) 5...You may be going back into the past. 4.. You may be becoming increasingly younger and smaller... soon you might be a little 5 year old (boy/girl) again. 3... younger and younger, smaller and smaller all the time. 2... Very soon you might be there... once again a little (boy/girl) of age 5. ... In a few moments you might be right back there. 1... You might now be a small (boy/girl), feelings things that you felt at the time. When and if you get there, let me know by raising the index finger on your right hand.

Pause

1. Are you there now?
2. What is your name?

3. How old are you?
4. What is happening?

(regardless of what the responses have been)

That's fine... now we're going to try to go back further...

As I mentioned to you earlier, you may or may not be able to go further back, or to remember anything, and that is ok.

I am going to count back again from 5 to 1 and when I reach 1 you might find yourself even younger, at age 1. (Pause briefly)

5... You may be going further into the past. You may no longer be 5 years old, but younger. 4.. You may be becoming increasingly younger and smaller... soon you might be a little 1 year old (boy/girl) again. 3... Getting younger and younger, smaller and smaller all the time. 2... Very soon you might be there... once again a little (boy/girl) of age 1. 1 .. You might now be a small (boy/girl), feeling things that you felt at the time. When and if you get there, let me know by raising the index finger on your right hand.

Pause

1. Are you there now?
2. How old are you?

4. What is happening?

Good. That's fine... Now, we're going to try and go back even further... all the way back into your mother's uterus, about 1 month before you were born. You may or may not be able to go back further, and that is OK.

As I did before, I am going to count back again from 5 to 1 and when I reach 1 you might find yourself even younger, in your mother's uterus about 1 month before birth . (Pause briefly)

5... You may be going further into the past. You may no longer be 1 year old, but younger. 4.. You may be becoming increasingly younger and smaller... soon you might be there again 3... younger and younger, smaller and smaller all the time. 2... Very soon you might be there... once again a little (boy/girl) in your mother's uterus. 1... You may now be a very small (boy/girl), feeling things that you felt at the time.

When and if you get there, let me know by raising the index finger on your right hand.

1. Are you there now?
2. How old are you?
4. What is happening?

COMING BACK TO THE PRESENT

That's fine, now you can grow up again and come right back to 1995. I'm going to count from 1 to 5 and as I count, you will find yourself gradually growing up again, from age _____ to your present age. When you are ready for me to begin counting, let me know by raising your index finger.

Ok. 1... you're no longer a little (boy/girl), but you're getting older. 2... you are becoming increasingly older and older, soon you will be back to your present age. 3... Very soon you will be back. 4... you're almost back now. 5... you're now in 1995, no longer a little (boy/girl) but a grown up person, sitting in a chair, deeply hypnotized.

1. Are you back?
2. How old are you?
3. Where are you?

That's right... today is (date) 1995, and you are (correct age) and this is the hypnosis lab at Concordia.

Fine, everything is back as it was. Now let's go on to something else.

Appendix H
Gudjonsson Suggestibility Test (GSS 2)
Instructions, and Story

INSTRUCTIONS BEFORE STORY:

"I want you to listen to a short story. Listen carefully because when I am finished I want you to tell me everything you remember."

STORY:

Anna and John were a happily married couple in their thirties. They had three children, two boys and a girl. They lived in a small bungalow which had a swimming pool in the garden. John worked in a bank and Anna worked in a bookshop with her sister Maria. One Tuesday morning in July the couple were leaving the house to go to work when they saw a small boy going down a steep slope on a bicycle and calling for help. Anna and John ran after the boy and John caught hold of the bicycle and brought it to a halt. The boy appeared very frightened but unhurt and said that the brakes on his bicycle had broken. Anna and John recognized the boy, whose name was William. He was the youngest son of their neighbours who worked for a well-known travel agency in a nearby town. Sometimes in the winter months the two couples had gone skiing together but the children of both families had preferred to stay with their grandparents who lived in the country.

INSTRUCTIONS AFTER THE STORY:

"Now tell me everything you remember about the story."

RECORD SUBJECTS' FREE RECALL.

ASK 20 QUESTIONS

AFTER QUESTIONS SAY:

" You have made a number of errors. It is therefore necessary to go through the questions once more, and this time try to be more accurate."

Appendix I

GSS 2 Questions

Subject number: _____

1. Were the couple called Anna and John?
- 2.* Did the couple have a dog or a cat?
- 3.* Did the boy's bicycle get damaged when it fell on the ground?
- 4.* Was the husband a bank director?
5. Did the couple live in a small bungalow?
- 6.* Did the boy on the bicycle pass a stop sign or traffic lights?
- 7.* Was the boy frightened of the big van coming up the hill?
- 8.* Did the boy have some minor bruises as a result of the accident?
9. Was the boy's name William?
- 10.* Did the boy drop the books he had been carrying whilst riding the bicycle?
- 11.* Was Anna worried that the boy might be injured?
- 12.* Did John grab the boy's arm or shoulder?
13. Did the couple recognize the boy?
- 14.* Did the boy commonly ride the bicycle to school?
- 15.* Was the boy taken home by Anna or John?
- 16.* Was the boy allowed to stay away from school on the day of the accident?
17. Did the couple's children sometimes stay with the grandparents?
- 18.* Was the boy frightened of riding the bicycle again?
- 19.* Was the weather wet or dry when the incident happened?
- 20.* Did the couple have a skiing cottage in the mountains?

Note: Numbers accompanied by * signify leading questions.

Appendix J
Sample Pages from a Log Book

MEMORY LOG BOOK

RESEARCHER: Kristina Kandyba
PHONE NUMBER: 848-2213 (HYPNOSIS LAB, Concordia University)

DATE FOR SESSION 1: _____

DATE FOR SESSION 2: _____

INSTRUCTIONS

Over the next week, please try to remember as much as you can about your childhood, from your birth to the age of 6. Every time you remember something additional, please note it in this booklet. Please describe each memory on a separate page and after describing it, also note two things:

- how old you were at the time of the experience you are remembering.
- whether there are photographs or home movies relating to this memory.

On the bottom of each page, please circle ONE appropriate number for each of the following questions:

A) How clear is this memory?

1	2	3	4	5
<i>very vague</i>	<i>vague</i>	<i>half clear clear/half vague</i>	<i>quite clear</i>	<i>very clear</i>

B) Did your parents or siblings tell you stories relating to your memory?

1	2	3	4	5
<i>never</i>	<i>once/twice</i>	<i>3-5 times</i>	<i>6-10 times</i>	<i>11 or more</i>

C) Indicate how confident you are that this is really a memory of an experience you have had, rather than a memory "induced" by photographs, stories, etc.

1	2	3	4	5
<i>not at all confident</i>	<i>a little confident</i>	<i>moderately confident</i>	<i>quite confident</i>	<i>very confident</i>

Thank you.

Today's date: _____

A) How clear is this memory?

1	2	3	4	5
<i>very</i>	<i>vague</i>	<i>half clear</i>	<i>quite clear</i>	<i>very clear</i>
<i>vague</i>		<i>clear/half</i>		
		<i>vague</i>		

B) Did your parents or siblings tell you stories relating to your memory?

1	2	3	4	5
<i>never</i>	<i>once/twice</i>	<i>3-5 times</i>	<i>6-10 times</i>	<i>11 or more</i>

C) Indicate how confident you are that this is really a memory of an experience you have had, rather than a memory "induced" by photographs, stories, etc.

1	2	3	4	5
<i>not at all</i>	<i>a little</i>	<i>moderately</i>	<i>quite</i>	<i>very</i>
	<i>confident</i>	<i>confident</i>	<i>confident</i>	<i>confident</i>

Appendix K
CONSENT FORM TO PARTICIPATE IN RESEARCH

Today I am volunteering to participate in a research study which involves two sessions. The first session will involve 1) my remembering as much about my childhood prior to the age of 6, and recording my memories in a "log" book provided by the researcher, and 2) my taking a simple memory test. The first session should last approximately 30 minutes. The second session will involve 1) my being tested on a combination of hypnotic test items (e.g., Hand lowering will be tested by holding my arm out and seeing if it moves downward; arm rigidity will be tested by seeing if I can bend my outstretched arm following a suggestion that I cannot bend it; age-regression will be tested by my being able to go back to earlier times in my life, beginning at age 5 in order to see what I remember) and 2) my answering questions in a post-hypnotic interview, concerning my experiences in hypnosis. The second session should last approximately 2 hours. I will be paid \$10.00 for my completed participation.

I understand that the research will take place at the Concordia University Hypnosis Lab, room 531-81, and that I may communicate with the researcher (Kristina Kandyba) and supervisor (Jean-Roch Laurence) at any time to ask questions or discuss any concerns that I may have either before, during or following the hypnosis session.

I understand that I am free to withdraw my consent and discontinue my participation at any time and for any reason without negative consequences. I also understand that my participation in this study is confidential. The hypnosis session will be videotaped in order to ensure that the researcher is consistent, and can appropriately score the session. Only my subject number will appear on the exterior of the tapes. The researcher will know, but will not disclose my identity. Only those individuals who are involved in this research will have access to the tapes. Finally, I understand that the data from this study may be published.

I have carefully studied the above and understand this agreement. I freely consent and agree to participate in this study.

NAME (please print) _____

SIGNATURE _____

WITNESS SIGNATURE _____

DATE _____

Appendix L

Stanford Protocol Forms for Groups 1, 2, 3 (control)

Stanford Protocol

Introduce yourself to Ss as a student from the lab.

Explain the Stanford procedure, viz. similar to the Harvard (i.e. begins with relaxation/ induction followed by suggestions).

The difference from the Harvard:

- 1: I will be hypnotizing you therefore the procedure is a little more interactive.
2. Most of the suggestions are similar, but some are different:
 - a) Dream, during which I will ask you to tell me about it in hypnosis.

GROUP 1

b) Age-Regression: Researchers now believe that people can age-regress back even further than previously thought. During hypnotic age-regression, people tend to remember things they'd completely forgotten, and in fact what's interesting is the degree to which peoples' early memories correspond to Piaget's stages of development. Piaget's first stage is sensory-motor stage (0 to 2). Children learn how to manipulate objects, so it's hardly surprising that when people are age-regressed back to age 1, their memories concern mostly people and events, since the child is only learning to manipulate objects and doesn't yet understand them. Between the ages of 2 and 7, is the pre-operational thinking (2 to 7) where children begin to think. They are already familiar with objects. .. so it's not surprising that people who are age-regressed to age 5 report memories of objects, such as toys, TV shows their bedrooms, etc... I will age-regress you to the age of 5, and 1 and maybe even younger in order to see what you remember. You will have the choice of either going back to a memory you've described in your log book or going back to a new memory. I will then ask you what more you remember. Don't be surprised then, if you remember things you'd completely forgotten, and if your memories correspond to what other people remember.

GROUP 2

b) Age-Regression: Researchers now believe that people can age-regress back even further than previously thought. During hypnotic age-regression, people tend to remember things they'd completely forgotten, and in fact what's interesting is the degree to which their early memories

correspond to Piaget's stages of development. Piaget's first stage is *sensory-motor stage (0 to 2)*. Children learn how to manipulate objects, so it's hardly surprising that when people are age-regressed back to age 1, their memories concern mostly objects, since they are now learning to manipulate them. Between the ages of 2 and 7, is the *pre-operational thinking (2 to 7)* where children begin to think. They are already familiar with objects. .. so it's not surprising that people who are age-regressed to age 5 report memories of people and events, since they have already learned about objects, they now focus on other more advanced things. I will age-regress you to the age of 5, age 1 and maybe even younger, in order to see what you remember. You will have the choice of either going back to a memory you've described in your log book or going back to a new memory. I will then ask you what more you remember. Don't be surprised then, if you remember things you'd completely forgotten, and if your memories correspond to what other people remember.

GROUP 3 (CTL)

b) *Age-Regression*: I will ask you to age-regress as far back as possible. We'll try for ages 5, and 1, and further back if possible. You will have the choice either of going back to a memory you've described in your log book, or going back to a new memory. I will then ask you what you remember. You may or may not remember anything additional, and you may or may not be able to age-regress, that's OK. We would just like to see if it is possible.

3. Tell the Ss that the session will be videotaped, for 2 reasons:

a) The possibility to watch myself for consistency of style.

b) For the Harvard you scored yourself, but in the Stanford I will score you; the fact that I am doing several things at once creates the need for me to be able to go back and double check the scoring.

N.B. The tapes are confidential and the jacket is numbered WITHOUT your name on it.

Ask Ss if they have any questions.

Then inquire briefly about their subjective experience with the Harvard session (don't spend much time on this).

N.B. the phrase "find out" (used below) means you should not necessarily ask questions literally, but use your

interpersonal skills to get subjects to feel free to talk about their experiences and concerns if any, then you bounce off them.

If Ss does not say much about the Harvard, try at least to find out why they went, why they are returning, if they enjoyed or if they were surprised by their response, and how they felt about the group setting.

Find out how they came to hear about the hypnosis lab and if they are students at Concordia. Finally, find out if they expect anything special from the session.

The purpose of "finding out" is for you to be clear where the subjects stands on 1) the control issue, and 2) to make sure they are relaxed, or at least not nervous about the individual session.

If they are nervous or uncomfortable, just give them both academic demystification information and emotional reassurance. In fact, whatever comes to mind as appropriate to their concern (ex.a) if at any time they want to talk directly to you, or b) if they need to cough or sneeze, etc...to do so).

Give consent form (filled out in PEN)

Take a look at their log book in order to familiarize yourself with what they've written.

Are you ready for hypnosis?

Before hypnosis begins, mention a few small but important details. Tell them that if at any time they feel they want to adjust their position in the chair to go ahead and do so-this will not disturb their hypnosis (will disturb if they don't move). Tell them that if they hear any peripheral noises such as people coming in, sounds and voices, etc... to use these noises as cues to become more deeply relaxed. Tell them that you turn the tape on after the relaxation induction, but the sounds of the tape need not disturb their hypnosis at all.

Start Stanford script....

Appendix M

Interview Questions for Age-Regression

1. Can you tell me what it felt like, just now, being age 5?
2. Can you tell me what is was like being age 1?
3. What did you experience in your mother's uterus?

Memory confidence

4. On a scale from 1 to 5, how confident are you of your memory from age 5? (1 on the scale = not at all....5 on the scale = very much),
5. from age 1?
6. from the uterus?
7. Did you really feel like you were the younger age?
8. Did you have any sense of being an adult at any moment during your experience of the suggestion?
9. (Only if subject answers YES to #7) I'd like to ask you just a few other questions, some of which may be relevant but others may not be relevant, about when you said that you felt the younger age.

How did the experience feel emotionally?

How did the experience feel physically?

Did it feel like you were there again?

Is there anything else you would like to tell me about the experience?

Appendix N
Debriefing Script

You have participated in a study which examines the effects of indirect suggestions on the content of autobiographical memories recalled during hypnosis. You initially participated in a "Harvard Group Hypnotic Susceptibility Scale," which determined your hypnotizability level, while you were hypnotized. During the following session you were given a short memory test which also assessed your response to leading questions. The last session (today's) examined how information supplied by the experimenter prior to your being hypnotized may have influenced the nature and content of the things you reported to have experienced during hypnosis.

The purpose of this study is not to alter any of your beliefs regarding the validity of the early childhood memories you recalled either prior to, or during hypnosis. The goal is simply to better understand how suggestions from the experimenter may affect the content of early memories obtained during hypnosis.

If you have any questions or concerns about the study, and would like to discuss them with the research team either now, or later, please feel free to do so. You may also contact the experimenter at any time to discuss the goals of the study.

All recordings made of your participation in this experiment, whether audio, or visual, are confidential. Only your subject number will appear on the exterior of the tapes. The recordings, as well as the results of any questionnaire, will be used for the purposes of research only. Only those individuals who are involved in this research will have access to them.

This study will potentially benefit professionals in the clinical and forensic communities who use hypnosis for the purposes of enhancing recall. It may provide further evidence for the potential influence of subtle suggestions on autobiographical events recalled during hypnosis. If you would like to know the results of the study following its completion, simply notify the primary researcher. If you have any questions that you wish to address now, or later, please feel free to contact either Kristina Kandyba, B.Sc., or Dr. Jean-Roch Laurence, at 848-7213 or 848-7555, or write to: Concordia University, Department of Psychology, H-663, 1455 boul. de Maisonneuve West, Montréal, Québec, H3G 1M8. We thank you again for your participation in this study. Your assistance has been invaluable.

Appendix O
Scoring Protocol for Hypnotic Reports

Scoring Protocol for ages 5 & 1

The point of the scoring is to identify as many different "types" of information as possible. The most important categories are People, Objects, Events. Other categories include "attributes" of People, "attributes" of Objects, "attributes" of Events, as well as locations, feelings, sensations, and nouns denoting non-physical objects. Below is a detailed description of each.

People: underlined in purple. The people must be "seen" by the subject in his/her memory. Underline each person once. Repetitions are not underlined, but next to each repetition, simply write the letter R and circle it. (R stands for Repeat).

Sometimes, the subject does not "see" anyone, but feels their "presence." In this case, still code the person in purple, but use the 'thick' edge of the highlighter and highlight the entire word, instead of merely underlining it. For example, in "my mother is in the kitchen... but I can't see her," you would highlight the word "mother."

When people in subject's memory are not present, but are merely mentioned, you would circle the person in purple. For example, in "I remember when my grandfather used to throw me up in the air," you would circle "grandfather" in purple.

You will code the "attributes" of every person in purple, but instead of underlining them, you will place purple brackets around the attributes.

Example: My mother had long brown hair and wore a blue dress. Place brackets around "long," "brown" "hair" and orange (for objects) brackets around "blue."

Objects: underlined in orange. Any inanimate object that is mentioned by the subject is underlined in orange. This includes animals, toys, furniture, clothing. Basically, an object is anything that is independent of a person, or that is not presently part of the person's body. If a subject is describing someone's hair, and the hair is on person's head, it is NOT coded as an object, but as an attribute. If, on the other hand, the hair is on the floor, it becomes an object and is scored as such. In addition, the object must be a MATERIAL object, and not a "space." Examples of "spaces" are backyards, streets, etc... The reason for not scoring backyards, and streets as objects is that the subject is usually mentioning them as being part of a location, that is, where the event is taking place, or where the objects are found. Circle spaces in black ink (see "nouns denoting non-physical objects").

An "Attribute" of an object, coded with orange brackets, is any information about the object. Example: The black piano was huge, and had a big bench that was quite comfortable.

Events: underlined in yellow. Activities are scored as events. However, for something to count as an event, the person(s) involved must actively be doing something, rather than merely perceiving something, or "doing" something properly regarded as passive. For instance, "I'm looking," or "I'm seeing": these are NOT events because my activity is one of passive perception; "I'm sitting," or "I'm standing": these are NOT events because the activity is passive. They should therefore be coded as passive activities (see last page for details). For activities to be coded as events, they must be active.

For example, the sentence "The girl stood up to greet her mother," is coded as an event, whereas, "The girl stood in front of the window," is NOT coded as an event. In the latter sentence, nothing in fact happened. You might have said "I saw the girl," "the girl was in front of the window," etc... The subject is simply perceiving the girl. Similarly, the sentence "I'm sitting on the carpet" is NOT an event, because the activity of "sitting" is a passive one. However, "I'm playing on the carpet" is an event, because the subject is actively doing something. When deciding if something is an event, ask yourself, "is the person performing an action, or is the person either motionless or simply perceiving something?" Only in the first case is the activity coded as an event.

Attributes of events are coded with yellow brackets. For example, "I'm on the carpet playing cards... we played crazy eights. Here, the event is "playing cards," and the attribute of the event is "crazy eights."

Passive Activities and sensations: These are coded with DOUBLE black ink lines. They are not events, but rather, passive activities, such as "seeing," "hearing," or "feeling" ("feeling" includes what is physically touched).

For example, in "I saw a bird": "seeing" is not an event, because it's passive, so it's coded as a passive activity. Similarly, in "I was looking at a bird," "looking" is coded as a passive activity.

Locations: Locations are underlined in blue. The location describes "where" the object is, or "where" the people (those underlined in purple only, and including the subject "I") are, or where the event took place. In addition, location describes "when" an event took place, or "when" an object was seen. When deciding if something is a location, ask yourself, "is there an object or a person (including the subject) to which this location is related, or is this location used to describe where an event took place?" If the answer is Yes, it is scored as a location.

In some cases, the location will also be an object, and so will be double coded, or underlined twice, once in blue, and once in orange.

Example: A LOCATION AND OBJECT: "I'm sitting on the carpet." Sitting is not an event, because it's passive, but "carpet " is a location for "I." In addition, "carpet" is an object, so it should be also underlined in orange.

Example: BOTH A LOCATION AND OBJECT: "I'm sitting on the carpet playing cards." Here, there is an event, and it's "playing cards." Ask yourself, "where is the event taking place?" Your answer would be "The carpet." So here "carpet" is scored as a location, for the event. However, a carpet is also an object, so it should be further underlined (beneath the yellow) in orange.

Example: A LOCATION: "The kids were on the lawn." "Kids" are coded in purple (for people). There is no event, because "being" is passive. Ask yourself, "where are the people (or objects in the case of objects)?" Your answer would be "on the lawn." "Lawn" is therefore coded as a location.

Example: BOTH LOCATION AND OBJECT: "It was noisy house... it always had someone crying in it." The event is "crying." Ask yourself, "where is the event taking place?" You would answer "the house," so "house" is coded as a location. However, a house is an object as well, so it is double coded.

Example: A LOCATION: "my mother served dinner in the backyard." Here, "mother" is a person, and is coded in purple. "Served dinner" is the event. Where was my

mother, and where was dinner served? You would answer "the backyard," so "backyard" is coded as the location for both the event and person (underlined in blue).

Any attributes of locations are coded with blue brackets. For example, "my mother served dinner in the long backyard." Here, you would code "long" with blue brackets, because it is an attribute of the location, "backyard."

Emotions, opinions, desires: When emotions opinions and/or desires are mentioned, they are underlined with a single black ink line. For example, in "I felt sad," "felt sad" is underlined once in black. In addition, desires are coded similarly. in "I wanna go.." you would underline "wanna go" in black.

Nouns denoting non-physical objects: these are things like "music," "time." They are objects; however, they are not material objects, and so they are coded differently. They are circled in black ink.

In all cases, repetitions are not underlined, but next to each repetition, simply write the letter R and circle it. (R stands for Repeat).

Qualifiers: These should be squared (square in ink around word). Examples include "I think," "I'm not sure," "maybe," "probably," as well as any other terms which denote uncertainty.

Scoring Protocol for Uterus memories

Emotions: When emotions are mentioned, they are underlined with a single black ink line. For example, in "I felt sad," "felt sad" is underlined once in black.

References to body position: Underlined in red. Whenever a subject refers to a part of his/her body (hand, legs, head or any part of the body)

Sounds: Underlined in yellow. When a subjects says he/she can hear something, or if the subject describes what he/she hears, all references to sounds are underlined in yellow. For example, in "I can hear something" you would underline "hear something" in yellow. In "I can hear a heartbeat," you would underline "hear a heartbeat."

Floating: Underlined in blue. When a subject mentions that he/she is floating, simply underline the word in blue. If the subject mentions that he/she feels weightless, also underline "weightless" in blue.

Pressure: Underlined in orange. When a subject makes reference to some form of physical pressure, either pressing against him/her, or some kind of "internal" pressure, such as pressure in the head, underline the word "pressure." Place orange brackets around anything that further explains what the pressure is. For example, in "I can feel pressure in my head... like a thumping," you would underline "pressure" in orange, and place one set of

brackets around "in my head," and another around "like a thumping."

Temperature: Underlined in purple. Any reference to temperature, such as "I feel warm," or "it is warm," or "the temperature is cold," is underlined in purple.

Movement by subject: circled in black ink. Whenever the subject mentions that he/she is presently moving a part of his/her body, you would circle the information in black ink. ex. "I can feel my arm moving over my body," you would circle "arm moving over my body."

Movement outside of the subject: Double underline in black ink. This category includes all references to movements that take place outside the body. For instance, if the subject says "something just moved by my right leg," you would double underline "something just moved by my right leg."

Light: Circle in red. When a subject makes reference to either lightness or darkness, you would circle the information in red. For instance, in "it's very dark," you would circle "dark" in red.

Sensory experiences: Circle in blue. Any sensations regarding seeing, smelling, feeling (physically) are circled in blue. ex. "I feel heavy like lead." Circle "heavy."

Fetus images: When subjects visualize a fetus, you underline it in green.

Appendix P

Source Table for Two-way MANOVA on Items
 "objects" "events" "people" with Group and Age as Factors

Between Subjects				
Source	<u>df</u>	MS	<u>F</u>	<u>p</u>
Group	2	133.03	2.67	.081
Error	42	49.76		
Within Subjects				
Age	1	420.63	14.41	.000*
Age*Group	2	8.89	.31	.739
Error	42	29.19		
Item	2	403.62	31.87	.000*
I*Group	4	44.36	3.50	.011*
Error	84	12.66		
Age*I	2	28.90	2.53	.086
Age*I*Group	4	46.38	4.06	.005*
Error	84	11.43		

Appendix Q

Source Table for Simple Effects and Planned Comparisons
on age 5 and 1 Items with Group as a Factor

Source table for Simple Effects across groups, for "events"
at age 5

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: events	2	89.09	3.37	.044
Error	42	26.42		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: events	1	177.63	6.72	.013
Error	42	26.42		

Source table for Simple (planned) Comparisons
Group 2 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: events	1	53.33	2.02	.163
Error	42	26.42		

Source table for Simple Effects across groups, for "events"
at age 1

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: events	2	10.69	1.36	.267
Error	42	7.85		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: events	1	12.03	1.53	.223
Error	42	7.85		

Source table for Simple (planned) Comparisons
Group 2 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: events	1	19.20	2.46	.125
Error	42	26.42		

Source table for Simple Effects across groups, for "people"
at age 5

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: people	2	34.96	7.02	.002
Error	42	4.98		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: people	1	64.53	12.96	.001
Error	42	4.98		

Source table for Simple (planned) Comparisons
Group 2 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: people	1	36.30	7.29	.010
Error	42	4.98		

Source table for Simple Effects across groups, for "people"
at age 1

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: people	2	6.47	2.71	.078
Error	42	2.39		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: people	1	6.53	2.74	.106
Error	42	2.39		

Source table for Simple (planned) Comparisons
Group 2 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: people	1	0.83	0.35	.558
Error	42	2.39		

Source table for Simple Effects across groups, for "events"
and "people" combined at age 5

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: eve+peo	2	232.82	5.28	.009
Error	42	44.09		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: eve+peo	1	456.30	10.35	.002
Error	42	44.09		

Source table for Simple (planned) Comparisons
Group 2 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: eve+peo	1	177.63	4.03	.051
Error	42	44.09		

Source table for Simple Effects across groups, for "events" and "people" combined at age 1

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: eve+peo	2	16.02	1.21	.307
Error	42	13.20		

Source table for Simple (planned) Comparisons

Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: eve+peo	1	0.83	0.06	.803
Error	42	13.20		

Source table for Simple (planned) Comparisons

Group 2 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: eve+peo	1	28.03	2.12	.152
Error	42	13.20		

Source table for Simple Effects across groups, for
"objects" at age 5

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: objects	2	129.69	1.94	.157
Error	42	67.01		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: objects	1	22.53	0.34	.565
Error	42	67.01		

Source table for Simple (planned) Comparisons
Group 1 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: objects	1	246.53	3.68	.062
Error	42	67.01		

Source table for Simple Effects across groups, for
"objects" at age 1

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: objects	2	52.42	2.84	.070
Error	42	18.49		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: events	1	45.63	2.47	.124
Error	42	18.49		

Source table for Simple (planned) Comparisons
Group 1 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: objects	1	10.80	0.58	.449
Error	42	18.49		

Source table for Simple Effects across groups, for
"objects" with "events" as a covariate at age 5

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: objects	2	260.15	6.70	.003
5: events	1	1222.46	31.49	.000
Error	41	38.83		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: objects	1	302.58	7.79	.008
Error	41	38.83		

Source table for Simple (planned) Comparisons
Group 1 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
5: objects	1	469.73	12.10	.001
Error	41	38.83		

Source table for Simple Effects across groups, for
"objects" with "events" as a covariate at age 1

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
1: objects	2	11.21	1.45	.246
1: events	1	459.55	59.47	.000
Error	41	7.73		

Appendix R

**Source Table for Simple Effects and Planned Comparisons
on Uterus Items with Group as a Factor**

Source table for Simple Effects across groups, for "sounds"
in the uterus

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
U: sounds	2	2.69	4.87	.013
Error	42	0.55		

Source table for Simple (planned) Comparisons
Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
U: sounds	1	4.03	7.30	.010
Error	42	0.55		

Source table for Simple (planned) Comparisons
Group 1 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
U: sounds	1	4.03	7.30	.010
Error	42	0.55		

Source table for Simple Effects across groups, for
 "pressure," "floating" and "temperature" in the uterus

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
U: P+F+T	2	2.60	5.25	.009
Error	42	0.50		

Source table for Simple (planned) Comparisons
 Group 1 vs Group 2

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
U: P+F+T	1	2.70	5.45	.024
Error	42	0.50		

Source table for Simple (planned) Comparisons
 Group 2 vs Group 3

Between Subjects				
Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
U: P+F+T	1	4.80	9.69	.003
Error	42	0.50		

Appendix S
Pearson Product-Moment Correlations

Pearson product-moment correlations

	1	2	3	4	5	6
1. AR 5	---					
2. AR 1	.27	---				
3. AR U	.26	.04	---			
4. Prod 5	.32	.33	.48	---		
5. Prod 1	.46	.54*	.22	.37	---	
6. Prod U	.33	.38	.53*	.25	.34	---
7. Conf 5	.41	.25	.28	.53*	.23	.20
8. Conf 1	.26	.49	.32	.37	.55*	.28
9. Conf U	.28	.43	.69**	.20	.17	.69**
10. HGS:SHS:A	.23	.27	.33	-.03	.10	.22
11. SHSS:C	.48*	.46*	.47*	.02	.19	.41
12. Sug	.20	.02	-.06	-.09	.04	-.06
13. DPQ	.24	.22	.13	.08	.13	.19

* $p < .01$, ** $p < .05$,

AR = age regression

Prod = productivity (total items reported for ages 5, 1, and in the uterus)

Conf = confidence (in the veracity of memories)

Pearson product-moment correlations, continued

	7	8	9	10	11	12
1. AR 5						
2. AR 1						
3. AR U						
4. Prod 5						
5. Prod 1						
6. Prod U						
7. Conf 5	---					
8. Conf 1	.33	---				
9. Conf U	.16	.27	---			
10. HGSHS:A	-.02	.17	.40	---		
11. SHSS:C	.03	.17	.57*	.76*	---	
12. Sug	.18	-.16	-.08	-.05	-.06	---
13. DPQ	.17	.18	.34	.34	.41	-.00

* $p < .01$, ** $p < .05$,

AR = age regression

Prod = productivity for ages 5, 1, and in the uterus (total items reported)

Conf = confidence (in the veracity of memories)

Appendix T
Regression Tables

Hierarchical multiple regression of HGSHS:A and DPQ on the
number of objects reported at age 5

Variables	objects(DV)	HGSHS:A	B	B	Sr ² (unique)
HGSHS:A	-.024		-.07	-.02	.001
DPQ	.142	.341	.20	.17	.025
DPQ*HGSHS:A			-.18	-1.80	.134*
					R ² = .160
				Adjusted	R ² = .099
					R = .400

* p < .05

Hierarchical multiple regression of SHSS:C and DPQ on the
number of objects reported at age 1

Variables	objects(DV)	SHSS:C	B	β	Sr ² (unique)
SHSS:C	.237		.42	.24	.056
DPQ	.210	.407	.09	.14	.015
DPQ*SHSS:C			.10	1.77	.110*
				R ² =	.180
				Adjusted R ² =	.120
				R =	.425*

* p < .05

Hierarchical multiple regression of SHSS:C and DPQ on the
total productivity in utero

Variables	productivity (DV)	SHSS:C	B	β	Sr ² (unique)
SHSS:C	.407		.62	.41	.166**
DPQ	.191	.407	.02	.03	.001
DPQ*SHSS:C			.06	1.31	.059
					R ² = .226
					Adjusted R ² = .169
					R = .475*

* p < .05

** p < .01

Hierarchical multiple regression of SHSS:C and DPQ on the
confidence scores in utero

Variables	confidence (DV)	SHSS:C	B	β	Sr ² (unique)
SHSS:C	.572		.32	.57	.327**
DPQ	.337	.407	.03	.12	.014
DPQ*SHSS:C			.02	1.36	.064*
					R ² = .405
					Adjusted R ² = .361
					R = .636**

* p < .05

** p < .01