

NOTE TO USERS

Page(s) not included in the original manuscript are unavailable from the author or university. The manuscript was microfilmed as received.

ii

This reproduction is the best copy available.

UMI[®]

Eliciting New, Believed-In Memories: the Role Played by Retrieval
Techniques and Demand Factors

Kristina Kandyba

A Thesis

in

The Department

of

Psychology

Presented in Partial Fulfilment of the Requirements
for the Degree of Doctor of Philosophy at
Concordia University
Montreal, Quebec, Canada

March 2001

© Kristina Kandyba, 2001



National Library
of Canada

Acquisitions and
Bibliographic Services

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale
du Canada

Acquisitions et
services bibliographiques

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-63984-3

Canada

ABSTRACT

Eliciting new, believed-in memories: the role played by retrieval techniques, subject motivations and demand factors

Kristina Kandyba, Ph.D.
Concordia University, 2001

Research on memory modification and creation has suggested that not only can details of memories for events from childhood be altered, but entire and complex memories can be created. However, several questions remained unanswered. The focus of the present research was to examine the extent to which subjects will alter their opinion to reflect the belief that an event happened in childhood and the conditions under which this will happen. It examined whether motivation is by itself a sufficient factor to enable subjects to remember unknown and originally repudiated events from childhood, or whether strong demands are also necessary. A second aim was to compare three so-called memory retrieval techniques that are currently employed in therapy to retrieve memories from childhood: the first was hypnosis, the second involved relaxation and visualization (termed guided imagery), and the third involved relaxation and concentration (termed focused thinking). In two sessions, the second a week after the first, subjects were asked to

'remember' two events of which they claimed to have no recollection. The occurrence of the two events had also been repudiated by subjects' parents in a telephone interview. Results revealed no differences between groups: guided imagery and focused thinking were as effective as hypnosis in producing memories which led over 50% of subjects to claim that each of the two events had taken place. Further, subjects' initial motivation to determine whether they had experienced these new events was sufficient for them to produce memories and alter their original judgments; added pressure in the form of social demands from the experimenter was not necessary. Subjects' altered opinions remained unchanged despite being told that their parents had no memory for the events, and remained stable over a period of several months following the study. Implications of memory retrieval for therapeutic and legal purposes are discussed.

Acknowledgements

First and foremost, I would like to thank Dr. Jean-Roch Laurence. I could not have asked for a more supportive and kind supervisor. He always conveyed a great respect for my ideas and a sense of trust in my competence. It was a privilege to work with someone whose overriding concern was always to conduct solid, meticulous, critically sound research. He has provided me with a wonderful role model of what researchers both can be, and should be.

Secondly, I would like to thank Dr. Campbell Perry for always being available and eager to impart his knowledge and offer his advice, and for maintaining a wonderful sense of humour throughout. He inspired me to hope I would one day become a researcher of his calibre, and made me confident I could achieve this desire.

Thank you to Dr. Michael von Grunau for his valuable comments throughout my study, and for his constant encouragement over the years.

Thank you to Paula Lorimer for her unfailing assistance in helping me recruit subjects, conduct Harvard and Stanford hypnosis sessions and conduct follow-up interviews. Despite having many responsibilities, she was always eager to help, all the while remaining cheerful and enthusiastic.

Finally, I would like to thank Laird Stevens, who, for the last ten years, has always stood by me. I cannot express the gratitude I have towards him. His unending emotional support and constant encouragement provided me with the fuel I needed to persist through my studies.

Table of Contents

List of Tables	vii
List of Appendices	xi
Introduction	1
Method	64
Results	96
Discussion	178
References	205

List of Tables

Table 1	Descriptive Statistics for Productivity Increase Over Sessions	105
Table 2	Numbers of Low, Medium and Highly Hypnotizable Subjects as Measured by the SHSS:C	107
Table 3	Spearman Intercorrelations Between SHSS:C Hypnotizability Scores and Subject Confidence Ratings for Memory 1 and Events 1 and 2 During Sessions 2 and 3	109
Table 4	Spearman Intercorrelations for Memory 1	111
Table 5	Spearman Intercorrelations for Event 1	112
Table 6	Spearman Intercorrelations for Event 2	113
Table 7	Frequency of Event-Occurrence Ratings for Event 1 During Sessions 2, 3 and 4	116
Table 8	Frequency of Event-Occurrence Ratings for Event 2 During Sessions 2, 3 and 4	117
Table 9	Frequency of Event-Occurrence Ratings for Event 1, From Session 4 (Time 1) to Session 4 (Time 2)	119

Table 10	Frequency of Event-Occurrence Ratings for Event 2, From Session 4 (Time 1) to Session 4 (Time 2)	120
Table 11	Event-Occurrence Rating Changes From Session 4 (Time 1 and 2) to Follow-Up Phone Interviews	121
Table 12	Frequency of Event-Occurrence Ratings for Event 1 During Session 4 and the Follow-Up Phone Interview	123
Table 13	Frequency of Event-Occurrence Ratings for Event 2 During Session 4 (Time 2) and the Phone Interview	124
Table 14	Mean Confidence Ratings for Events 1 and 2, Across Sessions	128
Table 15	Number of Subjects Who Produced the Same versus Related Memories as Events 1 and 2 During Recall Sessions 2 and 3	131
Table 16	Descriptive Statistics and Frequencies for Ratings of Similarities of Memories to Target Event 2, During Session 2, Across Groups	134

Table 17	Descriptive Statistics and Frequencies for Ratings of Similarities of Memories to Target Event 2, During Session 3, Across Groups	135
Table 18	Frequency of True versus Fantasy Ratings for Events 1 and 2 During Sessions 2 and 3	138
Table 19	Means, Medians and Standard deviations for Memory Measures on Selected Cases	142
Table 20	Spearman Rho Correlations Between SHSS:C Hypnotizability Scores and Strength of Emotion Experienced While Regressed for Events 1 and 2 During Sessions 2 and 3	143
Table 21	Frequency of Subjects Reporting Types of Emotion Experienced During Regression and in Childhood	145
Table 22	Number of Subjects Who Produced a Memory, versus No Memory, for Events 1 and 2 During Sessions 2 and 3	148

Table 23	Logistic Regression Analysis of Presence/Absence of a Memory for Event 1 During Sessions 2 and 3, as a Function of Questionnaire Scores	156
Table 24	Logistic Regression Analysis of Presence/Absence of a Memory for Event 2 During Session 2, as a Function of Questionnaire Scores	159
Table 25	Spearman Rho Intercorrelations Between SHSS:C Scores and Subject Ratings for Memory 1 and Events 1 and 2 During Sessions 2 and 3	161
Table 26	Spearman Rho Intercorrelations Between Confidence Scores and Subject Ratings for Memory 1 and Events 1 and 2 During Sessions 2 and 3	164
Table 27	Descriptive Statistics and Summary Table for Sensory Details	171
Table 28	Descriptive Statistics and Summary Table for Bits of Information	173

List of Appendices

Appendix A	Telephone Script	226
Appendix B	Childhood Memory Checklist	229
Appendix C	Memory Beliefs Questionnaire	234
Appendix D	Attitudes Towards Hypnosis Questionnaire	237
Appendix E	The Differential Personality Questionnaire (DPQ)	240
Appendix F	The Paranormal Experiences Questionnaire (PEQ)	244
Appendix G	The Autobiographical Memory Questionnaire (ABMQ)	249
Appendix H	The Snyder Self-Monitoring Scale (SSM)	252
Appendix I	The Individual Differences Questionnaire (IDQ)	255
Appendix J	List of HGSHS:A Items	258
Appendix K	SHSS:C Script	259
Appendix L	Scripts for Age-Regression	278
Appendix M	Demographic Information Sheet	308
Appendix N	HGSHS:A Protocol	309
Appendix O	Script for Parent Interview	312
Appendix P	Consent Form	313

Appendix Q	Event-Occurrence Rating Sheet	317
Appendix R	Post-Regression Questions for Session 2	318
Appendix S	Additional Post-Regression Questions for Session 3	322
Appendix T	SHSS:C Protocol	323
Appendix U	Post-Hypnotic SHSS:C Questions	326
Appendix V	Additional Post-Hypnotic Session 4 Questions	327
Appendix W	Script for Follow-up Interview	330
Appendix X	Descriptive Statistics and Frequencies for Event-Occurrence Ratings	333
Appendix Y	Descriptive Statistics for Memory Measures, Memory 1, Events 1 and 2, During Sessions 2 and 3	338
Appendix Z	Frequency of Subjects Reporting Types of Emotion Experienced During Regression and in Childhood	345
Appendix AA	Number of Subjects Who Produced a Memory Versus No Memory Across Recall Techniques	352
Appendix BB	Descriptive Statistics for Word Count on Memory 1 (M), Events (E) 2 and 3	353

Appendix CC	Descriptive Statistics for Qualifiers in Memory 1 (M), Events (E) 2 and 3	354
Appendix DD	Descriptive Statistics for Sensory Details	355
Appendix EE	Descriptive Statistics for Bits of Information	356
Appendix FF	Descriptive Statistics for New Bits of Information	357
Appendix GG	Descriptive Statistics for Changes in Information	358

When we recall a past event, we often believe we can recount it just as it occurred. However, another person, who was either a participant in or witness to the event, may well recount it differently, and even dispute some of the information contained in our story. Furthermore, it is sometimes the case that our memory of an event is so uncertain that we can't say with confidence whether we witnessed the event, or whether someone told us about it, or whether it happened only in our dreams.

If our autobiographical memories were perfect, only one version of stories would be told. If our memory for details functioned as a videotape recorder, we would always remember someone's name after learning it, and would experience no difficulty remembering course material on exams. We would only ever need to read something once. In reality, we make errors because our memory is imperfect but most often, these errors are inconsequential. However, there are instances when the errors we make have important consequences, such as in legal and therapeutic settings. For instance, misidentifying an individual as a perpetrator of a crime can result in a conviction and jail sentence, and otherwise destroy that individual's life. Similarly, recovering a traumatic memory of childhood sexual or satanic

ritual abuse in therapy can have severe consequences for the patient, on the alleged perpetrator's life, as well as for the family involved.

If the veracity of such memories were guaranteed, incest-resolution therapists might be doing their patients a service by encouraging the recovery of childhood repressed memories. In fact, some therapists see themselves as doing just that. However, many professionals have argued that such recovered memories are potentially false. After over a decade of controversy, disagreement continues to exist between the two sides, as is readily seen from the documents and letters published on the internet.

Incest-Resolution Therapy

Incest-resolution therapists, also known as recovered memory therapists, have been in practice since the late 1980s. However, much of their perspective on sexual abuse derives from Freud's seduction theory (1896; as cited in Spanos, 1996). Freud believed that the trauma caused by sexual abuse in childhood led to the development of hysteria. However, Freud's patients had no knowledge of abuse when they entered therapy. Over time, they would be encouraged to remember the sexual abuse, by "reliving" the scenes in therapy. Encouragement or pressure was applied in

that Freud believed that therapists must “boldly demand confirmation of our suspicions from the patient” (as cited in Spanos, 1996, p. 71). Freud further stated that “if the first-discovered scene is unsatisfactory, we tell our patients that this experience explains nothing, but behind it there must be hidden a more significant earlier experience” (Spanos, 1996, p.71). Freud soon abandoned his seduction theory, because he came to believe that the “memories” reported by his patients were fantasies that represented his patients’ repressed sexual impulses. Years later, interest in Freud’s seduction theory was rekindled by incest-resolution therapists.

Currently, incest-resolution therapists believe that one-third to one-half of all women were sexually abused as children. Some believe that as many as 50% of adults who were abused as children repressed their memories (Blume, 1990; Demause, 1991; Gleaves, 1994). Fredrickson (1992) has stated that “millions of people have blocked out frightening evidence of abuse, years of their life, or their entire childhood” (p. 15). Patients who enter therapy with no prior beliefs or memories of abuse are encouraged to attribute their current difficulties to prior sexual abuse. Their current difficulties may range from low-self esteem, to anxiety, to depression (Blume,

1990; Dolan, 1991; Fredrickson, 1992). Bass and Davis (1988) list 74 symptoms of sexual abuse, including “having trouble expressing one’s feelings,” and “using sex to meet needs that are not sexual.” However, researchers have found no evidence of a correlation between any one symptom and a history of child sexual abuse (Ceci & Loftus, 1994; Kendall-Tackett, Williams, & Finkelhor, 1993; Polusny & Follette, 1996). Therefore, although victims of sexual abuse may show certain characteristics, these characteristics should not be used to diagnose a history of such abuse.

Incest-resolution therapists generally believe that the lack of sexual abuse memories is accounted for by a filtering mechanism which they term “repression” or “dissociation.” According to this view, complete traumatic memories of sexual abuse are stored out of conscious awareness for several years, and can be accurately retrieved in therapy. Furthermore, repeated and severe abuse is believed to result in dissociation, whereby “alter personalities” develop to endure the abuse. This is how Dissociative Identity Disorder (formerly called Multiple Personality Disorder) is thought to develop. The process of recovery (i.e. of memories) is essential to therapy, and without it, healing cannot take place (Courtois, 1992). The belief among therapists is

that “processing the trauma” and eliminating symptoms can be only achieved by remembering the repressed trauma (Bass & Davis, 1988; Blume, 1990; Dolan, 1991; Fredrickson, 1992). The accuracy of childhood sexual abuse memories is not questioned, but is assumed (Bass & Davis, 1988; Fredrickson, 1992; Olio, 1994).

In addition to therapy sessions, patients are encouraged to read popular books, such as The Courage to Heal (Bass & Davis, 1988) and to join support groups for sexual abuse survivors. The Courage to Heal states, among other things, that “if you are unable to remember any specific instances like the ones mentioned above but still have a feeling that something abusive happened to you, it probably did” (p. 21). This and other equally suggestive statements have prompted many to argue that the book contains statements which can influence patients with no prior abuse memories to believe that they were sexually abused in childhood (Kihlstrom, 1998).

It is unclear how many of Freud’s patients as well as those in incest-resolution therapy complied with the expectations of their therapists by producing or creating sexual abuse scenarios. For instance, in the early stages

of his seduction theory, Freud was not interested in the identity of the perpetrators of sexual abuse. As such, none of his original thirteen cases involved relatives as the abusers. They involved other children, or adults who were unrelated to the patients. However, when Freud later believed that abusers consisted of fathers, he revealed additional cases in which the perpetrator was the father. He also reinterpreted his original cases in terms of the father as the abuser. It is therefore possible that Freud's changing expectations concerning the identity of the abusers influenced his patients' memories. It is also likely that his outspoken belief concerning the cause of hysteria influenced his patients into reporting memories simply in order to comply with his demands. In a similar vein, it is unclear how many patients who have undergone incest-resolution therapy have complied with their incest-resolution therapists by "remembering" abuse scenarios that never in fact took place. Many former patients thus far have recanted their childhood sexual abuse memories, claiming that they are false and were created in therapy (False Memory Syndrome foundation [On-line]). These anecdotal accounts attesting to the possible creation of memories, are consistent with the empirical research to date on autobiographical memory. This research

will be reviewed in greater length in forthcoming pages. Overall, the research has strongly suggested that autobiographical memory is largely reconstructive in nature, and capable of being influenced by a number of factors, including the demands of the situation.

Various techniques are reportedly employed by recovered memory therapists to retrieve memories in their clients. Information regarding them has been obtained from several sources: from therapists' descriptions in books, workshops and articles, from patients who have undergone treatment, and from parents of adult children who recovered sexual abuse in therapy (Bass & Davis, 1988; Blume, 1990, Courtois, 1992; Dolan, 1991; Fredrickson, 1992; Goldstein & Farmer, 1993; Macdonald, 1999; Wakefield & Underwager, 1994). A variety of techniques are used, such as hypnosis and age regression, guided imagery, relaxation, dream interpretation, direct questioning, reading textbooks, such as The Courage to Heal, attending group therapy, free association of childhood memories, body work including massage therapy, ideomotor signalling with the unconscious, prayer, meditation, psychodrama, casting out demons, yoga, primal scream therapy, journal writing and trance writing . These techniques are employed with

clients who report having no previous memories of child sexual abuse, as well as those who wish to add detail to their already existing memories, or recall additional events altogether (DuBreuil, Garry, & Loftus, 1998).

Surveys on Practitioners

A recent survey has revealed that many therapists use the abovementioned techniques with their clients. Three samples of doctoral level therapists (N = 202) were taken from the National Register of Health Services providers in psychology in the United States (NRHSPP) and the Register of Chartered Clinical Psychologists in Britain (RCP) (Poole, Lindsay, Memon, & Bull, 1995). Twenty-five percent were found to hold beliefs and practices consistent with those of incest-resolution therapists. Seventy-one percent of the total sample, however, had employed recovered memory techniques to uncover repressed memories of sexual abuse. The authors estimated that over 100,000 patients at the time of the survey were in therapy with incest-resolution therapists from the NRHSPP and RCP.

A similar survey was conducted on a sample of 223 doctoral level psychologists from the American Psychological Association (Polusny & Follette, 1996). Eighty-two percent reported having one adult case of child

sexual abuse within the last year. The majority (73%) reported seeing ten or fewer such clients, whereas 2% reported seeing over 100 cases of child sexual abuse within the last year. Fifteen percent reported seeing one case of repressed memory, whereas 4% reported seeing five or more cases. Repressed memory was defined as a case whereby a client had no memory of child sexual abuse prior to therapy, and proceeded to recover such a memory during therapy. In fact, 34% of psychologists expressed the belief that it is very important for clients to remember the sexual abuse. The memories were believed to be either somewhat accurate, accurate, or very accurate by 80% of the sample. Over 75% of psychologists believed that fewer than 31% of adult sexual abuse survivors enter therapy without any memories of abuse, whereas 4% of psychologists believed that over half enter therapy with no memories (Polunsky & Follette, 1996).

In the same survey, therapists were asked whether they believed certain techniques were appropriate to retrieve memories in clients with no previous child sexual abuse memories. Twenty-one percent believed in the appropriateness of employing age regression, 41% in employing guided imagery, 37% in employing hypnosis, 51% in providing literature on sexual

abuse, 23% in employing “body memory interpretation,” 52% in employing dream analysis, 63% in using free association of childhood memories, and 36% in conducting group therapy for survivors of child sexual abuse. These findings represent a general lack of agreement regarding the appropriateness of using techniques. Interestingly, the authors found that therapists with a history of sexual abuse believed in the importance of assigning sexual abuse literature, and were less likely to label such literature and media information as suggestible (Polunsky & Follette, 1996).

Based on the Poole et al. findings (1995), Dawes (1995) estimated that, in a two year period, 1,475,833 women have sought therapy with doctorally trained incest-resolution therapists who employ two or more recovered memory techniques. The estimate does not take into account less educated therapists who practice recovered memory therapy.

Legault and Laurence (1997) included social workers, psychologists and psychiatrists in their survey of 220 Quebec practitioners. The survey revealed information concerning their beliefs in recovered memories (Legault & Laurence, 1997). Sixty-five percent of the sample agreed that all information is permanently recorded in the brain. Furthermore, the majority

(52%) believed that “some claims of sexual abuse based on recovered memories are false but these constitute a tiny minority of such claims.” By extension, the majority of claims are viewed as accurate. Sixty-six percent believed that “many adult victims of child sexual abuse have not reported it because they have repressed the memory.” In fact, 93% agreed that “when an adult who was frequently abused as a child has difficulty remembering some of the particular incidents of this abuse, it is likely to be due to defence mechanisms.” In addition, 40% of therapists expressed a belief that some symptoms are reliably and specifically related to previous sexual abuse. However, no one symptom was identified as definitive of a history of child sexual abuse. Instead, several symptoms were identified as indicators of possible sexual abuse. Using data provided by the sample, the authors were able to estimate the number of therapists who reported seeing at least one recovered memory case during the last two years: 54% of social workers (N = 70), 53% of psychologists (N = 76) and 46% of psychiatrists (N = 50).

Given the three to five year period since the publication of the surveys, the number of therapists who practice recovered-memory therapy at the present time is unknown. It is clear, however, that the number of

patients suing their perpetrators has declined, according to values provided by the False Memory Syndrome foundation. Perhaps the once popular therapeutic step involving “getting strong by suing” is no longer encouraged, given the increasing difficulty in proving sexual abuse based on recovered memories in court. However, this by no means indicates a reduction in the number of incest-resolution therapists who currently practice incest-resolution therapy. Perhaps some therapists may simply be more cautious, given the number of former patients who have also successfully sued their therapists for implanting false memories. There is also a possibility that some incest-resolution therapists are more reluctant to employ techniques such as hypnosis given some of the empirical data describing its effects on autobiographical memory. For instance, one author (Courtois, 1992) who recommended the use of hypnosis, guided imagery, psychodrama, and other techniques to retrieve childhood sexual abuse memories, more recently stated that some may not be well supported, especially when used by untrained and unlicensed therapists (Courtois, 1996). However, this statement leaves open the possibility that licensed therapists who believe that they are adequately trained have nothing to worry about. Still, the

actual number of incest-resolution therapists who hold this opinion remains unclear. The possibility remains that a number of incest-resolution therapists now avoid using hypnosis and guided imagery, but employ techniques that may well be as suggestive. It is also possible that incest-resolution therapists use hypnosis, but not for the purpose of recovering memories. "As noted by the International Society for the Study of Dissociation, 'the most common uses of hypnosis are for calming, soothing, containment, and ego strengthening,' not for memory retrieval" (Hovdestad & Kristiansen, 1996, p. 22).

In a recent survey conducted on a sample of 51 adult women claiming to have recovered memories during therapy, 60.8% reported that their first recovered memory first surfaced in therapy (Hovdestad & Kristiansen, 1996). Participants were asked to identify the techniques that were associated with at least one recovered memory during therapy. Fifty-one percent of participants claimed to recover at least one memory during "individual psychotherapy." "Reading abuse literature" such as The Courage to Heal (Bass & Davis, 1988) was identified in 39.2% of cases. Group therapy accounted for at least one recovered memory in 33.3% of cases.

Interestingly, 7.8% of participants in the survey revealed that hypnosis led to at least one recovered memory, whereas 25% revealed that “visualization or imagery work” was responsible for at least one recovered memory. Other techniques associated with recovered memories included “body work” (9.8%), “therapist asking if abused” (13.7%), “therapist suggesting abuse” (9.8%) and “reading recommended abuse literature” (23.5%) (Hovdestad & Kristiansen, 1996). It was unclear what the authors meant by “individual psychotherapy.” Also, the authors did not include the extent of overlap between types of techniques employed. Based on their values, however, the authors concluded that “reports of the use of potentially suggestive techniques were rare” (Hovdestad & Kristiansen, 1996, p. 21), citing as examples of suggestive techniques, hypnosis, guided imagery, and “therapist insisting that abuse occurred.”

Overall, the surveys report a large number of clinicians who espouse beliefs consistent with those of recovered memory therapists, which translates into a large estimated number of recovered memory cases. It is therefore not surprising that the controversy regarding the validity of recovered memories continues to be debated among professionals, and in

courtrooms. The question which lies at the centre of the controversy concerns whether or not recovered memories are real. Some anecdotal reports suggest that they may not, in fact, be veridical. For instance, in many cases of recovered memory, patients report memories of events that are unsupported by physical evidence. For instance, there have been reports of rape and abortion with a coat hanger, when medical examinations confirmed virginity. Reports have also been made of satanic ritual abuse (Loftus, 1997), for which no corroborating evidence has ever been found. In addition, several hundred individuals todate have recanted their recovered memories of abuse.

The question of validity has been empirically examined as well. However, because researchers cannot ethically replicate the incest-resolution therapy paradigm in the laboratory, other methods have been devised to examine the possibility of memory reconstruction. The first of these examined the conditions under which details of events can be altered. For instance, Loftus and her colleagues have extensively examined the “misinformation effect.” More recent research, however, has examined

whether complex memories can be created. This literature will be reviewed next.

The belief that all experiences are permanently recorded in the brain first originated from studies conducted in the 1930s by Penfield. While patients underwent surgery for epilepsy, Penfield stimulated their cortical areas using electrodes. The stimulation caused patients to produce images which they claimed to be reliving (Loftus, 1980; Squire, 1987). Penfield believed that the images produced were in fact real experiences from the past, drawing a parallel to a tape recorder being switched on (Squire, 1987). Penfield's beliefs were quite influential, but were unsupported by the large amount of research that followed. Bartlett (1932) was the first of many researchers to suggest that memory is reconstructive in nature (Barclay, 1986, 1993; Linton, 1986; Ross, 1991; Squire, 1987). That is, when people attempt to recall information such as word lists (Roediger & McDermott, 1995), songs (Hyman & Rubin, 1990) and events, they appear to do so by filling in the gaps and integrating pieces of past experiences together (Bartlett, 1932; Barclay & DeCooke, 1988; Larsen, 1993; Loftus, 1975, 1980, 1991; Loftus & Palmer, 1974; Neisser, 1986, 1994).

In addition to inaccurately remembering information, people tend to change their stories over time. For instance, Bartlett found that when a story read by a subject was told to another subject, who recounted it to another, and so on, the final version of the story differed somewhat. It became shorter, more concrete and more modern in phraseology. Unfamiliar information tended to be left out of recounted versions (Bartlett, 1932). Additional research has found that details and dates are less accurately remembered than central information, for both emotional and nonemotional events (Brewin, Andrews, & Gotlib, 1993; Christianson, 1992; Linton, 1986). As well, similar episodes tend to merge together (Linton, 1986).

Eyewitness Memory

Since the 1970s, Loftus and her colleagues have conducted several studies on eyewitness memory. The typical paradigm involves having subjects view an event and providing them with either accurate or misleading information in narrative form, followed by a recall of the original event. Results show that subjects who are provided with misleading information are more likely to make mistakes when recalling the original event, compared to subjects who were not given misleading information (Loftus, Donders,

Hoffman, & Schooler, 1989; Loftus & Hoffman, 1989; Weingardt, Loftus, & Lindsay, 1995). Subjects also tend to report high levels of confidence in the veracity of suggested memories (Loftus et al, 1989).

Using the misinformation-effect paradigm, subjects have reported seeing a yield sign instead of a stop sign (Loftus, 1979a), a man with a mustache instead of a clean-shaven man, curly hair instead of straight hair, and a screwdriver instead of a hammer (Loftus, 1991, 1993; Loftus & Ketcham, 1991).

As well, the wording of a question seems to affect subjects' recall of the event. For instance, subjects are more likely to report higher speeds and seeing broken glass when asked "about how fast were the cars going when they smashed into each other?" as opposed to hit or collided (Loftus & Palmer, 1974). As well, subjects were more likely to report seeing a broken headlight when asked "did you see the broken headlight?" instead of "did you see a broken headlight?" (Loftus & Zanni, 1975). Subjects also remembered seeing a barn after being asked "how fast was the white sports car going when it passed the barn?" (Loftus, 1975). Other experiments in which the wording of questions was manipulated have found similar effects (Loftus, 1975, 1991).

Several factors are necessary in order for the misinformation effect to occur. Subjects' attention must be diverted by a distractor task given directly after they view the event (Loftus, 1979a) and the source of the misinformation must also come from a credible source. In the Loftus experiments, subjects are typically told that a university professor has written the narratives (Loftus, 1979b).

Additional research has found that the misinformation effect is greater for nonsalient information rather than central information, and when the false suggestion is embedded in a question rather than being the main focus (Schooler, Gerhard, & Loftus, 1986). The time delay between the viewing of the event and the misleading information also affects the rate of errors: Longer delays increase the impairment in memory (Garry & Loftus, 1994). As well, the subjects' age is a factor: The rate of errors is largest in subjects aged 65 and over, and in children ages 3 to 4. In addition, Roediger, Jacoby, and McDermott (1996) have found that repeated testing leads to an increase in errors, and therefore an increased likelihood of creating false memories. Other researchers (Hyman & Pentland, 1996; Zaragoza & Mitchell, 1996, as cited in Hyman & Pentland, 1996) have found similar results, including an

increase in confidence in the memories for the suggested events, as well as an increased likelihood that subjects will claim that they remember seeing the suggested events.

Some differences have been found between suggested events and perceived events (Schooler, Gerhard, & Loftus, 1986). Researchers using the misinformation paradigm have found that perceived memories contain more sensory detail (e.g. colour and shapes) and fewer signs of uncertainty (e.g. qualified remarks), compared to suggested memories. As well, some researchers have found that when events containing suggested information are described by subjects, they use more words (Schooler, Gerhard, & Loftus, 1986).

The evidence thus far suggests that details for events can be modified. Whether subjects' recollections for the original event disappears, or whether the original event is still in memory, but is more difficult to access, is still debated (Garry & Loftus, 1994; Loftus, 1991). As will be presented in forthcoming pages, more recent evidence concerning the possibility of creating childhood memories is mounting.

Two different positions have been posited to account for both the misinformation effect, and memory creation. Schema theory posits that the suggested details are stored with the event, and override the original information. The memory for the original event therefore becomes altered by the suggested content (Loftus et al., 1989). As for memory creation, a schematic account would suggest that when an event is suggested, other, similar sets of knowledge are activated, and the event is reconstructed based on that knowledge (Hyman & Pentland, 1996).

Source monitoring (or reality monitoring) theory has also been posited to account for the misinformation effect and memory creation. The theory proposes that the original event and the suggested details are stored separately in memory. However, the subject may forget the source of the suggested details. When the event is recalled, the suggested details may come to mind, because the subject may be unable to differentiate between the source of the suggested details and the source of the original event. According to this theory, the original event remains unchanged in memory, and is possibly accessible (Zaragoza & Lane, 1994). Overall, the evidence suggests that both schema and source monitoring theories are plausible

explanations of the misinformation effect and the creation of false memories (Hyman & Pentland, 1996; Loftus et al., 1989; Zaragoza & Lane, 1994).

Despite the evidence in favour of memory reconstruction, some individuals have argued that the findings from eyewitness research do not generalize to recovered memories. As such, these studies do not imply that recovered memories are subject to error. The research thus far has involved modifying details rather than entire events, and the events in question were not self-involving. They involved unknown individuals. This raised the question of whether entire events could be modified or created in an empirical setting. If so, researchers could more successfully argue against the validity of memories of sexual abuse recovered in therapy. Several studies proceeded to examine this question.

The Creation of Entire, Self-Involving Events

Loftus and Pickrell (1995) attempted to create a memory in their adult subjects of being lost in a shopping mall or department store at age 5. Either the parents, an older sibling, or a close relative of the 24 subjects were first contacted in order to obtain information on a true event and verify whether subjects had in fact been lost in a shopping mall at age 5. Subjects were asked

to review a booklet containing a description of three true events and the false event (being lost). Three elements were included in the false event: being lost for an extended period while crying, being comforted or helped by an elderly woman, and being reunited with the family. After reading each story, subjects were asked to write down what they remembered about each of the four events. They had the option of indicating that "I do not remember this." Subjects returned for two interviews, and were asked if they could remember any additional details. After reading each story over a period of three interviews, subjects claimed to remember something about 49 of the 72 true events. Seven subjects either fully or partially remembered the false event and six subjects continued to claim that they remembered the false event in the two follow-up interviews. True events were described using more words, and were rated by subjects as being clearer than the false ones (Loftus & Pickrell, 1995).

Similar results were found by Hyman and her colleagues (Hyman & Billings, 1998; Hyman, Husband, & Billings, 1995). In one study, 20 subjects were asked to recount experiences from childhood that had also been described by their parents. One false event, which parents confirmed had not

taken place, was embedded with the true experiences. The false event consisted either of an overnight hospitalization due to a high fever with a possible ear infection, or a birthday party with pizza and a clown, both at about age 5. Subjects were told that all events were obtained from their parents. When presented with the true events and the false one, subjects were first cued with an event title and an age. If they failed to remember the event, they were provided with more details. Subjects were asked if they recalled the events on two occasions (between 1 and 7 days apart). They were asked to think about the events and try to remember more information before the next session. They were given to expect that they would remember more information during the second interview. The authors found that subjects recalled something about 84% of the true events in the first interview, and 88% in the second interview. None of the subjects recalled the false event in the first interview, whereas 20% claimed to remember something about one of the two events in the second interview: 2 subjects produced information about the clown and pizza event, and 2 produced information about the hospitalization (Hyman, Husband, & Billings, 1995).

In a second experiment, Hyman presented true events as well as false ones to 51 subjects. The false events consisted of accidentally spilling a bowl of punch on the parents of the bride at a wedding reception, or having to evacuate a grocery store because the overhead sprinkler was mistakenly activated. The authors selected three ages for the false event: ages 2, 6, and 10, and added a third interview. The three interviews were separated by one day each. During the first interview, subjects were immediately provided with details for the events, such as the age, event, location, and actions. The experimenter demands were also higher than in the first experiment. Subjects were told that the goal of the study was to obtain more complete recall, and were asked to continue thinking about the events between the interviews. Results revealed that subjects remembered 88% of the true events in the first interview and 97.6% by the third interview. None of the subjects recalled the false event in the first interview, 17.6% claimed to remember something about it in the second interview and 25.5% claimed to during the third interview. However, less than half of these (11.7% in all) were described by authors as clear instances of false memories. (Hyman, Husband, & Billings, 1995). The remaining 13.7% were “less clear false

recalls,” whereby subjects either incorporated less of the critical false information or incorporated none at all. The authors also found that subjects who produced false recalls were, to a large extent, those who had described relevant background knowledge during the three interviews (i.e. where they lived at the time, who the groom and bride may have been, etc.). One problem with this study was that although the first false event was verified with parents (i.e. the wedding event), the second event was not (the sprinkler event). The authors therefore concede that they could not be sure that a sprinkler event did not occur (Hyman, Husband, & Billings, 1995).

In a similar study, Hyman and Billings (1998) attempted to create memories in 66 subjects over two sessions. Subjects were questioned about true events, as described by parents, and one false event. The false event consisted of attending the wedding of a family friend at age 5. While running around during the reception with other kids, the subject was said to have bumped into the table holding the punch bowl which then spilled on the parents of the bride. As in previous studies, subjects were encouraged to think about and try to remember more information about each event between both interviews. They were led to expect that they would

remember more information during the second session. The main difference with this study was that if subjects could not recall either a true or false event, they were encouraged to imagine or visualize how the event would have appeared to them. Visualizing the event was not a requirement, however. The encouragement was given during both sessions, which were separated by a day. The authors also assessed subjects' confidence in the veracity of the memory of each event remembered. Recall of the true events went from 73.9% in the first interview to 85.3% in the second, with confidence ratings of about 3 out of 5. Two subjects (3%) provided information on the false event in the first interview, whereas 27.27% did so in the second. However, it is important to note that only 15% of subjects provided what authors describe as "true instances of false memory," which meant that they provided information consistent with the false event. The remaining 12% reported "partial false memories," meaning that they reported details of the wedding reception but no memory of actually spilling the punch bowl. Subjects with a "clear false memory" reported confidence levels of 2.6 out of 5, on average. The authors therefore argued that true memories cannot be differentiated from false ones based on subjects' confidence ratings,

given the relatively equal ratings offered for both types of memory (Hyman & Billings, 1998).

Pezdek and colleagues have found similar results when attempting to create memories in their subjects (Pezdek, Finger, & Hodge, 1997). A series of three events (one true and two false) were read to subjects by a close relative or sibling. The relative or sibling falsely reported to subjects that all three events had happened. One false event described being lost in a shopping mall, and the other concerned receiving a rectal enema for constipation, both at about age 5 or 6. Of the twenty subjects who participated, three remembered the false event about being lost and reported details about it whereas none reported remembering the enema. The authors concluded that false events must be plausible and based on previous knowledge or on a generic script in order to be “remembered” by subjects (Pezdek, Finger, & Hodge, 1997). Other researchers have drawn similar conclusions based on their findings (Loftus, 1979a; Lynn, Weekes, & Milano, 1989).

The Role of Imagery

Several investigators have attempted to examine the role of mental imagery in the creation of memories. The surveys described earlier certainly suggest the widespread use of techniques which emphasize imagery to retrieve memories of sexual abuse. According to the Poole et al. (1995) survey, 22% of psychologists have instructed their clients to “give free rein to the imagination.” Maltz (1991) suggests to each patient to “spend time imagining that you were sexually abused, without worrying about accuracy, proving anything, or having your ideas make sense. As you give rein to your imagination, let your intuitions guide your thoughts” (p. 50). Similarly, criminal suspects are frequently asked by law enforcement officers to imagine having committed a crime in order to increase their likelihood of obtaining a confession (Ofshe, 1992). Roland (1993) has recommended using imagery to help clients remember sexual abuse. One technique that uses imagery is known as guided imagery; after an initial period of relaxation, the client is given instructions to imagine and recreate a particular event. Such instructions may also be given on their own, or during hypnotic age-regression.

Research on the use of imagination has revealed several important findings. For instance, in one study, subjects were asked to imagine getting a disease, the symptoms of which were either easy or difficult to imagine. Subjects who found the symptoms easy to imagine tended to think of the disease as more likely to occur compared to subjects who had difficulty imagining the symptoms (Sherman, Cialdini, Schwarzman, & Reynolds, 1985). The authors suggested that false events are more likely to appear as having happened if they can be imagined with little or no difficulty.

Goff and Roediger (1998) have examined the role of imagination for recent actions, such as knocking on a table, lifting a stapler, breaking a toothpick, crossing one's fingers and rolling one's eyes. Subjects were asked to either perform the action, imagine that they are performing the action, or simply listen to a statement describing the experience over a period of two sessions. During a third session, subjects were asked whether or not they had in fact performed the actions from the first session. The authors found that subjects who repeatedly imagined performing the actions were more likely to report them as having been performed. A similar study on adults and

children found similar results, although the effect was more pronounced in children (Lindsay, Johnson, & Kwon, 1991).

Garry, Manning, Loftus, and Sherman, (1996) have suggested that imagination may create a scaffolding which may create a sense of uncertainty regarding the occurrence of an event. An event may therefore be subsequently seen as more likely to have happened. According to source-monitoring research, imagining an event may be followed by a confusion regarding its source, and result in a stronger belief that the event occurred (Johnson, 1988). Source attribution errors would occur when the imagined event or information is recalled, but the source of that information is either not remembered or remembered incorrectly. Increases in both the vividness and the amount of detail are hypothesized to increase source attribution errors (Belli & Loftus, 1994).

Johnson, Foley, Suengas and Raye (1988) asked subjects to rate memories of actual and imagined events, from both the recent and distant past, according to 39 different characteristics. Comparing imagined to experienced events, they found fewer qualitative differences between past events than between recent ones. For instance, they found that reports for

recent real events contained more external sensory information than did those of imagined events. However, no differences were found for past events. Subjects may therefore have more difficulty distinguishing between imagined and experienced childhood events than recent events. Loftus (1997) suggests that imagining an event makes it seem more familiar, and that the increased familiarity with the event makes it seem more likely to have happened in the distant past.

Garry et al. (1996) examined the effect of imagery on confidence ratings for events which were rated as unlikely to have happened. Subjects rated a list of 40 events according to whether they were likely to have happened or not. Two weeks later, some subjects were asked to imagine them and re-rate the original events. The authors found that subjects who were asked to imagine the events were more prone to increase their original “unlikely to have happened” ratings towards “likely to have happened.” This positive increase in ratings was seen in 34% of imagined events compared to 25% of nonimagined events.

In an attempt to further examine the role of mental imagery in the creation of memories, Hyman and Pentland (1996) included an imagery

condition in their study on false memories from childhood. Over the course of three interviews, 65 subjects were asked to remember true events that were initially described by their parents. They included one false event, which was taken from Hyman and Billings (1998). As in the other Hyman experiments, all subjects were initially asked to recall the events. However, in this study, subjects who failed to recall an event were divided into one of two groups. In one group, they were first asked to form a mental image of the event, the reasoning being that this would help them remember. In order to ensure an image was formed, subjects were asked to describe it. The second (control) group was simply asked to sit and think about the event for one minute. Subjects were told that sitting and thinking would help them remember the event. They were encouraged to continue either imagining, or thinking about the event between sessions.

The authors found no difference in the number of true events recalled between both groups during the first session. However, a difference was found in subsequent sessions. Subjects in the imagery group eventually recalled more events than subjects in the control group. An effect of group was also found for the false event. By the third interview, 37.5% of subjects

formed a false memory in the imagery condition, compared to 12.1% in the control group. However, as in previous Hyman experiments, these percentages included cases both of clear false memories as well as partial false memory. The latter type includes details consistent with the false event, but not the false event per se. A more conservative comparison between groups would include clear false memory cases only, which would result in 25% of subjects in the imagery group having a false memory compared to 9.1% in the control group. In addition, subjects in the imagery condition rated their false memories as clearer than those in the control condition.

The findings reviewed thus far suggest that false memories can be created in subjects who are simply asked to try and remember. However, asking subjects to imagine an event increases the number of false memories. However, it remains possible that subjects produced images which they did not believe reflected true memories. In fact, the slightly lower confidence ratings reported in the imagery condition for both true and false events may reflect a sense of doubt in subjects concerning whether their images reflect actual memories or not. Although the authors quite correctly suggest that the ratings do not permit us to discern between true and false memories, this

difference may also indicate a sense of uncertainty on the part of subjects as to whether their images reflect believed-in memories. Unfortunately this remains unknown, and therefore represents an important limitation of much of the research described thus far.

Overall, the research on autobiographical memory has clearly demonstrated that it is possible to both alter details of events, and to create entire events with or without the use of imagery. However, one important question concerns the degree to which subjects differ from one another in their ability to alter and create new events.

Hyman and Billings (1998) examined this question by assessing the role of individual differences in the creation of memories from childhood. The authors included a measure of imagery, called the Creative Imagination Scale (CIS), and a measure of subjects' response to social demands, the Marlow-Crowne Social Desirability Scale (SDS). The CIS is a measure of vividness of mental imagery in response to suggestions (Wilson & Barber, 1978) and the SDS is a measure of subjects' "willingness to select a socially desirable response" (Hyman & Billings, 1998, p. 4). No correlations between the SDS and false memories was found. The authors therefore suggest that

the SDS is not the best measure for assessing a subject's tendency to respond to social demands. However, the CIS was found to correlate positively with false memory (Hyman & Billings, 1998) suggesting that people with higher mental imagery abilities will more readily accept false memory suggestions. In another study, Johnson, Foley, Suengas, & Raye (1988) found that subjects rated the images from memories that they believed to be true as being clearer than imagined childhood events.

The Role of Hypnosis

The effects of hypnosis on memory have been extensively examined. Hypnosis has been defined as "a situation in which a person is asked to set aside critical judgement without abandoning it completely, and indulge in fantasy and make-believe" (Hilgard, 1977; Perry, Laurence, D'Eon, & Tallant, 1988, p. 129). However, not everyone is equally responsive in hypnosis, as measured by standardized hypnotizability scales, such as the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A), and the Stanford Hypnotic Susceptibility Scales: Form A, B, and C (SHSS:A, B, C). In fact, stable individual differences have been found (Spanos, 1986). Approximately 10 to 15% of the population is minimally responsive to

hypnosis, whereas 10 to 15% is highly responsive. The remaining 70 to 80% of individuals fall somewhere in the middle range. That is to say that subjects who are more highly responsive can respond to suggestions for analgesia and amnesia, as well as post-hypnotic suggestions, relative to subjects who are moderately responsive. More responsive individuals also tend to report suggested experiences as happening involuntarily instead of deliberately (Orne, 1980).

As well, as the definition implies, the more hypnotizable one is, the more one is able to indulge in fantasy and make-believe. Some researchers have emphasized the role of fantasy and imagery in hypnotic responsiveness, meaning that imaginings can be so vivid and seem so real to subjects that they have difficulty discerning them from reality (Hilgard, 1979; Sarbin & Coe, 1972; Sutcliffe, 1961; Sutcliffe, Perry, & Sheehan, 1970). In fact, some highly responsive individuals have been termed “fantasy addicts,” because they spend many daily hours engaging in fantasy and imagination (Wilson & Barber, 1983).

The role of absorption has also been examined in relation to hypnotizability (Tellegen & Atkinson, 1974). It is defined as “a total

attention involving a full commitment of available perceptual, motoric, imaginative, and ideational resources to a unified representational of the attentional object” (Tellegen & Atkinson, 1974, p. 274). Absorption tends to correlate approximately .27 to .42 with hypnotizability, and has significantly predicted hypnotizability in several studies (Nadon, Laurence, & Perry, 1987; Tellegen & Atkinson, 1974). Other studies have examined the relationship between hypnotizability and/or absorption, and memory creation. Although Hyman and Billings (1998) did not find a correlation between absorption and memory creation, Labelle, Laurence, Nadon, & Perry (1990) found that subjects with high scores on both absorption and hypnotizability scales were more likely to report false memories. Kandyba (1996) found a relationship between hypnotizability and absorption with regards to the confidence in the veracity of pseudomemories, and the amount of detail given by subjects during age-regression to ages 5, 1 and the uterus.

Hypnotic age-regression is a technique that has been employed both by incest-resolution therapists and law enforcement personnel to retrieve repressed or forgotten memories from childhood or from crime scenes. As

the term implies, age-regression is achieved when a hypnotist suggests to a hypnotized individual that he/she is of a given age. Age-regression suggestions are usually accompanied by relaxation. While age-regressed, one's voice and mannerisms may change and appear more childlike. This has led some to consider age-regressed individuals as actually reliving an event (Nash, 1987).

Studies have examined whether age-regression involves a reliving of the past, as well as whether information produced while age-regressed is accurate. They have found that subjects behave more like adults who are role playing the part of children (Orne, 1951). In a review of 60 years of research, Nash (1987) concluded that age-regression is not an actual reliving of the past.

An important issue concerns whether or not information gained during hypnotic age-regression is accurate, because those who employ hypnotic techniques often believe that hypnosis can serve to accurately enhance autobiographical memories (Legault, 1996; Legault & Laurence, 1997; Yapko, 1994a, 1994b). Incest-resolution therapists have advocated employing hypnosis to retrieve repressed memories, and have assumed

remembered events to be veridical, no matter how extraordinary they may be (Goldstein, 1992; Ofshe & Watters, 1994; Pendergrast, 1995). In the Legault and Laurence survey (1997) 46% of practitioners reported believing that hypnosis can be used to recover memories of actual events from as far back as birth. This belief, however, is empirically unfounded (Laurence & Perry, 1988).

Research on the effects of hypnotic techniques on memories has consistently shown that subjects tend to produce more information in hypnosis. That is, hypnotic subjects almost invariably report more information than they do prior to hypnosis. However, this increase in productivity is mostly due to an increase in inaccurate information (Nogrady, McConkey, & Perry, 1985) although some researchers have shown an increase in both correct and incorrect information (McConkey & Kinoshita, 1988). In addition, subjects will tend to show high degrees of confidence in the veracity of what they recalled, no matter how inaccurate it may be. Subjects from all levels of hypnotizability will show an increase in both productivity and confidence; however, the effect is more pronounced in more highly hypnotizable individuals (Nogrady, McConkey, & Perry, 1985; Orne,

Soskis, Dinges, Orne, & Tonry, 1985). Confidence in one's hypnotically retrieved memories is therefore not a valid predictor of accuracy.

Independent corroboration is necessary before assuming that a memory is accurate.

In addition, the content of memories produced during hypnotic age-regression may be influenced by the hypnotist. In a study by Laurence and Perry (1983), the researchers used hypnosis to create memories of hearing a noise in the night in 13 out of 27 highly hypnotizable subjects. All that was needed to influence subjects' reports was the suggestion that they might have heard something during the night (Laurence & Perry, 1983). Other studies have attempted to create memories in low, medium and highly hypnotizable subjects. Most have found a positive correlation between hypnotizability and the presence of a pseudomemory. The findings seem to suggest that although memories can be created in some low hypnotizable subjects, the likelihood increases with level of hypnotizability (Barnier & McConkey, 1992; Bryant & Barnier, 1999; Kandyba, 1996; Labelle, Laurence, Nadon, & Perry, 1990; Malinoski & Lynn, 1999; McConkey, Labelle, Bibb, & Bryant, 1990).

In order to be more assured that the memories produced were in fact false, researchers have attempted to create memories of impossible events. For instance researchers have attempted to create memories from previous lives, as well as from very early childhood, before age 2.

In a series of experiments, Spanos and his colleagues, (Spanos, Burgess, & Burgess, 1994; Spanos, Menary, Gabora, DuBreuil, & Dewhirst, 1991) influenced subjects' reports via suggestions given to subjects prior to hypnosis. In four experiments, subjects received suggestions concerning the nature of past-life incarnations. For instance, in the first experiment, subjects were told that “reincarnation was a belief, common to many cultures and that scientists had begun to collect evidence in support of reincarnation.” Subjects were told that they could “actually relive and re-experience a past life through hypnosis” (Spanos et al., 1991, p. 310). Thirty-two percent of subjects reported a past life in hypnosis. Many provided a name, their sex, and an address. Subjects with high scores on an imagery and absorption questionnaire tended to assign more credibility to their memories.

In the second study, although two groups of subjects received the same instructions as in study 1, Spanos, et al. (1991) manipulated the

characteristics of past-life identities. Specifically, subjects in one condition were led to expect that they would be a member of the opposite sex, and that they would come from a distant land, one removed from their biological ancestry. The majority of subjects in each group reported past-life identities. Sixty-six percent of subjects in the instructed group reported some of the suggested characteristics, compared to 26% in the control group.

In the third study, subjects in one condition were led to expect that their past-life identity had experienced a traumatic upbringing during childhood, in the form of severe abuse and mistreatment by parents, whereas the control group was simply told that the experimenters were interested in finding out how children in earlier times were raised and socialized. Once more, although most subjects in both groups reported a past-life identity, those in the instructed group provided more instances of abuse than did those in the control group.

Taken together, contextual information that was gained prehypnotically from the experimenter influenced subjects' reports. In all of these studies, Spanos et al. (1991, 1994) found that subjects reported information consistent with the suggestions given. In all studies combined,

50% of subjects reported a past-life identity. The presence of a past-life correlated with hypnotizability, as measured by the Carleton University Responsiveness to Suggestion Scale, (CURSS) and correlated with prior beliefs and expectations concerning the possibility of experiencing a past life. Strength of beliefs concerning past lives also correlated with subjects' confidence in the reality of their experiences (Spanos, et al., 1991).

Researchers have also attempted to create memories from early infancy (Green, 1999; Kandyba, 1996; Lambrinos, 1998; Spanos, Burgess, Burgess, Samuels, & Blois, 1999). Although reports vary in citing the earliest age of memories as between 2 and 4, there is at least strong evidence suggesting that adults cannot access memories from before the age of 2 at the earliest (Fivush, Hamond, Harsch, Singer, & Wolf, 1991; Howe & Courage, 1993; Pillemer & White, 1989; Sheingold and Tenney, 1982; Usher & Neisser, 1993; Winograd & Killinger, 1983). Therefore, instances "remembered" before that age are highly likely to constitute evidence of false memories.

In one experiment, subjects were first led to believe that they had well-coordinated eye movements and visual exploration skills. These skills were attributed to the likelihood that they were born in hospitals that hung

swinging, coloured mobiles over cribs. Subjects were told that this could be confirmed by use of an “effective procedure” which would help them recall memories from the day after their birth. Half of the subjects were hypnotized, whereas the second half underwent a “guided mnemonic restructuring procedure” whereby they were asked to “recreate” their infant experience. Results indicated no differences between hypnotic and nonhypnotic subjects in their recall of mobiles. Forty six percent of hypnotic subjects produced memories of mobiles, whereas 56% of nonhypnotic subjects did. Furthermore, 49% of subjects who reported memories from infancy felt that they were real, as opposed to 16% who felt they were fantasies. In addition, significantly more highs and mediums reported memories of mobiles than did low hypnotizable subjects. However, significantly more subjects (95%) in the imagery group produced false memories from infancy, compared to those in the hypnotic group (79%) (Spanos, et al., 1999).

In a partial replication of Spanos et al.’s (1999) study, Lambrinos (1998) age-regressed subjects to age 5, and age 1, following suggestions concerning what they had most likely experienced (mobiles at age 1, and

puzzles at age 5). However, unlike Spanos et al. (1999), subjects in this study were told that they might or might not remember the suggested information. The results of this study closely resembled those of Spanos et al. (1999) whereby 56% of subjects in the hypnosis group reported seeing the suggested information from infancy, compared to 60% of those in guided imagery group. Taken together, these findings suggest that employing a technique that strongly relies on the use of imagery is just as effective as hypnosis in enabling subjects to reconstruct an experience from early childhood.

In a further partial replication of Spanos et al. (1999), DuBreuil, Garry, and Loftus, (1998) found similar results when subjects were age-regressed either to the day after birth (to remember mobiles), or to the first day of kindergarten (to remember spiral disks). The authors employed visualization. In addition to being given false information which was intended to provide subjects with an expectation to recall either mobiles or spiral disks, subjects were told that memory functions like a video tape, and were given to expect that the technique of visualization would help them remember. Sixty-one percent of subjects reported the mobile, whereas 25% reported the spiral disk. Interestingly, and in line with previous research, the

authors found a correlation between vividness of memory and confidence in the authenticity of memories. Those with less vivid experiences tended to rate their experiences as fantasies. In addition, subjects' prior beliefs about the permanence of memory did not correlate with reports of mobiles/ spiral disks. However, subjects who indicated strong beliefs in techniques such as hypnosis were more likely to report either the mobiles or spiral disks. The authors argued that the difference in percentage between subjects reporting the suggested mobiles and those reporting the spiral disks could be due to the plausibility of each suggested item. Perhaps subjects were less likely to have seen spiral disks, and therefore may have found them more difficult to imagine. As previous research has indicated, the likelihood of creating memories increases if the suggested events are more plausible to subjects (Lynn et al., 1989; Pezdek, et al., 1997). Lynn et al. (1989) found that publicly verifiable events are less likely to be accepted as pseudomemories.

In another study examining the possibility of implanting improbable memories, Kandyba, (1996) age-regressed subjects to ages 5, 1, and to the uterus. Subjects in one group were given information concerning what people generally remember from those ages. The suggestions given for ages 5

and 1 were reversed in a second group. Similarly, subjects in these two groups were told that they would be regressed to age 5, and age 1, as well as further back. They were told that research has shown that people can age-regress further back than was previously thought. A control group did not receive the suggested information, nor did they receive the instructions concerning the ability to regress further back than age 1. During hypnosis, subjects were given differing suggestions concerning what people generally remember from the uterus. The authors found that significant numbers of the suggested items were reported during age-regression to ages 5 and in the uterus. In addition, an average of 33.3% of subjects in the instructed groups reported memories from the uterus compared to 0.06% (or 1 subject) in the control group.

Overall, studies examining the accuracy of information gained during hypnotic age-regression have concluded that reports are unreliable. According to several authors, information reported may be veridical, but it may also be reconstructed or completely false (Laurence & Perry, 1988; Lynn, Lock, Myers, & Payne, 1997).

The studies described above highlight the important role of demand characteristics. The demands, given in the form of cues and suggestions provided prehypnotically, appear to influence the degree to which subjects either incorporate details, or construct entire events (DuBreuil, Garry, & Loftus, 1998; Kandyba, 1996; Lambrinos, 1998; Lynn, Nash, Rhue, Frauman, & Sweeney, 1984; Orne, 1959; Spanos, Cobb, & Gorassini, 1985). These findings coincide with anecdotal reports from therapists who have found that clients can modify and create memories that reflect the expectations of their therapists (Baker, 1988; Verny, 1981).

One important demand is found in the hypnotic context itself. The context of hypnosis appears to communicate to subjects that they can remember information from early childhood. In a study by Green (1999), subjects in three different “technique” groups (i.e. hypnosis, visualization and relaxation) were led to believe that the respective techniques are effective in helping people remember their earliest memory. Despite this suggestion, the author found that subjects in the hypnosis group reported earlier memories than did subjects from the other two groups. Similar results were found by Sivec, Lynn, and Malinoski, (1998) as cited in Malinoski and Lynn (1999).

They compared subjects who were repeatedly asked to remember an early event in a hypnotic versus nonhypnotic context. Thirty-five percent of subjects in the hypnosis group reported memories prior to age 2 compared to 8% in the nonhypnotic context. However, as noted previously, Lambrinos (1998) and Spanos et al. (1999) found hypnosis to be as effective as a visualization condition in creating memories from early infancy. Perhaps the different findings in these two studies was attributed to the labels given to the visualization technique. In Green's (1999) study, subjects in the two nonhypnotic conditions were simply told that they would be asked to either "visualize" or "relax." In contrast, the visualization groups in Lambrinos (1998) and Spanos et al. (1999) were named "guided imagery" and "guided mnemonic restructuring," respectively. These labels may have implied to subjects that the techniques being used were credible and effective in retrieving early memories.

Bryant and Barnier (1999) examined the rate of early pseudomemories in subjects who were hypnotized compared to those who were not. Subjects were led to expect that they would be able to remember information from their second birthday. They found that equal numbers of high hypnotizable

subjects reported pseudomemories in hypnotic and nonhypnotic conditions. However, the number of subjects who tended to believe in the veracity of their memories despite conflicting evidence was greater in the hypnotic than in the nonhypnotic condition (Bryant & Barnier, 1999). This study therefore highlights the importance of the hypnotic context in communicating to subjects that the events produced reflect real occurrences from the past.

Bryant and Barnier (1999) also compared the behaviour of highly hypnotizable subjects to simulators, in order to determine whether the tendency to report pseudomemories in hypnosis is a function of its situational demands. The real-simulator paradigm was first employed by Orne (1959) to assess the role of demand characteristics. Simulators are subjects who are minimally responsive to hypnosis, but who are asked to respond like hypnotized subjects. The authors found that equal numbers of real and simulating subjects reported false memories, indicating that demands may have played a role in their creation in hypnotizable subjects. However, when given conflicting evidence, more hypnotizable subjects than simulators maintained their belief in the veracity of the memory. The authors therefore

argue that highly hypnotizable subjects reconstruct pseudomemories in a way that creates a belief in their reality (Bryant & Barnier, 1999).

Marmelstein and Lynn (1999) also tested the role of demands by comparing subjects' responses to two different expectancy conditions. Subjects in a high expectancy condition were told that "if they tried hard, they could remember back to the first week of life." Subjects in the "no-expectancy" condition were not given this information. In a first session, subjects were asked to concentrate on recovering their earliest possible memory. During a second session, one week later, subjects were hypnotized and given three instructions to remember even earlier memories. The authors found no difference between the expectancy and no expectancy conditions. In fact, the age of earliest recall declined with each new instruction to recall memories, both during the first concentration session, and the second hypnosis session. The concentration session resulted in a mean decrement of almost 1 year. During the hypnosis session, the earliest age of recall decreased further. However, following hypnosis, the mean age of earliest memories increased after subjects were asked to consider that they had been pressured into remembering earlier events. Nevertheless, there

were still more subjects at the end of the study who reported a decrement in the age of their earliest memory, than there were at the start of the study.

The authors therefore argue that the alterations in subjects' memories are not entirely due to the demands of the context.

In addition to the above, the authors reported a correlation between subjects' ratings of vividness of memories, and their confidence in their memories. Another correlation was found between confidence scores and amount of detail in the memories. The authors argue that these correlations support source monitoring theory, in that the increased vividness and detail led subjects to be more certain that the events were accurate, thereby confusing their source. One shortcoming of this study, however, was the lack of corroboration of subjects' memories (Marmelstein & Lynn, 1999).

The lack of difference between the expectancy and no expectancy conditions may be attributed to the limited instructions in this study, compared to other studies which employed more elaborate instructions (Spanos et al., 1999). Nevertheless, what elements in instructions are necessary to create an expectancy remain unclear. For instance, Lynn, Malinoski, and Green (1998, as cited in Malinoski & Lynn, 1999) found a

large difference between expectancy groups despite having brief instructions. They compared subjects who were told “tell me when you get an earlier memory” (high expectancy condition) to ones told “if you don’t remember, that’s all right” (low expectancy condition). Over four trials, 43% of those in the high expectancy condition created a memory prior to age 2, compared to 20% in the low expectancy group.

Overall, the social demands in memory-recall situations are important because they may influence the content of reports, as well as the likelihood that subjects will produce previously unrecalled memories. However, as Hyman and Pentland (1996) note, social demands may not be necessary if subjects place pressure on themselves to remember. At the very least though, social demands may “facilitate memory creation by encouraging individuals to engage in memory construction” (p. 112). Additional individual factors may influence the rate of memory creation and confidence in the veracity of memories, such as (a) the plausibility and verifiability of the event, (b) the ability of subjects to visualize events and become absorbed in their imaginings, (c) their beliefs about the likelihood of remembering, (d) their desirability to please the experimenter and (e) their hypnotizability levels.

The Present Study

Previous studies have clearly established the possibility of creating memories for childhood events. Accordingly, the main focus of the current study was not to create such memories. Instead, the study's primary interest was to determine the conditions under which subjects will alter their opinion to reflect a belief that an event happened in childhood. The specific conditions included type of memory-recall technique and level of demand in instructions.

The events to-be-remembered were initially confirmed by parents as not having happened, in order to increase the likelihood that memories produced were fictitious. However, no assurances to this effect were possible.

Very few studies have compared more than two techniques for their effectiveness in modifying and/or creating memories. Green (1999) is an exception. He employed three groups (hypnosis, visualization/counting, and control). In the current study, three techniques were compared: hypnosis, a relaxation/visualization technique, and a relaxation/concentration technique.

The majority of researchers who have examined the usefulness of imagery in memory creation studies have simply asked subjects to visualize an event. Few have incorporated “visualization” in a technique, such as guided imagery, and presented it as such to subjects. This is important, because the memories which are recovered in therapy are elicited by a “technique,” be it hypnosis, guided imagery or age regression. As far as the client is concerned, the therapist is using a “special technique” which has been given credibility as a memory retrieval procedure. In the current study, the three procedures employed were therefore labelled as “techniques” in order to make them seem credible to subjects. The second and third were respectively called “guided imagery” and “focused thinking.” Guided imagery simply consisted of a guided relaxation followed by instructions to visualize a given event from childhood, whereas the focused thinking condition instructed subjects to concentrate on a childhood event.

In Green’s study (1999), subjects in the hypnosis condition were given three minutes to self-hypnotize, and in the visualization/counting condition, they were told to remain mentally alert while counting numbers for three minutes. In the third relaxation condition, subjects were given three minutes

to relax on their own. In all conditions, subjects were therefore relied upon to follow instructions on their own for a brief period of three minutes. Unlike Green's (1999) study, subjects in the current study were instructed or guided by the experimenter throughout the duration of each "technique" in order to ensure some consistency in subjects' behaviour. As well, instructions lasted approximately 20 to 30 minutes.

Although the role of subjects' expectations has been manipulated in previous studies by comparing low and high expectancy or demand conditions, it remains unclear whether social demands to remember are necessary to create memories, or whether motivation alone is sufficient to have this effect. It is known that incest-resolution therapists apply strong demands on their clients to remember childhood sexual abuse. Subjects are sometimes told that the technique being used is effective, and that if they don't recall abuse but have a feeling that perhaps it happened, then it probably did. Even though recovered memories of childhood sexual abuse are not likely to be pleasant, subjects may be sufficiently motivated to remember such abuse for various reasons. After all, they are in therapy to resolve serious problems which cause distress. If the answer lies in possible

sexual trauma during childhood, they may be highly motivated to determine this. The added pressure from therapists to remember may therefore not be necessary for them to recover memories of abuse. In the current study, subjects' motivation to remember events was created by offering them a choice of events to remember, from a long list of possibilities. This procedure is in sharp contrast to that of previous studies, where the events to be created/modified were selected by an experimenter. Using experimenter-selected events precludes the possibility of determining whether the end-product—new possibly created memories—is merely a function of subjects' desire to remember.

The findings from studies that have manipulated subjects' expectations have not always been consistent. In some cases, the instructions appear to have influenced subjects into producing new memories. However, in other cases, the instructions had no effect. In the current study, expectations were manipulated in the following manner: Half of the subjects were told that the technique to be used was effective in helping people remember. They were also told that if they didn't think a given event had happened, but were not entirely sure, then it probably did (high demand condition). The second half

was simply told that they might or might not remember anything. This low demand condition was designed to examine the effects of subject's motivation to remember in isolation, without the added effects of experimenter demands.

In addition, studies which have examined the effect of repeated recall have instructed subjects to think about the events during the time between the two sessions. Subjects were given the expectation that they would be able to remember additional information during this intervening time. The problem with this approach is that it becomes difficult to distinguish the effect of the repeated recall procedure from the effect of the instructions to remember between sessions. As well, results may be influenced by inconsistent behaviour between subjects: Some may spend more time than others "trying to remember." In the current study, the effects of the recall procedure were assessed in isolation, without the added effect of these instructions. Subjects' ratings for each event were assessed immediately following each of two recall sessions. However, subjects were not asked to try to remember more information between both sessions. In fact, the

procedure for the second session was deliberately left ambiguous, in that subjects were simply told that it would be “similar” to this week’s.

Individual differences were assessed in the current study by testing subjects on a variety of measures, including hypnotizability, absorption, imagery, attitudes towards hypnosis, social desirability, and beliefs concerning their perceived abilities to remember from their childhood. In addition, their beliefs about the permanence of memories in general were assessed.

Furthermore, as in previous studies, subjects were asked to rate the vividness or clarity of their experiences. This was intended to determine whether image clarity and vividness are associated with beliefs in the reality of events. However, two additional factors were assessed for their relation to judgments concerning veracity (i.e. confidence): The ease or spontaneity with which the memory returned, and the degree of emotion experienced while remembering compared to the emotion they judged themselves to have experienced when the event itself occurred.

The design for this study consisted of 2 between-subjects factors and 1 within-subjects factor: memory recall technique (three levels); demand instructions (two levels); sessions in which events were rated (six levels).

Subjects were initially given a list of 40 to 62 events and asked to circle the option that best described each event. The three options were: "I'm sure this happened," "I don't think that this happened but I could be wrong," and "I'm sure that this did not happen." The list was originally taken from Garry et al. (1996) but virtually all events were modified or altered for the current study in order to maximize the likelihood that parents would have been aware of them if they had occurred. Subjects later returned and were asked to select three events that they wished to remember from the original list of events. The first was an event they had indicated had happened, whereas the second and third events were chosen from among those rated I don't think this happened, but I could be wrong. However, only those events which parents previously rated as "I'm sure that this did not happen" were provided as options. Subjects then attempted to remember each of the events, using either hypnosis, guided imagery, or focused thinking. The three events were then re rated according to whether or not subjects believed they had happened. A third session was held one week later, and consisted of a second recall of the three events, using the same recall technique. Subjects once again rated the three events. The three events were rated twice more:

one week following the third session, and then approximately six months later, during a follow-up phone interview.

Therefore, it was hypothesized that subjects would adopt a belief that the previously unrecalled events happened after undergoing one session of either hypnosis, guided imagery, and focused thinking.

Given the previous literature which has found both hypnosis and guided imagery to be equally effective in retrieving or creating childhood memories, it was hypothesized that hypnosis and guided imagery would be equally effective in producing new believed-in false memories. However, given the large empirical support for the creation of childhood memories outside of a hypnotic context, it was also hypothesized that relaxation would be effective to a degree, but not as effective as hypnosis and guided imagery in retrieving or creating memories.

It was hypothesized that subjects' motivation to remember events would result in previously unrecalled memories. Therefore the low demand condition would report memories for events, and subsequently alter their opinions concerning the occurrence of the events. However, subjects in the high demand would be more likely to do so, given the added social demands.

Given the previous findings which have shown an increase in productivity over repeated recalls, it was hypothesized that subjects would recall “new” information during the second recall session.

Finally, given that recent studies have found a link between imagery and confidence in the reality of memories, it was predicted that confidence levels would be significantly correlated with vividness of images, as well as with hypnotizability levels.

Method

Subjects

Following ethical approval for this study, 130 subjects were recruited from elective psychology classes at Concordia University. Subjects were telephoned and given the following information about the study: The study concerned the possibility of remembering events from childhood. It involved a total of four sessions, the first being a group hypnosis session, the second and third involving the possibility of remembering information from childhood, and the last being an individual hypnosis session. The purpose of the first and last sessions were to measure subjects' hypnotizability levels. Subjects were then given information concerning hypnosis and what would take place during these two sessions. They were also asked if the experimenter could contact one of their parents by phone in order to complete a questionnaire. Subjects were told that the phone call would take place following the first session, and the experimenter would simply ask the parent if their son/daughter (i.e. the subject) had ever experienced a series of specific events prior to age 10. The questionnaire was the same one that subjects had completed during session 1. Subjects were also told that they

would be asked not to discuss the events on the list with their parents until the completion of the study.

Subjects who reported currently seeking psychotherapy, or who were currently prescribed psychopharmacological drugs to control mood or anxiety, were not retained for the study (see Appendix A for the telephone script). From this larger pool of subjects, 90 were tested for the current study. They ranged in age from 17 to 43, with a mean age of 22.72 years ($SD = 4.58$). The sample contained 66 females (73.3%) and 24 (26.7%) males, 28 of whom were completing bachelor's degrees in psychology (31.1%), and 62 of whom were completing bachelor's in other disciplines (68.9%).

Subjects who agreed to participate were scheduled for the group hypnosis session, and following completion of that session, were randomly assigned to one of six groups based on their hypnotizability score. Each of the six groups contained four low, seven medium, and four high hypnotizable subjects, as measured by the Harvard Group Scale of Hypnotic Susceptibility: Form A. Subjects were not paid for their participation, but were entered in a \$100 lottery, which was drawn at the end of the study.

A total of three subjects dropped out of the study, after having completed sessions 1 and 2. Two subjects claimed to have found full time jobs and therefore did not have the time to return for sessions 3 and 4. One subject claimed to have found session 2 unpleasant because she remembered an emotionally upsetting event. These three subjects were replaced with three subjects matched on hypnotizability scores.

Materials

Subjects were given 8 questionnaires to complete at the beginning of session 1 (i.e. group hypnosis session). They consisted of, in order of completion: a childhood memories checklist, a memory beliefs questionnaire, the Attitudes Towards Hypnosis Questionnaire (Spanos, Brett, Menary & Cross, 1987), the Differential Personality Questionnaire: Scale Ab (DPQ) (Tellegen & Atkinson, 1974), the Paranormal Experiences Questionnaire (PEQ) (Nadon & Kihlstrom, 1987), the Autobiographical Memory Questionnaire (ABMQ) (Conway & Bekerian, 1988), the Snyder Self-Monitoring Scale (SSM) (Snyder, 1986), and the Individual Differences Questionnaire (IDQ) (Paivio & Harshman, 1983).

Childhood Memories Checklist

The childhood memories checklist consists of 62 events that subjects may or may not have experienced prior to age 10. Each event is assigned one of three possible ratings: “I’m sure or pretty sure that this happened,” “I don’t think this happened, but I could be wrong,” or “I’m sure this did not happen.” Once all events were rated, subjects were asked to go through the list once more, and indicate on a scale from 1 (not at all) to 5 (very) how interested they would be to remember more about each event, if that were possible (see Appendix B). The first ten subjects in the study were tested using a childhood memories checklist which contained 40 items. However, 22 additional items were added to increase subjects’ choices.

Memory Beliefs Questionnaire

The memory beliefs questionnaire consists of 12 questions, ten of which assess subjects’ beliefs concerning hypnosis as well as autobiographical memories from childhood. The questions reflect popular beliefs, some of which are accurate and some inaccurate. Two of the questions assess subjects’ excitement and expectations concerning the possibility of remembering information from their own childhood. These two questions do

not form part of the total score. Subjects were asked to respond to each statement using a 5-point Likert scale, ranging from -2 (strongly disagree) to +2 (strongly agree). The points assigned to each rating ranged from 0 (for a rating of -2) to 4 (for a rating of +2). Total scores therefore ranged from 0 to 40. Higher ratings correspond to stronger beliefs in statements for which there is no empirical support (see Appendix C).

The Attitudes Towards Hypnosis Scale

The Attitude Towards Hypnosis Scale (Spanos et al., 1987) measures subjects' overall views, beliefs and desires concerning hypnosis and their abilities to become hypnotized. The questionnaire contains 14 statements which are scored using a scale ranging from 1 (not at all true) to 7 (very true). Questions assess three general attitudes: subjects' beliefs about hypnosis, their fears concerning hypnosis, and their beliefs concerning the mental stability of hypnotizable people. Spanos et al. (1987) report Cronbach's alpha = 0.81 as a reliability index for the measure (see Appendix D).

The Differential Personality Questionnaire (DPQ): Scale Ab

The DPQ, (Tellegen et al., 1974) is a measure of spontaneous

involvement in imaginal and aesthetic stimuli, or ones' degree of "absorption" in daily experiences. It also examines one's tendency to become involved in, and allow one's perceptions to be altered when experiencing daily events. Examples of items include "I can be greatly moved by eloquent or poetic language," and "the crackle and flames of a wood fire stimulate my imagination." The DPQ contains 34 true-false statements, and total scores range from 0 to 34. The DPQ has been found to have an internal consistency coefficient of reliability = 0.89 (Isaacs, 1982) (see Appendix E).

The Paranormal Experiences Questionnaire (PEQ)

The PEQ (Nadon & Kihlstrom, 1987) measures subjects' beliefs in, and experiences with paranormal phenomena, such as reincarnation and telepathy, both as children and as adults. It contains 23 yes-no questions, and items are scored separately for adulthood and childhood, yielding a range of scores from 0 to 23. Nadon and Kihlstrom (1987) have reported a reliability index of Cronbach's alpha = 0.82 for the measure (see Appendix F).

The Autobiographical Memory Questionnaire (ABMQ)

The ABMQ (Conway & Bekerian, 1988) is a measure of subjects'

attitudes and beliefs concerning their ability to remember previous events. It contains 21 statements to which they must respond on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Total scores range from 21 to 105. As of yet, no norms have been developed for the ABMQ (see Appendix G).

The Snyder Self-Monitoring Scale (SSM)

The SSM (Snyder, 1986) is a measure of subjects' concern with situational appropriateness of self-presentation. It consists of 25 true-false statements, and total scores range from 0 to 25. The behavior of subjects who score below 7 is said to be guided by their own attitudes and emotions, rather than by social information about its appropriateness. On the contrary, subjects scoring in the high range (over 16) are described as being highly concerned with the appropriateness of their behavior and tend to regulate it based on the situational cues they receive. Cut-offs for low and high ranges are based on a normative mean of 12.5 and a standard deviation of 4 (Snyder, 1974; 1986). The SSM has been found to have an internal Kuder-Richardson 20 reliability coefficient of 0.66, and a test-retest reliability of 0.86 (Snyder, 1974; 1986) (see Appendix H).

The Individual Differences Questionnaire (IDQ)

The IDQ (Paivio & Harshman, 1983) contains 21 statements concerning subjects' imagery and visualization abilities. Subjects respond on a 5-point Likert scale ranging from -2 (extremely uncharacteristic) to +2 (extremely characteristic). Thirteen items involve the use of mental imagery while thinking, 2 items involve solving problems using imagery, and 6 items concern tendencies to daydream. Each rating is assigned a point ranging from 0 to 4. Total scores therefore range from 0 to 84 (see Appendix I).

Harvard Group Scale of Hypnotic Susceptibility, form A (HGSHS:A)

Group hypnosis sessions, intended to measure subjects' levels of hypnotizability, were conducted using the HGSHS:A (Shor & E.Orne, 1962). The scale is intended to introduce subjects to the experience of hypnosis, and therefore serves as an initial estimate of hypnotic responsiveness. The 12 items on the scale are administered via audiocassette to groups of 2 to 10 subjects and the duration is approximately 1 hour. Scores are obtained via self-report in a questionnaire format, following hypnosis. Subjects simply indicate whether they responded behaviourally to each item. Each "pass" is counted as 1 point towards to total score.

However, the last item, which measures amnesia, is scored by the experimenter. For the current study, scores ranging from 0 to 3 indicate low responsiveness in hypnosis, those ranging from 4 to 7 indicate medium responsiveness, and scores of 8 or more indicate high responsiveness (see Appendix J for a list of scale items).

Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C)

During the final session of the study, subjects were administered the SHSS:C (Weitzenhoffer & Hilgard, 1962). The SHSS:C is a 12-item scale that measures responsiveness in hypnosis and is sometimes employed as a second measure of hypnotic responsiveness. Like the HGSHS:A, the SHSS:C takes approximately 1 hour to complete. However, the SHSS:C differs from the group scale in several ways. The SHSS:C is administered on an individual basis by an experimenter who is familiar with the script. In addition, several of the items differ from the HGSHS:A in being more difficult, and are therefore designed to be more cognitively challenging to subjects. As well, the experimenter scores subjects' responses as the session proceeds. All items that are responded to by the subject are summed, for a total possible score of 12. For the purposes of this study, the classification

into low, medium and high responsiveness in hypnosis is identical to that of the HGSHS:A.

The SHSS:C is thought to be a more valid measure of hypnotizability for a number of reasons. Because the HGSHS:A serves mainly as an introduction to hypnosis, subjects' performance may be influenced by anxiety and fear of being controlled. Their results may also be affected by discomfort at being among a group of individuals, as opposed to being alone with an experimenter. Finally, due to the increased difficulty of some items on the SHSS:C, it is thought to have a higher ceiling than the HGSHS:A (see Appendix K).

Script for Recall Procedure

Three separate inductions (one for each recall technique) and six different scripts were employed for age-regression (one for each group). Each induction began with a period of relaxation, which was modeled after the SHSS:C induction. For the hypnosis script, the induction was almost identical to the SHSS:C induction, with a few exceptions. In the guided imagery script, the words "hypnosis" were replaced with "guided imagery," and in the focused thinking script, the words "relaxation" was employed

instead of “hypnosis.” In addition, the three high demand versions included high demand instructions, which are clearly outlined in the procedure. Two additional elements were included in the regression instructions to further create an expectation in subjects that they would be able to remember. The first element was the inclusion of a section immediately prior to the first regression, which instructed subjects to practice remembering from their childhood, by choosing an “anchor,” such as a birthday, or the house in which they grew up. Secondly, the words “you will (let this event come back/ be able to remember)” were employed throughout. The three low demand versions did not contain this instruction (see Appendix L).

Apparatus

One audiocassette player was needed to administer the HGSHS:A and to record subjects’ responses during sessions 2 and 3. As well, the experimenter used a microphone sensitive enough to pick up undertones and subjects’ verbal responses during sessions 2 and 3. A wrist watch was also required to monitor the time during administrations of the SHSS:C. Session 1 was conducted in a large room with 15 chairs around a large table, and a second small table with a single office chair and a lamp. Sessions 2, 3 and 4

were conducted in one of two testing rooms, identically decorated with a lazy boy chair, an office chair, a desk and a lamp.

Procedure

Session 1

Subjects began session 1 by completing a demographic information sheet on which they were asked to list the name and phone number of the parent they wished to be contacted (see Appendix M). Subjects then completed the 8 questionnaires listed earlier. When all questionnaires were completed, the experimenter reiterated the purpose of the session to subjects. The HGSHS:A was described and general issues concerning hypnosis were briefly discussed (see Appendix N for the protocol script). Subjects were given an opportunity to ask questions prior to the beginning of the audiotape. They were reminded that they would be contacted during the course of the next month in order to schedule session 2, and they were reminded that their parent would be contacted prior to session 2. Once the audiotape began, the overhead lights were dimmed and the experimenter sat quietly in a corner and monitored the session. Following termination of the hypnosis, subjects responded to questions in the Harvard Response Booklet. The experimenter

remained available to answer questions, and to thank subjects for their participation.

Following Session 1, Prior to Session 2

HGSHS:A responses were scored by a research assistant, blind to the research hypotheses, in order to prevent the primary experimenter from knowing subjects' scores. Throughout the entire experiment, the primary experimenter remained blind to subjects' hypnotizability levels. The research assistant also assigned subjects to one of six groups based on their hypnotizability levels.

The primary experimenter contacted subjects approximately 3 weeks following session 1, in order to schedule session 2 and to remind subjects that their parent would be telephoned in the next few days.

Parents were contacted by the primary experimenter. Each parent was told that their son/daughter was participating in a psychology study that involved autobiographical memories from childhood. They were told that the reason for calling them was to compare their child's ratings of childhood events with their own ratings for the same events. Parents, however, were reassured that the purpose was not to determine the accuracy of their

responses. They were told that their son/daughter's responses on the checklist had already been obtained, but were not currently available, so the responses were not going to be compared until later. Parents were also asked not to discuss their responses with their son/daughter for the following 3 weeks or so, until the end of the study. The childhood memories checklist was then administered to each parent. In some cases, the checklist to FAXED to the parent at his/her request. The total duration of telephone calls was approximately 30 minutes. Prior to session 2, the experimenter compared subjects' responses with their respective parents', and took note of the events for which subjects reported "I don't think this happened, but I could be wrong" but where their parents reported "I'm sure this did not happen" (see Appendix O for the telephone script).

Comparisons of parent and subject responses. On average, 52.75% ($SD = 10.51\%$) of parents' responses matched subjects'. That is, either both subject and parent reported that the event happened, that they did not think it happened but could be wrong, or that they were sure it did not happen. On average, 17.17% ($SD = .8.59$) of responses from subjects included "I don't think this happened, but I could be wrong," where parents responded

“I’m sure this did not happen.” In addition, 7.21% ($SD = 5.58$) of the time, parents reported an event as having happened when subjects reported “I don’t think this happened, but I could be wrong.” Furthermore, 5.21% ($SD = 4.98$) of the time, parents reported an event as having happened, when subject reported being sure that it did not happen. Finally, 11.89% ($SD = 6.51$) of responses by parents indicated that an event did not happen when subjects reported being sure that it did.

Session 2

Sessions 2, 3, and 4 were conducted in one of two small testing rooms. Once seated, subjects were thanked for their participation, and an initial period of approximately 5 minutes was devoted to building rapport. The experimenter then reviewed the content of the consent form, following which, subjects were asked to read and sign it (see Appendix P). They were given the opportunity to ask questions, or address concerns they may have. Both the content of consent forms and the instructions given to subjects varied according to their assigned group.

Subjects receiving high demand instructions. Subjects in the hypnosis, guided imagery and focused thinking groups who received instructions which

were intended to create a demand or expectation to recall information, were given the following instructions:

Today's session will involve remembering events from childhood. We are going to use a (hypnosis/ guided imagery/ focused thinking) procedure, and I'm going to ask you to remember some events from the list of childhood events that you rated when you came for the group hypnosis session. We're going to meet again for 2 sessions. The next one will be very similar to today's and the last one will involve a hypnosis session, similar to the group one, except that it will be done on an individual basis. I'd now like you to read through the consent form and sign it when you're finished.

Subjects were asked if they had discussed the events on the list with their parents. This was asked in as non-confrontational a manner as possible, to maintain rapport:

Even though I had asked you not to discuss the events with your parents, I know that some people might have without really meaning to. It would be really important for you to tell me whether you did or not, and if so, what your parent(s) told you.

Subjects were then given their completed childhood checklist and asked to review it and make any changes if necessary. They were then asked to select an event from the list that they had rated as “I’m sure that this happened,” that they would be interested in remembering once again. The experimenter ensured that subjects had always remembered this event (identified as Memory 1). Once the experimenter noted the selected event, she collected the checklist, and gave the following instruction:

On this list, your response to some of the events was “I don’t think this happened, but I could be wrong.” Now, studies have shown that when we don’t think that something happened, but we’re not sure, this often indicates that the event really happened, but that we forgot so much of it that we can’t bring it to mind. By using a technique called (hypnosis/ guide imagery/ focused thinking), we are able to remember events that we initially weren’t sure we experienced. I’m going to go through the list and remind you of the events that you rated as “I don’t think this happened, but I could be wrong,” and I’d like you to choose the two that you would be most interested in remembering today. Only those events previously selected by the experimenter were given

as options (i.e. where parents indicated being sure that they did not happen). Subjects then selected the two most interesting events from the list of options. The experimenter ensured that the selected events had a possible likelihood of having occurred. For instance, if subjects selected the event of “having received a kitten as a present” but reported that its occurrence was highly unlikely because they did not recall ever having had a cat, they were asked to select another event to remember. The two selected events were referred to as Event 1 and Event 2.

Subjects were reminded that they could adjust their position in the chair at any time, without disturbing their experience. They were also reassured that although they might be able to hear sounds from outside the testing room, their voice could not be heard by anyone other than the experimenter. They were lastly given an opportunity to ask questions.

Subjects were then administered either a hypnotic, guided imagery or focused thinking procedure, depending on their assigned group. Each began with a period of relaxation, followed by a regression to each of the three events. Subjects were first regressed to the event that they had initially selected, an event that they reported having always remembered (i.e.

Memory 1). The purpose of this first regression was to enable them to successfully remember at least 1 of the 3 events, and to serve as a warm-up procedure.

The initial demand instructions were repeated in the following manner before subjects were regressed to the Event 1:

Now, as I said earlier, when we're not sure whether we experienced an event, this usually means that the event really happened but that we forgot so much of it that we can't bring it to mind. However (hypnosis/ guided imagery/ focused thinking) can help us bring these forgotten parts back to mind.

Subjects were then regressed to the two selected events that were rated as "I don't think this happened, but I could be wrong" (i.e. Event 1 and Event 2).

All information reported by subjects was audiotaped, as well as transcribed verbatim during the session. Subjects who reported remembering an event were asked to describe it in as much detail as possible and to identify their age. They were then asked if they would like to add anything else. Subjects who did not report remembering an event were simply asked whether they would like to continue trying, or move on.

Once the hypnosis/ guided imagery/ focused thinking procedure was completed, subjects were given a rating sheet which listed the three events they had been asked to recall. Next to each event, they were asked to circle the letter that best described the opinion they now had of the event. Their choices were “I’m sure or pretty sure that this happened,” “I now think that this might have happened,” “I don’t think that this happened, but I could be wrong,” and “I’m sure this did not happen.” Furthermore, subjects were asked to rate their level confidence in their memory’s accuracy (if they reported one) on a 5-point Likert scale, ranging from 1 = not at all confident to 5 = very confident. Subjects who did not report a memory for the event were instead asked to indicate their confidence that the event had in fact occurred (see Appendix Q).

Once the three events were rated, subjects were asked a series of questions regarding each event and memory they reported (see Appendix R). For instance, they were asked whether they considered their memory to be “clear and true,” “vague and true” or “a fantasy.” They were asked to rate the vividness of the images, the ease with which they recalled the event, and the emotions they experienced (both during the session, and at the time the

event occurred).

Finally, subjects were thanked for their participation, and were scheduled for session 3, approximately one week later.

Subjects receiving low demand instructions. Subjects in the hypnosis, guided imagery and focused thinking groups who were given instructions intended to create as little demand to remember as possible, followed the same procedure as those in the high demand condition. However, the content of instructions differed at times. For instance, they were told:

Today's session will involve the possibility of remembering events from your childhood. We are going to use a (hypnosis/ guided imagery/ focused thinking) procedure. We're going to meet again for 2 sessions. The next one will be very similar to today's and the last one will involve a hypnosis session, similar to the group one, except that it will be done on an individual basis. I'd like you to read through the consent form and sign it when you're finished.

They were then told:

During this session, I'm going to ask you to see if you can remember some of the events from this list, where you don't think they happened, but you could be wrong. Now, you may or may not remember anything, and that's fine. I'm going to go through the list and remind you of the events that you rated as "I don't think this happened, but I could be wrong," and I'd like you to choose the two that you find most interesting.

In addition, prior to being asked to remember the first event, subjects in the low demand condition were reminded that they "may or may not remember anything. That is fine." Prior to the second regression, the following instructions were given: "Now I am going to ask you to try and (remember/ imagine/ concentrate on) a second event, one that you weren't sure you had experienced. If you cannot remember any of it, that's fine." Subjects were then regressed to the two selected events that were rated as "I don't think this happened, but I could be wrong." Prior to the last regression, they were once again reminded that they if they cannot remember anything, that is fine.

Session 3

Subjects returned for session 3 approximately 1 week following session 2. Once seated, they were thanked for their participation, and an initial period of approximately 5 minutes was devoted to unrelated conversation. Subjects were asked whether they had any thoughts since the last session. They were next asked if they had discussed the events with their parents. The same procedure from session 2 was followed to determine this.

Subjects receiving high demand instructions. Subjects were given the following information:

Today, I will ask you to remember each of the same 3 events as last time. If you didn't remember anything last time, that's Ok. Sometimes it takes two tries before something comes back. If you did remember something last time, this will be an opportunity to see if you remember more.

Subjects were given an opportunity to ask questions. The same hypnotic/ guided imagery/ focused thinking script from session 2 was then followed.

Subjects were regressed to the same three events from session 2. The first event consisted of the same “warm-up” event (i.e. Memory 1). The second and third events from session 2 were counterbalanced.

The initial high demand instructions given during session 2, prior to hypnosis/ guided imagery/ focused thinking were not repeated at that time in session 3. Rather, they were given prior to the second regression. Subjects were told that:

Now, as I said to you last week, when we’re not sure whether we experienced an event, this usually means that the event really happened but that we forgot so much of it that we can’t bring it to mind. However (hypnosis/ guided imagery/ focused thinking) can help us bring these forgotten parts back to mind.

Once the hypnosis/ guided imagery/ focused thinking procedure was completed, all subjects were given a rating sheet containing the three events they had been asked to recall. This questionnaire was identical to the one given in session 2. Subjects were asked to rate their current opinion and confidence concerning each of the 3 events listed. Subjects were then asked a series of questions regarding each event and memory they reported.

Although most questions were identical to those from session 2, some differed. For instance, subjects were asked to rate the effectiveness of hypnosis/ guided imagery/ focused thinking on a scale from 1 = not at all effective, to 5 = excellent (see Appendix S for a list of the new questions).

Subjects were also asked to describe their expectations from the study, as well as what they thought the experimenter expected from them. In addition, they were asked what they thought the goals of the study were. Finally, subjects were thanked for their participation, and were scheduled for session 4, approximately one week later. They were reminded that: the fourth session would involve a hypnosis scale intended to measure hypnotizability level; the session would be administered on an individual basis, by an experimenter instead of a voice on a tape recorder; they would not be asked to remember the three events again; they should continue to refrain from discussing the events with their parents. They were then told that another experimenter might conduct the session, and asked whether this would be all right.

Subjects receiving low demand instructions. Subjects receiving low demand instructions followed the same procedure as those in the high demand condition. However, the instructions differed in the following manner: “Last week you were asked to remember various events that you weren’t sure you experienced. Today, I’ll ask you to once again see if you can remember something. You may or may not remember anything, and that’s Ok.”

Session 4

Approximately half of subjects were tested by an experimenter unknown to them. Subjects were greeted by the experimenter, and once seated in the lazy boy chair, were given a rating sheet containing the three events they had been asked to recall during sessions 2 and 3. Subjects were asked to circle the option which best described their opinion of the event, as well as rate their confidence in each event. Subjects were now familiar with the rating sheet, given that it was identical to those previously given. Once completed, the experimenter placed it to one side for later use.

Subjects were then asked whether they had any thoughts since session 3. The experimenter then inquired whether subjects had discussed the three

events with their parents: “I know (primary experimenter) asked you not to discuss these events with your parents, but I realize that it might have been unavoidable. If so, I’d just like to know what you discussed.” The experimenter then proceeded to ask subjects to describe their confidence in each of the three events. As well, subjects were asked whether they felt that their confidence had changed over the week.

The Stanford Hypnotic Susceptibility Scale, form C (SHSS:C) was then introduced and described (see Appendix T for the protocol procedure). Subjects were then administered the SHSS:C, followed by several standard post-hypnotic questions (see Appendix U).

The experimenter then glanced at the rating sheet previously placed to one side, and noted subjects’ ratings for the second and third events. If subjects had rated the second or third events (or both), as either “I’m now quite sure that this happened,” or “I now think that this might have happened,” indicating a change in their opinion since the start of session 2, they were told the following:

You initially reported that you weren’t sure whether you had experienced the second and/or third events, but now you seem to

think that (it/they) really happened. When (primary experimenter) initially spoke to your mother/father, she/he said that she/he didn't appear to remember either event as having happened. Now it's possible that she/he wasn't aware of (it/them), or that she/he forgot (it/them). So how does knowing this make you feel about your own memories? Let's go through each separately.

Subjects were reminded of their opinions and confidence ratings for each of the two events, and asked whether they still agreed with them, or wished to change any. Finally, subjects were asked whether they felt any pressure from the primary experimenter to remember events or whether they felt that she would be disappointed if they did not remember anything (see Appendix V for a list of questions).

Subjects were then given their parents' responses to the initial events on the childhood checklist, completed during session 1. They were reminded of confidentiality and were told that they would be contacted by telephone in a few months, and given the main goals and results. They were given an opportunity to ask questions, and were thanked for their participation. As

well, they were reminded that they could contact the experimenter at any time, should they have questions.

Follow-up Interview

Subjects were contacted by telephone between 14 and 41 weeks following session 4 ($M = 25.09$, $SD = 7.20$). Half of the subjects were telephoned by the primary experimenter, and half were contacted by a research assistant, unknown to subjects. The primary experimenter simply told subjects that she was calling them to describe the main goals and results of the study, as well to ask them some questions. The research assistant told subjects that she was calling on behalf of Dr. Laurence (supervisor of primary experimenter). She said that Dr. Laurence asked her to obtain some additional information, and give subjects the major goals and results found to date. All subjects were then asked a series of questions concerning each event they had either remembered or tried to remember during sessions 2 and 3. For instance, they were asked to rate each on a 4 point-scale, similar to the one used previously (I'm sure that this happened, I think that this happened but I'm not 100% sure, I don't think this happened but I could be wrong, I'm sure this did not happen). As well, they were asked to indicate

their degree of confidence in the accuracy of each memory, from 1 = not at all to 5 = very confident. Subject ratings from session 4 were not divulged prior to obtaining follow-up ratings.

Subjects were provided with the major hypotheses and results obtained. They were then told the following: "Now, if I told you that there is a chance that what you remembered might not be entirely as it really happened at the time, what would you think of that?" All responses were recorded verbatim. Subjects were at last given an opportunity to ask questions and were thanked (see Appendix W).

Scoring of Content and Productivity of Subjects' Reports

Subjects' reports were transcribed and coded for content, as well as for length. The length of each description was determined using a Word Perfect 8 word processing program, whereby the text was selected and the word-count command was issued.

Two independent raters proceeded to code the reports for content. Reliability values were based on 22.2% of the total sample. Both raters were blind to subjects' hypnotizability levels. They first indicated the likelihood that the parent would have known about the event reported. A 4-point

Likert scale was used, ranging from 1 = absolutely, 2 = probably, 3 = probably not, 4 = no way to determine (rater agreement = 93%). In session 2 reports, three criteria were identified and coded: “verbal hedges” (also known as qualifiers), “sensory attributes,” and “separate bits of information.”

Two additional pieces of information were identified in session 3 reports: “new bits of information” and “detail changes.” Verbal hedges included any statement reflecting uncertainty, such as “I think,” “I believe,” “maybe” etc. (rater agreement = 90.25 %). Sensory attributes included colours, shapes, smells, sounds and tactile, as well as kinesthetic sensations (rater agreement = 97.82 %). Repetitions within the same session were not coded. In addition, all bits of information not already identified as sensory attributes were identified and coded (rater agreement = 94.63 %). For instance, “The pony began to buck and threw me off” would contain three bits of information: the pony/ began to buck/ ... threw me off.

Repetitions within the same session were not coded. Verbal hedges, sensory attributes and bits of information were also identified in session 3 reports. Bits of information from session 3 were in fact all repetitions from session 2. Those that were not in session 2 were identified as new bits of

information (rater agreement = 93.60 %). New bits of information were identified in the same manner as bits of information with the exception that they were not mentioned by subjects in session 2.

Sensory attributes that were not mentioned in session 2 were coded as being both sensory attributes as well as new bits of information. Finally, all information from session 2 that was subsequently altered in session 3 was coded as “changes in information” (rater agreement = 75 %). For instance, if in session 2, a subject reported that the car was an Oldsmobile, but in session 3 reported that the car was a Toyota, “Toyota” would be coded as a change in information.

Results

The data collected in this study constituted mostly of ranks, or ordinal data. For instance, subject's judgements regarding the occurrence of events, their confidence ratings, and various measures regarding each of their reports were assessed using 4 and 5-point Likert scales. Ideally, such data are best analyzed through nonparametric statistics. Therefore, whenever possible, nonparametric statistics were employed. Parametric tests, on the contrary, assume that the data being analyzed are measured on an interval scale or higher (Siegel & Castellan, 1988). Parametric tests conducted on ordinal data are therefore not ideally suited, for they tend to create distortions in the data which lead to a greater risk of making a Type I error (i.e. falsely rejecting the null hypothesis). They also have several assumptions, which are more easily violated with ordinal data. In addition, when used with ordinal data, they are less powerful than nonparametric tests (Siegel & Castellan, 1988). However, one important advantage of parametric tests over nonparametric tests lies in their ability to analyze data through factorial analyses. This permits the comparison not only of main effects but more importantly, of interaction effects.

The analyses presented below on ordinal data were therefore conducted using both parametric and nonparametric statistics. Parametric tests were employed on ordinal data in order to test for main effects of demand instruction and recall technique, as well as for interactions between the two factors. In these cases, significant interactions were followed up with the appropriate parametric tests, whereas main effects were followed up with nonparametric tests. This method ensured that main effects and interactions could be examined, while bearing in mind that the data would undergo slight distortions, resulting in inflated Type I error rates. The advantage of following up main effects with nonparametric statistics resides in their suitability to the data, which results a reduction in Type I error rates.

The first series of analyses were conducted on subjects' judgements regarding the occurrence of the three events (identified as Memory 1, Event 1 and Event 2). Their ratings were first obtained during session 1. They were also obtained at the end of sessions 2 and 3, as well as twice during session 4, and lastly, during a follow-up phone interview. Session 4 ratings were obtained both at the beginning of the session (time 1), and after subjects

learned that their parents had reported feeling sure that Events 1 and 2 had not happened (time 2).

The initial three options provided in session 1 included: "I'm sure or pretty sure that this happened," "I don't think this happened, but I could be wrong," and "I'm sure this did not happen." Parents were also provided with these three options. However, one additional option was provided during subsequent sessions: "I now think that this happened." It was placed following "I'm sure or pretty sure that this happened." For purposes of clarity, the set of ratings are referred to as event-occurrence ratings.

Hypothesis 1: Change in Event-Occurrence Ratings Following Session 2

The first set of analyses determined whether subjects adopted a belief that an event took place after undergoing a single session of a recall technique (either hypnosis, guided imagery, or focused thinking).

This first question was addressed by examining the total number of subjects who altered their rating to indicate a belief that Events 1 and 2 happened, following a memory recall technique in session 2. Changes in ratings were identified as those which deviated from the initial rating of "I

don't think this happened, but I could be wrong" to either "I'm sure or pretty sure that this happened" or "I think that this happened."

Event-Occurrence Rating Changes for Event 1

Following the first session of either hypnosis, guided imagery or focused thinking, 47 subjects (52.2%) changed their rating to indicate a belief that the event had happened. Twenty-three subjects (25.6%) rated it as "I'm sure or pretty sure that this happened" whereas 24 subjects (26.7%) rated it as "I think that this happened." A Wilcoxon Signed Ranks Test for nonparametric statistics found the difference-ratings from session 1 (initial rating) to session 2 to be significant $z = 5.275$, $p < .001$. Thirty-two of the remaining 43 subjects (35.6%) retained their original rating and 11 (12.2%) now felt sure that the event did not happen.

Event-Occurrence Rating Changes for Event 2

Fifty-three subjects (58.8%) similarly changed their rating to either of the two first options from the initial rating, indicating a belief that the event in question had happened, $z = -6.023$, $p < .001$. Thirty-one subjects (34.4%) reported feeling sure that the event happened, whereas 22 (24.4%) now thought it had. Of the remaining 37 subjects, 28 (31.1%) retained their

original rating and 9 (10%) reported feeling sure that the event had not taken place.

Summary

The first hypothesis which predicted a change in judgement regarding the occurrence of Events 1 and 2 was supported. A significant number of subjects altered their original rating of “I don’t think this happened, but I could be wrong” to either “I think that this happened” or “I’m sure or pretty sure that this happened,” following the first session of either hypnosis, guided imagery or focused thinking.

Hypotheses 2 and 3: The Effects of Demand Instructions and Recall

Technique on Event-Occurrence Ratings

The second main question in the current study sought to determine whether the two demand instructions (i.e. low demand vs. high demand) had different effects on subjects’ ratings of Events 1 and 2. Specifically, would subjects who received high demand instructions produce more rating-changes in sessions 2 and 3? It was hypothesized that they would.

A third question addressed by the study involved determining whether hypnosis and guided imagery were more effective than focused thinking in

reconstructing or creating a memory, as shown by changes in subjects' ratings for each event, in each of the groups.

In order to answer these question, ratings were analyzed through two separate 2 x 3 factorial multivariate analyses of variance (MANOVA), with demand condition as one factor (2 levels: low demand and high demand), and recall technique as a second factor (3 levels: focused thinking, guided imagery and hypnosis). One analysis was conducted on the combined set of ratings obtained for Event 1 (i.e. during sessions 2 and 3), and the second analysis was conducted on the combined set of ratings obtained for Event 2.

Event 1

The first analysis revealed nonsignificant main effects of demand and recall technique as well as a nonsignificant interaction. The findings suggest that event-occurrence ratings were not influenced by demand condition, and were unaffected by recall technique. The techniques were therefore equally effective in producing changes in subjects' opinions regarding the occurrence of Event 1. Similarly, the level of demand in the instructions did not have an effect on subjects' attitudes concerning the occurring of Event 1. Individual

univariate nonparametric statistics were therefore not conducted (see Appendix X for mean and median values).

Event 2

A factorial 2 x 3 MANOVA revealed nonsignificant main effects of demand and recall technique as well as a nonsignificant interaction. The findings suggest that event-occurrence ratings for Event 2 were not influenced by demand condition, and were unaffected by recall technique. The techniques were therefore equally effective in producing changes in subjects' opinions regarding the occurrence of Event 2. Similarly, the level of demand in the instructions did not have an effect on subjects' opinions. Individual univariate nonparametric statistics were therefore not conducted

Summary

For both Events 1 and 2, the second hypothesis that demand condition would have an effect on subjects' event-occurrence ratings was not supported. The high demand condition was no more effective than the low demand condition in influencing subjects into adopting the opinion that Events 1 and 2 happened. Similarly, the third hypothesis that hypnosis and

guided imagery would be more effective than focused thinking in producing these changes, was not supported.

Productivity

Transcripts were coded for “bits of information” and “new bits of information.” Assumptions of normality and homogeneity of variance were verified in each variable. Data were initially standardized, and outliers were identified as values which exceeded 3.29 standard deviations from the mean (Tabachnick & Fidel, 1996). Five outliers were identified for “bits of information” and 3 for “new bits of information.” Each value was lowered to a value which corresponded to one unit larger than the largest (nonoutlier) value (Tabachnick & Fidel, 1996).

Once outliers were reduced, each distribution was verified for normality, by examining skewedness and kurtosis. Although slightly skewed, all distributions were skewed in the same direction, and skewedness and kurtosis values were nonsignificant.

Hypothesis 4: Did Productivity Increase Over Time?

On average, subjects produced approximately 16 new pieces of information when describing their memories during session 3 across all

groups ($\underline{M} = 16.28$, $\underline{SD} = 11.86$ for Memory 1; $\underline{M} = 16.39$, $\underline{SD} = 12.04$ for Event 1, $\underline{M} = 15.23$, $\underline{SD} = 10.90$ for Event 2). In order to evaluate the hypothesis that subjects would produce significant amounts of new information in session 3, a new variable was created for each of the memories. The number of bits of information reported in session 2 was added to the number of new bits of information in session 3, and this new total was compared to the number of bits of information in session 2. If very few new bits of information were reported in session 3, the total would not be significantly different from the baseline amount (i.e. bits of information in session 2). However, if subjects reported large amounts of new information in session 3, the total amount of information would be significantly different from the baseline amount (see Table 1).

A dependent t-test was conducted for each event, yielding three analyses. Each test compared total values from session 3 to baseline values from session 2. Significance was found for all analyses, $t(79) = -11.63$, $p < .001$ for Memory 1, $t(60) = -10.71$, $p < .001$ for Event 1, and $t(54) = -8.78$, $p < .001$ for Event 2.

Table 1

Descriptive Statistics for Productivity Increase Over Sessions

Event	<u>n</u>	Session 2 (BOI)	Session 3 (BOI + New BOI)
Memory 1	80		
<u>M</u>		24.81	39.58
<u>SD</u>		17.41	26.63
Event 1	61		
<u>M</u>		17.70	32.33
<u>SD</u>		11.13	19.13
Event 2	55		
<u>M</u>		17.92	30.31
<u>SD</u>		16.03	23.90

Note. BOI refers to bits of information from session 2. New BOI refers to new bits of information from session 3.

Summary. The results therefore suggest that subjects reported significantly more information in session 3, compared to session 2, represented by a significant increase in new information. The hypothesis was therefore supported.

Confidence Ratings and Hypnotizability

Although hypnotizability was measured using both the HGSHS:A and the SHSS:C, all statistical analyses were conducted using the SHSS:C. The purpose of the HGSHS:A was simply to introduce subjects to hypnosis, and to ensure that four low, seven medium and four highly hypnotizable subjects fell in each group. However, given the difference between the two scales, it was expected that scores would vary from one scale to the other ($r = .651$, $p < .01$). As such, slightly different numbers of low, medium and highly hypnotizable subjects, as measured by the SHSS:C, fell in each of the six groups (see Table 2). However, a Chi-Square test of independence, comparing the number of subjects in each hypnotizability range, revealed the differences to be nonsignificant.

Table 2

Numbers of Low, Medium and Highly Hypnotizable Subjects as Measured by the SHSS:C

Group	Hypnotizability range		
	Low (0 to 3)	Medium (4 to 7)	High (8 to 12)
Focused thinking			
high demand	3	4	8
low demand	4	7	4
Guided imagery			
high demand	2	9	4
low demand	3	7	5
Hypnosis			
high demand	2	6	7
low demand	4	8	3

Hypothesis 5: SHSS:C Correlations with Confidence Ratings

It was hypothesized that hypnotizability would be correlated with confidence in the reality of memories. This hypothesis was supported: SHSS:C scores were significantly correlated with subjects' reported confidence levels in the reality of their memories, for Events 1 and 2. As can be seen from Table 3, all Spearman correlations for Events 1 and 2 achieved significance. This suggests that subjects with high hypnotizability scores tended to report higher levels of confidence in the veracity of their previously unremembered memories. However, hypnotizability level appears to be unrelated to subjects' confidence levels for the previously remembered events (i.e. Memory 1).

Correlations Involving Confidence Ratings

Ratings regarding vividness or clarity of memories, emotional strength and spontaneity of recall were each correlated with confidence in the reality of memories. As such, subjects with no memories, and no attempts to imagine, were excluded from the analyses. However, ratings from subjects who had images which were not judged to be memories were included in these analyses.

Table 3

Spearman Intercorrelations Between SHSS:C Hypnotizability Scores and Subject Confidence Ratings for Memory 1 and Events 1 and 2 During Sessions 2 and 3

Memory 1		Event 1		Event 2	
Session 2	Session 3	Session 2	Session 3	Session 2	Session 3
SHSS:C x Confidence levels					
-.12	.07	.32**	.25**	.33**	.23**

Note. * $p < .05$. ** $p < .01$

Hypothesis 6: Confidence Correlations with Clarity or Vividness of Images

It was hypothesized that a significant correlation would be found between imagery and confidence in the reality of memories. This hypothesis was examined by conducting Spearman correlations between confidence ratings and vividness or clarity ratings for each memory/event. Significant correlations between clarity or vividness of images and confidence ratings in the reality of memories were found, for Memory 1 (both sessions), and for Event 1 (both sessions), but not for Event 2 (see Tables 4, 5, and 6).

The hypothesis that subjects' confidence in the reality of their memories would be influenced by the degree of clarity or vividness of their images was partially supported. This relationship was found for the memories that were never forgotten, as well as for the first of two newly reported memories.

Additional and Exploratory Analyses

Correlations Between Confidence and Affect, Spontaneity of Recall

As can be seen in Tables 4, 5 and 6, significant correlations were found between confidence ratings and spontaneity of recall, for Memory 1 (both sessions) as well as for Events 1 and 2 (during session 2). These

Table 4

Spearman Intercorrelations for Memory 1

Subscale	1	2	3	4	5	6
Memory 1, session 2 (n = 89)						
1. Confidence	----	.15	.12	.29**	.24*	-.12
2. Emotion now		----	.39**	.22*	.21*	.25**
3. Emotion then			----	.12	.20	.09
4. Vividness				----	.45**	.06
5. Spontaneity					----	.05
6. Stanford						----
Memory 1, session 3 (n = 88)						
1. Confidence	----	.10	.20*	.37**	.29**	.07
2. Emotion now		----	.31**	.22*	.15	.26**
3. Emotion then			----	.15	.07	-.05
4. Vividness				----	.51**	.19*
5. Spontaneity					----	.18*
6. Stanford						----

Note. * $p < .05$. ** $p < .01$

Table 5

Spearman Intercorrelations for Event 1

Subscale	1	2	3	4	5	6
Event 1, session 2 (n = 88)						
1. Confidence	----	.20*	.13	.23*	.39**	-.32**
2. Emotion now		----	.19	.23	.13	.22*
3. Emotion then			----	-.03	.06	-.11
4. Vividness				----	.34**	.16
5. Spontaneity					----	.15
6. Stanford						----
Event 1, session 3 (n = 85)						
1. Confidence	----	.32**	.23*	.22*	.17	.25**
2. Emotion now		----	.39**	.32**	.10	.32**
3. Emotion then			----	.28**	.19*	.02
4. Vividness				----	.41**	.15
5. Spontaneity					----	.10
6. Stanford						----

Note. * $p < .05$. ** $p < .01$

Table 6

Spearman Intercorrelations for Event 2

Subscale	1	2	3	4	5	6
Event 2, session 2 (n = 77)						
1. Confidence	----	.37**	.23*	.03	.30**	.33**
2. Emotion now		----	.28**	.24*	.25**	.31**
3. Emotion then			----	.32**	.20*	.13
4. Vividness				----	.28**	.02
5. Spontaneity					----	.10
6. Stanford						----
Event 2, session 3 (n = 70)						
1. Confidence	----	.34**	.13	-.09	.17	.23*
2. Emotion now		----	.35**	.12	.06	.24*
3. Emotion then			----	.12	.11	.25*
4. Vividness				----	.26*	.03
5. Spontaneity					----	-.01
6. Stanford						----

Note. * $p < .05$. ** $p < .01$

findings suggest that images which appeared to spontaneously appear were judged as being more real than images which were more difficult to retrieve. However, such correlations were not found for session 3, implying that subjects no longer relied on spontaneity in order to judge their session 3 reports as being real.

In addition, the degree of emotional strength experienced during regression was also significantly correlated with confidence in Events 1 and 2, but not for Memory 1. It therefore appears that subjects tend to believe in the reality of previously unremembered events by relying on the emotions felt during age-regression.

Additional Findings Regarding Event-Occurrence Ratings

Are changes in ratings made by the same subjects? A related question concerned whether the changes in event-occurrence ratings for both Events 1 and 2 in session 2 were made by the same subjects. The answer to this question is yes. Thirty out of the 47 subjects (63.8%) described above who expressed a belief that Event 1 happened also did so for Event 2. In fact, the vast majority (85.7%, or 60 out of 70) of subjects who reported a memory for Event 1 also reported one for Event 2.

Are changes maintained over time? Friedman Tests for nonparametric repeated measures were conducted in order to determine whether ratings offered during session 2 changed or remained consistent throughout subsequent sessions (i.e. session 2, session 3, and session 4). Separate Friedman analyses on Events 1 and 2 revealed nonsignificant changes, indicating that the ratings provided for each of the events remained stable from session 2 until session 4 (time 1).

However, Friedman analyses comparing ratings across sessions, including session 4 (time 2) were significant, $\chi^2 (3, N = 90) = 21.96, p < .01$ for Event 1, and $\chi^2 (3, N = 90) = 15.08, p < .01$ for Event 2. That is, ratings changed significantly after subjects were given their parents' responses for Events 1 and 2 (see Tables 7 and 8).

The significance was accounted for by subjects who changed their judgements from "I don't think this happened, but I might be wrong" in session 4(time 1), to "I'm sure that this did not happen" after learning that their parents had no memory for the events (time 2). Eleven out of 24 subjects followed this pattern for Event 1 and 13 out of 30 did so for Event 2.

Table 7

Frequency of Event-Occurrence Ratings for Event 1 During Sessions 2, 3
and 4

Ratings	Event 1			
	S2	S3	S4(time 1)	S4(time 2)
sure it happened	23	33	29	27
think it happened	24	19	22	17
don't think it ... ^a	32	24	24	20
sure it didn't happen	11	14	15	26

Note. S2, S3 and S4 refer to Sessions 2, 3 and 4 respectively.

^adon't think it... refers to "I don't think it happened, but I could be wrong."

Table 8

Frequency of Event-Occurrence Ratings for Event 2 During Sessions 2, 3
and 4

Ratings	Event 2			
	S2	S3	S4 (time 1)	S4(time 2)
sure it happened	31	38	37	35
think it happened	22	16	12	12
don't think it ... ^a	28	22	30	18
sure it didn't happen	9	14	11	25

Note. S2, S3, and S4 refer to Sessions 2, 3 and 4 respectively.

^adon't think it... refers to "I don't think it happened, but I could be wrong."

In fact, 44 out of 51 and 47 out of 49 continued to maintain that Event 1 and Event 2 happened, respectively, in spite of their parents' opinions (see Tables 9 and 10).

Did ratings vary from session 4 until follow-up phone interviews?

Between 14 and 41 weeks following session 4, event-occurrence ratings were once again obtained on all three events ($M = 25$ weeks, $SD = 7.20$). A total of 85 subjects were successfully contacted, therefore the analyses involving follow-up ratings were conducted on these 85 subjects. For all three events, ratings were found to have remained unchanged following session 4 (time 2). Wilcoxon Signed Ranks tests were conducted in order to compare ratings from session 4 (time 2) to the follow-up phone interview ratings. The three analyses (one for each event) yielded nonsignificant findings. The results suggest that ratings fluctuated from session 4 to the follow-up interviews. As many changed in one direction as in the other (see Table 11).

For Event 1, 44 subjects (51.8%) retained the exact same rating from session 4 (time 2) to the phone interview. 53.8% who had indicated feeling sure that the event happened during session 4 (time 2) maintained their rating over time, whereas 34.6% changed it to "I think the event happened."

Table 9

Frequency of Event-Occurrence Ratings for Event 1, From Session 4
(Time 1) to Session 4 (Time 2)

Session 4 (time 1)	Session 4 (time 2)				Total
	sure it happened	think it happened	don't think it... ^a	sure it didn't	
sure it happened	27	0	2	0	29
think it happened	0	17	5	0	22
don't think it... ^a	0	0	13	11	24
sure it didn't happen	0	0	0	15	15
Total	27	17	20	26	90

^adon't think it... refers to "I don't think it happened, but I could be wrong."

Table 10

Frequency of Event-Occurrence Ratings for Event 2, From Session 4
(Time 1) to Session 4 (Time 2)

Session 4 (time 1)	Session 4 (time 2)				Total
	sure it happened	think it happened	don't think it... ^a	sure it didn't	
sure it happened	35	1	0	1	37
think it happened	0	11	1	0	12
don't think it... ^a	0	0	17	13	30
sure it didn't happen	0	0	0	11	11
Total	35	12	18	25	90

^adon't think it... refers to "I don't think it happened, but I could be wrong."

Table 11

Event-Occurrence Rating Changes from Session 4 (Time 1 and 2) to Follow-Up Phone Interviews

Ratings	Event 1			Event 2		
	S4	S4(2)	Phone	S4	S4(2)	Phone
sure it happened	29	27	18	37	35	28
think it happened	22	17	30	12	12	18
don't think it ... ^a	24	20	25	30	18	26
sure it didn't happen	15	26	12	11	25	13

Note. S2, S3 and S3 refer to Sessions 1, 2 and 3 respectively.

S4(2) refers to Session 4, time 2. Phone refers to ratings obtained during the follow-up phone interview.

Of subjects who had indicated “I think the event happened” during session 4, 75% maintained their rating, whereas 12.5% now felt sure that the event had happened (see Table 12).

For Event 2, 57 subjects (67%) maintained the exact same ratings from session 4 (time 2) to the follow-up phone interview. 81.3% of subjects who felt sure that the event had happened during session 4 maintained their rating over time, whereas 18.7% changed it to “I think the event happened.” Of those subjects who had rated Event 2 as “I think the event happened” during session 4, 72.7% maintained their rating over time (see Table 13).

Did follow-up ratings vary depending on the familiarity of the caller?

Follow-up interview phone calls were conducted by both the primary experimenter, and a research assistant unknown to subjects. It was hypothesized that if subjects changed their ratings, they would do so to a larger extent if contacted by the research assistant. A goodness-of-fit Chi-Square Test was therefore conducted on the total number of changes for each interviewer. A total of 28 subjects contacted by the primary experimenter changed their ratings, compared to 36 subjects who were contacted by the assistant. These differences were not significant. Further

Table 12

Frequency of Event-Occurrence Ratings for Event 1 During Session 4 and
the Follow-Up Phone Interview

Session 4 (time 2)	Phone interview				Total
	sure it happened	think it happened	don't think it... ^a	sure it didn't	
sure it happened	14	9	2	1	26
think it happened	2	12	1	1	16
don't think it... ^a	2	7	9	1	19
sure it didn't happen	0	2	13	9	24
Total	18	30	25	12	85

^adon't think it... refers to "I don't think it happened, but I could be wrong."

Table 13

Frequency of Event-Occurrence Ratings for Event 2 During Session 4
(Time 2) and the Phone Interview

Session 4 (time 2)	Phone interview				Total
	sure it happened	think it happened	don't think it ^a	sure it didn't	
sure it happened	26	6	0	0	32
think it happened	1	8	2	0	11
don't think it ... ^a	0	4	12	2	18
sure it didn't happen	1	0	12	11	24
Total	28	18	26	13	85

^adon't think it... refers to "I don't think it happened, but I could be wrong."

analyses on each event separately were therefore not conducted. Overall then, the familiarity of the caller had no effect on subjects' ratings.

Additional Findings Regarding Confidence Ratings

Differences across demand and recall techniques. The effects of demand conditions and recall techniques on confidence levels reported for Events 1 and 2 were examined through four factorial 2 x 3 analyses of variance (ANOVA), with demand condition as one factor (2 levels: low and high demand) and recall technique as a second factor (3 levels: focused thinking, guided imagery and hypnosis). Each analysis was conducted only on cases where subjects reported a memory for Events 1 and 2. Subjects who produced no memory during sessions 2 and 3 were therefore excluded from the analyses.

The first ANOVA was conducted on confidence ratings for Event 1, session 2. No main effects of demand condition or recall technique were found, as were no interaction effects. Follow-up analyses were therefore not conducted. The findings suggest that subjects' confidence in the reality of their memories remained the same across demand instructions and recall techniques.

The second ANOVA was conducted on confidence ratings for Event 1, session 3. No main effects or significant interactions were found, suggesting that confidence ratings were not influenced by demand condition or recall technique.

The third and fourth ANOVAs were conducted on confidence ratings for Event 2, sessions 2 and 3 respectively. No significant main effects or interaction effects were found in either analysis. Results suggest that neither demand condition nor recall technique had an effect on confidence ratings for Event 2. Mean values for Events 1 and 2 during both sessions ranged between “somewhat confident” and “pretty confident,” whereas Median values consisted mostly of “pretty confident.”

Differences across demand and recall technique in subjects who did not have a memory. Confidence levels were also compared between demand conditions and recall techniques, on cases identified by subjects who did not report a memory. These subjects were asked how confident they were that the event had taken place, even though they reported no memory for it. Four factorial 2 (demand instruction) x 3 (recall technique) ANOVAs were conducted, one on confidence ratings obtained for each event and session.

None of the analyses produced significant main effects or interaction effects. In general, mean values for confidence levels ranged between not at all confident to a little confident.

Confidence-rating change across sessions. An important question concerned whether subjects' confidence in the veracity of memories changed as sessions progressed. This question was addressed by focusing only on cases where subjects produced a memory during both sessions 2 and 3. Nonparametric analyses for repeated measures were then conducted on these cases. For Event 1, a Friedman test was conducted, comparing ratings from session 2, 3, and 4 (time 1) (see Table 14). Results revealed no change in confidence ratings. However, significant changes were seen once confidence ratings from session 4 (time 2) were included in the analysis, $z = -3.515$, $p < .001$. A significant decline in confidence was also seen between session 4 (time 2) ratings and the phone interview, $z = -3.091$, $p < .01$, as indicated by a Wilcoxon Signed Ranks test.

A Friedman Test for nonparametric statistics was conducted on confidence ratings for Event 2. Comparisons between sessions 2, 3, and 4 (time 1) revealed no significant changes in confidence ratings. However, a

Table 14

Mean Confidence Ratings for Events 1 and 2, Across Sessions

	Session 2	Session 3	Session 4(1)	Session 4 (2)	Phone
Event 1					
<u>M</u>	3.5	3.5	3.3	3.3	3.1
<u>Mdn</u>	4	4	4	3.75	3
<u>SD</u>	1.2	1.4	1.5	1.5	1.4
Event 2					
<u>M</u>	3.5	3.6	3.6	3.4	3.3
<u>Mdn</u>	4	4	4	4	4
<u>SD</u>	1.2	1.4	1.4	1.6	1.6

Note. 5 = very confident, 4 = pretty confident, 3 = somewhat confident, 2 = a little confident, 1 = not at all confident.

Wilcoxon Signed Ranks test revealed a significant decline in confidence, between session 4 (time 1) and session 4 (time 2) ratings, $z = -2.751$, $p < .01$. No significant difference was found between session 4 (time 2) and follow-up phone interview confidence ratings.

Confidence ratings across Memory 1, Event 1 and Event 2.

Confidence ratings were compared across reports for Memory 1, Event 1 and Event 2 on cases where subjects had a memory. According to a Friedman analysis, significantly higher confidence ratings were reported for Memory 1 reports, compared to Event 1 and 2, $\chi^2 (2, N = 60) = 38.39$, $p < .001$. ($M = 4.64$, $SD = .76$, $Mdn = 5$ for Memory 1, indicating levels of very confident; $M = 3.51$, $SD = 1.33$, $Mdn = 4$ for both Events 1 and 2, indicating levels of pretty confident).

How Similar were Memories to Events Selected?

Memories produced for Events 1 and 2 were each coded in terms of their similarities to the target events, that is, to the two events selected from the childhood memories checklist that subjects had attempted to remember. Memories were either coded as being the “same,” as being “related,” or as being “unrelated” to the target events. For instance, if the target event was

“cutting a sibling’s hair” and the subject reported that she was cutting her sister’s hair, it would be coded as being the “same.” However, if the subject reported a memory in which her sister cut her hair, this was coded as being “related.” Similarly, if the subject reported a memory of going to the hairdressers for the first time, this was also coded as being “related.” If the subjects’ memory was unrelated to the topic of cutting hair, it was coded as being “unrelated.”

If subjects had no memory for either Events 1 or 2, their reports were either coded as “no memory” or as “no memory but trying to imagine.” The latter code was given to subjects who reported that they were imagining the event but that this imagining did not constitute a memory.

The first set of analyses were conducted on the frequency of “same,” “related,” “unrelated,” “no memory” and “no memory but trying to imagine” categories. Chi-Square goodness-of-fit statistics were conducted on the number of reports falling in each of these categories. Four such analyses were conducted, one for each of the two events in sessions 2 and 3 (see Table 15). All four analyses revealed that when all categories were compared, one appeared significantly more often than the other three. That is, out of all

Table 15

Number of Subjects Who Produced the Same versus Related Memories as
Events 1 and 2 During Recall Sessions 2 and 3 as well as Numbers of Subjects
Producing Unrelated and No Memories

memory outcome	Event 1		Event 2	
	Session 2	Session 3	Session 2	Session 3
same as event	47	48	52	49
related to event	22	23	24	21
unrelated to event	1	2	0	0
no memory	2	5	2	8
trying to imagine	18	12	12	12

possible responses, significantly more were the same as the target events: for Event 1 session 2, $\chi^2 (4, N = 90) = 77.89, p < .001$; for Event 1 session 3, $\chi^2 (4, N = 90) = 77.00, p < .001$; for Event 2 session 2, $\chi^2 (3, N = 90) = 62.34, p < .001$; and for Event 2, session 3, $\chi^2 (3, N = 90) = 45.56, p < .001$.

For Event 1, an average of 70 out of 90 subjects (77.7%) across sessions produced a memory that was either the same (52.7%) or related (25%) to the target event. For Event 2, an average of 73 (81.1%) subjects across sessions produced a memory that was either the same (56.1%) or related to the target event (25%).

Differences across demand and recall technique. The categories for similarities of events produced, were compared across demand conditions and recall techniques using four univariate factorial 2 (demand instruction) x 3 (recall techniques) ANOVAs. For Event 1 in sessions 2 and 3, results revealed nonsignificant main effects and interactions. The findings suggest that an equal proportion of subjects reported “same,” “related,” “unrelated,” “no memories” and “no memories but trying to imaging” in each demand condition and recall technique.

However, for Event 2 in session 2 a significant main effect of demand instruction was found, $F(1, 84) = 6.57, p = .01$, which accounted for over 7% of the variance, $\eta^2 = .073$. Although a violation of homogeneity of variance was found, with $F_{\max} = 13$, the results remained significant even with reduced levels ($\alpha = .025$). This finding was accounted for by the larger number of subjects in the high demand condition who produced “same” memories, compared to the low demand condition. Frequency values can be found in Table 16. No significant main effect of recall technique was found. Therefore, the number of “same,” “related,” “unrelated,” “no memory” and “trying to imagine” categories remained unaffected by recall technique during session 2. No significant interaction was found.

Results for Event 2, session 3 also revealed a significant main effect of demand instruction, $F(1, 84) = 7.249, p < .01$, which accounted for over 7% of the variance, $\eta^2 = .079$. Once more, the finding suggests that larger numbers of reports in the high demand condition tended to be the same as the target event, compared to the low demand condition. Frequency values can be found in Table 17. From these results, it appears that more subjects in the low demand condition tended to imagine events, without considering

Table 16

Descriptive Statistics and Frequencies for Ratings of Similarities of Memories
to Target Event 2, During Session 2, Across Groups

	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>M</u>	2.80	2.00	1.86	1.40	1.33	1.80
<u>SD</u>	1.78	1.46	1.35	1.05	0.48	1.37
<u>Mdn</u>	2	1	1	1	1	1
Frequencies						
Same	5	8	8	12	10	9
Related	4	4	5	2	5	4
No memory	1	1	0	0	0	0
Imagining	5	2	2	1	0	2

Note. FT, GI and H refer to focused thinking, guided imagery and hypnosis respectively. LD, HD refer to low and high demand conditions. Mdn refers to Median values. 1 = "same," 2 = "related," 3 = "unrelated," 4 = "no memory," and 5 = "no memory but trying to imagine." "Imagining" refers to subjects who had no memory but who tried to imagine.

Table 17

Descriptive Statistics and Frequencies for Ratings of Similarities of Memories to Target Event 2, During Session 3, Across Groups

	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>M</u>	3.13	2.33	1.80	1.40	1.46	2.06
<u>SD</u>	1.72	1.58	1.20	1.05	1.06	1.43
<u>Mdn</u>	4	2	1	1	1	1
Frequencies						
Same	4	6	8	12	11	8
Related	3	5	5	2	3	3
No memory	3	1	1	0	0	3
Imagining	5	3	1	1	1	1

Note. FT, GI and H refer to focused thinking, guided imagery and hypnosis respectively. LD, HD refer to low and high demand conditions. Mdn refers to Median values. 1 = "same," 2 = "related," 3 = "unrelated," 4 = "no memory," and 5 = "no memory but trying to imagine." "Imagining" refers to subjects who had no memory but who tried to imagine.

them as memories, compared to subjects in the high demand condition. Perhaps the increased pressure in the high demand condition tended to influence subjects into describing their reports as real memories, as opposed to mere images.

No significant main effect of recall technique was found. Therefore, the number of “same,” “related,” “unrelated,” “no memory” and “trying to imagine” categories remained unaffected by recall technique during session 2. However, a significant interaction effect was found for Event 2, session 3 reports, $F(2, 84) = 4.02, p < .025, \eta^2 = .087$. Simple effects revealed that the significance was accounted for by a difference between the low and high demand, in the hypnosis group. The mean value for the low hypnosis group consisted of “related” whereas the mean for the high demand group consisted of “same.” This indicates that more subjects in the high demand group recalled events that were the same as target events, compared to subjects in the low demand condition, $F(1, 84) = 3.95, p < .05$.

Interestingly, the low demand hypnosis group had a larger number of subjects falling in the lower end of the hypnotizability continuum compared to the other groups. For instance, eight subjects in this group passed four or

fewer items, compared to between three and five subjects in the other groups who scored four or less. It is therefore possible that lower hypnotizable subjects found it more challenging to recall memories that are consistent with the target events, or to label them as memories rather than as mere images.

The Frequency of “True” versus “Fantasy” Ratings

Subjects were asked to rate each of their memories as being either “clear and true,” “vague and true,” or as a “fantasy.” Chi-Square goodness-of-fit analyses were conducted to determine whether the frequency of these ratings differed from one another. All four analyses revealed that significantly more memories were rated as “clear and true” than as “fantasies,” $\chi^2(3, N = 90) = 28.49, p < .001$ for Event 1 session 2, $\chi^2(3, N = 90) = 49.47, p < .001$ for Event 1 session 3, $\chi^2(3, N = 90) = 32.4, p < .001$ for Event 2 session 2, $\chi^2(3, N = 90) = 30.0, p < .001$ for Event 2 session 3 (see Table 18).

For Event 1, an average of 67.5 subjects across sessions produced a memory that was judged as being true compared to an average of 4 who judged it as being a fantasy. For Event 2, an average of 68.5 subjects across

Table 18

Frequency of True versus Fantasy Ratings for Events 1 and 2 During
Sessions 2 and 3

	Event 1		Event 2	
	Session 2	Session 3	Session 2	Session 3
memory rating				
clear and true	36	50	40	42
vague and true	31	18	31	24
total 'true' ratings	67	68	71	66
fantasy	3	5	7	6
non memory	20	17	12	18

sessions produced a memory that was judged as being true compared to an average of 6.5 who judged it as being a fantasy.

More specifically, of those memories that were consistent with Event 1, (i.e. those identified as “same”), an average of 96% were judged as being true (100% for session 2, and 94% for session 3). Of memories rated as “same” for Event 2, an average of 90% were judged as being true (90% for both sessions 2 and 3).

Findings Regarding Affect, Clarity and Spontaneity of Recall

Differences across demand and recall techniques. Subjects’ ratings concerning strength of emotion (perceived during regression, and estimated at the time the event was experienced), clarity of images and spontaneity of recall were compared across demand conditions and recall techniques for each of the three events. Each of these variables were measured on a scale from 1 (not at all) to 5 (very).

Six factorial 2 (demand condition) x 3 (recall technique) MANOVAs were conducted on the set of four measures. One analysis was conducted for each memory/event, and session. The first analysis, which examined the combined effect of the four measures on demand condition and recall

technique for Memory 1, session 2, revealed no significant main effects or interaction. The findings suggest that strength of emotion, both during the regression and estimated at the time, as well as image clarity and spontaneity of recall were unaffected by the level of demand, the type of recall technique or by a combination of the two.

Each of the remaining 5 factorial MANOVAs revealed nonsignificant main effects and interactions. As such, follow-up univariate tests were not conducted. Overall, the findings suggest that ratings regarding strength of emotion, clarity of images, as well as spontaneity of recall remained equal across all groups. Descriptive statistics can be seen in Appendix Y.

Differences across events. The strength of emotion experienced both during regression, and in childhood, the clarity of images, as well as the spontaneity of memories were each compared across reports on Memory 1, Events 1 and 2. Friedman analyses were conducted on each description provided by subjects who had memories for Memory 1, and Events 1 and 2. The first, which compared the strength of emotion experienced during regression found that subjects reported significantly higher levels while remembering Memory 1, compared to Events 1 and 2, $\chi^2 (2, N = 60) =$

13.81, $p < .001$. The same pattern of significance was found for strength of image clarity, $\chi^2 (2, N = 60) = 6.47, p < .05$, as well as for spontaneity of recall, $\chi^2 (2, N = 60) = 7.23, p < .05$. Median and mean values can be found in Table 19. In all cases, stronger levels were reported for Memory 1 reports, compared to those for Event 1 and 2. No differences, however, were found between measures for Events 1 and 2 reports. Nonsignificant differences were found between strength of emotion, as experienced in childhood. Subjects estimated that all three memories (i.e. for Memory 1, Event 1 and 2) were “pretty strong” ($Mdn = 4$) in emotion at the time.

Correlations with SHSS:C scores. Spearman correlations were conducted between SHSS:C hypnotizability scores and the various measures obtained for each event recalled. These included the strength of subjects’ emotions during regression, the clarity and vividness of their memories, as well as the spontaneity of the memories. Correlations with SHSS:C scores were mostly nonsignificant, with the exception of degree of emotion experienced. Correlations for Events 1 and 2, during sessions 2 and 3, were significant, suggesting that higher hypnotizable subjects tended to experience stronger degrees of emotion during regression (see Table 20).

Table 19

Means, Medians and Standard Deviations for Memory Measures on Selected Cases

Measure	Memory 1	Event 1	Event 2
Emotion during regression			
<u>M</u>	3.24	2.61	2.35
<u>SD</u>	1.43	1.36	1.37
<u>Mdn</u>	4	3	2
Clarity of images			
<u>M</u>	4.27	3.93	3.91
<u>SD</u>	0.76	1.04	0.89
<u>Mdn</u>	4.5	4	4
Ease or spontaneity of recall			
<u>M</u>	4.25	3.69	3.83
<u>SD</u>	1.03	1.25	1.22
<u>Mdn</u>	4	3	3

Note. Scores ranged from 1 (not at all) to 5 (very) for each measure.

Table 20

Spearman Rho Correlations Between SHSS:C Hypnotizability Scores and
Strength of Emotion Experienced While Regressed for Events 1 and 2 During
Sessions 2 and 3

Event 1		Event 2	
Session 2	Session 3	Session 2	Session 3
.221*	.321**	.324**	.261**

Note. * $p < .05$. ** $p < .01$.

Judgment of Events as Pleasant versus Unpleasant

Subjects were asked for each of their reports, whether the affect they experienced was neutral, positive, negative, or a combination of positive and negative. This question was asked for both the emotion felt during regression, as well as for the emotion judged to be present at the time the event was experienced.

Frequencies can be found in Table 21. The majority of subjects reported experiencing pleasant emotions compared to unpleasant ones, while recalling Memory 1, whereas equal numbers of subjects reported experiencing positive and negative emotions while recalling Events 1 and 2. Overall differences were significant, according to Chi-Square goodness-of-fit tests; $\chi^2 (3, N = 89) = 28.98, p < .001$ for Memory 1; $\chi^2 (3, N = 70) = 10.23, p < .05$ for Event 1; $\chi^2 (3, N = 76) = 22.95, p < .001$ for Event 2.

In contrast, differences were found between the types of emotions judged to have been experienced in childhood for each of the three events. More subjects reported judging their affect at the time as being negative. For Events 1 and 2, 57% and 56% of subjects judged their affect at the time to have been negative, compared to 31% and 22.4% who judged it to have been

Table 21

Frequency of Subjects Reporting Types of Emotion Experienced During
Regression and in Childhood

	Negative	Positive	Both	Neutral	<u>n</u>
Memory 1					
during regression	29	38	4	18	89
in childhood	43	37	6	3	
Event 1					
during regression	22	22	6	20	70
in childhood	40	22	5	3	
Event 2					
during regression	20	24	2	30	76
in childhood	43	17	6	10	

Note. Both refers to positive and negative emotions within the same memory. Neutral refers to subjects who felt no emotion.

positive, respectively. Overall Chi-Square goodness-of-fit tests were significant, $\chi^2(3, N = 89) = 57.65, p < .0001$ for Memory 1; $\chi^2(3, N = 70) = 51.03, p < .0001$ for Event 1; $\chi^2(3, N = 76) = 43.68, p < .0001$ for Event 2.

Nonparametric tests for nominal data were conducted in order to determine whether the type of emotion experienced both during regression, and in childhood, for Events 1 and 2, differed according to demand condition and recall technique. Tables can be seen in Appendix Z. According to Phi, and Cramer's V statistics, none of the differences were significant. This suggests that neither demand condition nor recall technique had any influence on the type of emotion perceived both during regression and in childhood.

Analyses on the Presence Versus Absence of Memories

An additional set of analyses were conducted on one dichotomous set of merged codes representing the presence and absence of memories. "Presence of memory" was formed by merging memories identified as "same," "related" and "unrelated." This new code identified subjects who had a memory during sessions 2 and/or 3. A code entitled "absence of memory"

was created to identify subjects who had no memory. It therefore comprised both cases involving “no memory” and “no memory but trying to imagine.” The following results involve comparisons between subjects who reported memories versus those who did not.

All Chi-Square goodness-of-fit analyses revealed a significantly larger number of subjects who produced a memory compared to those who did not, $\chi^2 (1, N = 90) = 27.78, p < .001$ for Event 1, session 2, $\chi^2 (1, N = 90) = 34.84, p < .001$ for session 3, $\chi^2 (1, N = 90) = 42.71, p < .001$ for Event 2 session 2, $\chi^2 (4, N = 90) = 27.78, p < .001$ for session 3 (see Table 22).

Did the same subjects produce a memory in session 2 and session 3?

McNemar tests for repeated data were used to evaluate whether the subjects who produced a memory in session 2 also did so in session 3. For Event 1, the majority of subjects reported an event in both sessions, therefore the McNemar test showed nonsignificant changes. Out of the 70 subjects reporting a memory in session 2, 63 continued to do so in session 3. For Event 2, once more, the majority of subjects who produced a memory in session 2 did so in session 3 as well. Out of the 76 subjects who reported a

Table 22

Number of Subjects Who Produced a Memory versus No Memory, for
Event 1 and 2 During Sessions 2 and 3

memory outcome	Event 1		Event 2	
	Session 2	Session 3	Session 2	Session 3
total producing a memory	70	73	76	70
total having no memory	20	17	14	20

memory in session 2, 65 continued to do so in session 3; hence, the McNemar test revealed nonsignificance.

Differences across demand conditions and recall techniques. Chi-Square analyses for independence were conducted on the frequency of subjects reporting memories versus not, across all six groups. Differences across groups for Event 1, session 2 were nonsignificant. Similarly, differences across groups for session 3 did not reach significance. The results suggest that as many subjects reported memories across the groups during both sessions.

For Event 2, Chi-Square analyses for sessions 2 and 3 yielded significant differences between the number of subjects reporting memories across the six groups, $\chi^2 (5, N = 90) = 10.83, p < .05$ for session 2, $\chi^2 (5, N = 90) = 13.63, p < .01$ for session 3. However, the assumption regarding minimum expected cell frequencies was violated, given that 50% met this criteria.

In order to increase expected cell frequencies, Chi-Square tests of independence were conducted on merged groups. For each session of Event 2, one analysis compared frequencies of subjects reporting memories versus

not reporting memories across demand conditions, and a second analysis compared frequencies across recall techniques. The advantage of conducting these analyses on merged groups was the resulting increase in expected frequencies, which met the assumption required to adequately interpret the Chi-Square results.

The first set of Chi-Square analyses for sessions 2 and 3 compared the frequencies between recall techniques. They both revealed nonsignificant differences in the number of subjects who produced a memory across groups (see Appendix AA).

The analyses for session 2 and 3 which compared the frequencies between low and high demand conditions revealed significant differences in the number of subjects reporting memories. It revealed significantly fewer numbers of subjects who reported memories in the low demand condition, $5.414, p < .05$ for session 2, and $\chi^2 (1, N = 90) = 4.114, p < .05$ for session 3. For instance, 34 subjects in session 2 and 31 in session 3 reported memories in the low demand condition, compared to 42 and 39 in the high demand, respectively.

The numbers of subjects who reported memories in the low demand condition appeared to be concentrated in the hypnosis group. For instance, in the low demand conditions (session 2), 9 subjects reported a memory for Event 2 in the hypnosis group, 13 in guided imagery, and 12 in focused thinking. In contrast, in the high demand conditions, 14 in the hypnosis group, 13 in the guided imagery, and 15 in the focused thinking group reported memories. The numbers were almost identical for session 3, with 7 subjects in the hypnosis low demand group producing memories. The results were significant, for session 2, $\chi^2(5, N = 90) = 13.63, p < .01$.

The results are most likely due to the larger number of subjects in the low demand hypnotizability group who scored in the lower end of the SHSS:C continuum. This, in conjunction with the low demands to remember, might have accounted for the lower number of memories produced in the low demand hypnosis group.

Can Memory Modification/Creation be Predicted?

Predictors of Event-Occurrence Ratings

One interesting question concerns whether changes in attitude regarding the occurrence of events that were previously unrecalled, can be predicted by factors, such as hypnotizability, imagery and absorption.

Four sets of direct logistic regressions were conducted. Two sets sought to determine whether subjects' event-occurrence ratings for Events 1 and 2 ("happened" versus "didn't happen") could be predicted from questionnaire scores, or from their description ratings (i.e. clarity, ease of recall and emotion). In addition, two sets sought to determine whether questionnaire scores could reliably predict whether subjects would produce a memory, for Events 1 and 2 (Tabachnick & Fidell, 1996).

In the first set, direct logistic regressions were conducted through SPSS to assess prediction of subjects' event-occurrence ratings (for Events 1 and 2) on the basis of questionnaire predictors (SHSS:C, IDQ, DPQ, SSM, ABMQ, Attitudes towards hypnosis, PEQ, memory beliefs questionnaire). Event-occurrence ratings were dichotomized into "happened" (included ratings "I'm sure or pretty sure that this happened" and "I think this

happened”) versus “didn’t happen” (included ratings “I don’t think this happened but I could be wrong” and “I’m sure this didn’t happen”). The questionnaires included the memory beliefs questionnaire, the Attitudes Towards Hypnosis Questionnaire (Spanos, Brett, Menary & Cross, 1987), the DPQ (Tellegen & Atkinson, 1974), the PEQ (Nadon & Kihlstrom, 1987), the ABMQ (Conway & Bekerian, 1988), the SSM (Snyder, 1986), the IDQ (Paivio & Harshman, 1983), as well as the SHSS:C. None of the predictors reliably predicted event-occurrence ratings.

Direct logistic regressions were also conducted through SPSS to assess prediction of subjects’ event-occurrence ratings (for Events 1 and 2) on the basis of image-clarity, spontaneity (or ease) of recall and strength of emotions both perceived during regression and estimated in childhood. None of the predictors reliably predicted event-occurrence ratings.

Predictors of Presence/Absence of Memory

The second set of direct logistic regressions, conducted through SPSS, assessed whether questionnaire predictors (SHSS:C, IDQ, DPQ, SSM, ABMQ, Attitudes towards hypnosis, PEQ, memory beliefs questionnaire) could reliably predict whether subjects would produce a memory for

Events 1 and 2. The predictor variable involved either the presence or absence of a memory for Events 1 and 2. Presence of a memory included memories coded as being the “same,” “related” and “unrelated” to Events 1 and 2, whereas absence of a memory included “no memory” and “no memory but trying to imagine.”

The first of these examined the presence of a memory as outcome for Event 1, session 2, and all eight questionnaire predictors together. The analysis was performed using SPSS Regression, Binary Logistic. A test of the full model with all predictors against a constant-only model was statistically nonsignificant, indicating that the predictors as a set did not reliably distinguish between subjects who produced a memory for Event 1, versus those who did not.

The set of predictors was therefore reduced until the best prediction was found with a smaller set. It included, as predictors, the IDQ, the DPQ, and the PEQ (adult). A test of the full model with all three predictors against a constant-only model was statistically reliable, $\chi^2 (3, N = 90) = 12.86, p < .01$. This indicated that the set of predictors reliably distinguished between subjects who had a memory and those who did not, for Event 1,

session 2. Prediction of success was 81.1%, with 97.1% of subjects with a memory correctly identified, and 25% of subjects with no memory correctly identified.

Table 23 shows regression coefficients and Wald statistics. According to the Wald statistic, only the IDQ reliably predicted the presence of a memory, $z = 9.19$, $p < .01$. A model run with IDQ omitted was not reliably different from a constant-only model, and reliably different from a full model, $\chi^2(2, N = 90) = 94.96$, $p < .01$, confirming the finding that IDQ scores is the only reliable predictor of presence of memory, for Event 1, session 2. The higher the score on the IDQ, the more likely it is that a subject will have a previously unrecalled memory during the first of two sessions.

The second regression examined the presence of a memory as outcome for Event 1, session 3, and all eight questionnaire predictors together. A test of the full model with all predictors against a constant-only model was statistically significant, indicating that the predictors as a set reliably distinguish between subjects who produced a memory for Event 1, session 3, versus those who did not, compared to a model including only the constant,

Table 23

Logistic Regression Analysis of Presence/Absence of a Memory for Event 1
During Sessions 2 and 3, as a Function of Questionnaire Scores

Variables	B	Wald test (z-ratio)	R
Session 2			
IDQ	-.11	9.18*	.27
DPQ	.08	1.31	.00
PEQ (adult)	-.002	0.08	.00
(Constant)	3.15	1.70	
Session 3			
IDQ	-.08	5.67*	.21
DPQ	.15	3.48	-.13
PEQ (adult)	-.23	4.82*	.18
(Constant)	2.32	1.67	

Note. * $p < .05$

$\chi^2 (7, N = 90) = 14.67, p < .05$. However, none of the predictors in isolation were significantly associated with the presence of a memory.

The set of predictors was therefore reduced until the best prediction was found with a smaller set. It included, as predictors, the IDQ, the DPQ, and the PEQ (adult). A test of the full model with all three predictors against a constant-only model was statistically reliable, $\chi^2(3, N = 90) = 13.76, p < .01$. This indicated that the set of predictors reliably distinguished between subjects who had a memory and those who did not, for Event 1, session 3. Prediction of success was 84.44%, with 100% of subjects with a memory correctly identified, and 17.65% of subjects with no memory correctly identified.

Table 23 shows regression coefficients and Wald statistics. According to the Wald statistic, both the IDQ and PEQ (adult) reliably predicted the presence of a memory, $z = 5.67, p < .05$, and $z = 4.82, p < .05$. A model run with IDQ and PEQ (adult) omitted was not reliably different from a constant-only model, and reliably different from a full model, $\chi^2(2, N = 90) = 86.86, p < .01$, confirming the finding that IDQ scores and PEQ (adult) scores are the only reliable predictors of presence of memory, for Event 1,

session 3. The higher the score on the IDQ and PEQ (adult), the more likely a subject is to have a new memory during the second of two sessions.

The third and fourth regressions examined the presence of a memory as outcome for Event 2, session 2 and 3, and all eight questionnaire predictors together. For Event 2, session 2, a test of the full model with all predictors against a constant-only model was statistically nonsignificant, indicating that the predictors as a set did not reliably distinguish between subjects who produced a memory for Event 2, versus those who did not.

The set of predictors was reduced until the best prediction was found with a smaller set. It included, as predictors, the SHSS:C and the memory beliefs questionnaire, which assessed false beliefs in memory-related information. A test of the full model with the two predictors against a constant-only model was statistically reliable, $\chi^2 (2, N = 90) = 6.605, p < .05$. This indicated that the set of predictors reliably distinguished between subjects who had a memory and those who did not, for Event 2, session 2. Prediction of success was 85.56%, with 100% of subjects with a memory correctly identified, and 7.4% of subjects with no memory correctly identified. Table 24 shows regression coefficients and Wald statistics.

Table 24

Logistic Regression Analysis of Presence/Absence of a Memory for Event 2
During Session 2 as a Function of Questionnaire Scores

Variables	B	Wald test (z-ratio)	R
SHSS:C	-.27	5.02*	.20
MQ	.11	2.67	.09
(Constant)	-2.35	3.10	

Note. * $p < .05$

MQ refers to Memory beliefs questionnaire.

According to the Wald statistic, only the SHSS:C reliably predicted the presence of a memory, $z = 5.02$, $p < .05$. A model run with SHSS:C omitted was not reliably different from a constant-only model, and reliably different from a full model, $\chi^2(1, N = 90) = 76.70$, $p < .05$, confirming the finding that the SHSS:C is the only reliable predictor of presence of memory, for Event 2, session 2. The higher the score on the SHSS:C the more likely a subject is to have a previously unrecalled additional memory during the first of two sessions.

The fourth regression which examined the presence of a memory as outcome for Event 2, session 3, found no reliable predictors, using both all eight questionnaire predictors together, as well as using a smaller set.

Additional Correlations Involving Hypnotizability and Confidence

SHSS:C Correlations with Measures of Occurrence, Similarity and True/Fantasy

Table 25 lists Spearman correlations between SHSS:C scores and (a) event ratings (b) the similarity of subjects' memories to the target events and, (c) subjects' judgements concerning whether their memories are "clear and true," "vague and true," or "fantasies." As can be seen, most of these

Table 25

Spearman Rho Intercorrelations Between SHSS:C Hypnotizability Scores and Subject Ratings for Memory 1 and Events 1 and 2 During Sessions 2 and 3

Memory 1		Event 1		Event 2	
Session 2	Session 3	Session 2	Session 3	Session 2	Session 3
SHSS:C x Event ratings					
-.13	-.03	-.28**	-.19*	-.19*	-.16
SHSS:C x Similarity to target event					
-.08	-.15	-.25**	-.25**	-.17	-.17
SHSS:C x Judgements as clear, vague or fantasy					
-.02	-.12	-.15	-.24*	-.11	-.30**

Note. * $p < .05$. ** $p < .01$

Event ratings refers to “sure it happened,” “think it...,” “don’t think...” etc.

Similarity to target event refers to “same,” “related,” “unrelated,” etc.

judgements were significantly correlated with hypnotizability for Events 1 and 2, but not for Memory 1. It therefore appears that higher hypnotizable subjects (a) tend to believe that their memories happened, versus not believe them, for Event 1 during both sessions, and for Event 2, session 2 and, (b) tend to report memories that are the same as target Event 1 (during both sessions), but not for Event 2. For Event 2, hypnotizability level was not associated with the similarity of memories to the target event. Finally, higher hypnotizable subjects are more likely to rate their memories as “clear and true,” as opposed to “vague and true” or “fantasies” for Events 1 and 2, but only during session 3.

SHSS:C Correlations with the Number of New Events

A Spearman correlation was conducted between the SHSS:C scores and the total number of new memories reported by subjects. “New” memories were identified as such by subjects, and were defined as memories that were said to be unremembered before a given session. The total possible number of new memories per subject was 4 (i.e. one for each session of Event 1 and 2). A significant positive correlation was found, suggesting that higher

hypnotizable subjects tend to recall increasing numbers of new events ($r_s = .269, p < .01$).

SHSS:C Correlations with Effectiveness Ratings

A Spearman correlation was conducted between SHSS:C scores and subjects' rating on the effectiveness of the technique employed in recalling events. Ratings ranged from 1 = not at all effective to 5 = excellent. Results suggest that higher hypnotizable subjects tended to rate the technique employed as more effective than did lower hypnotizable subjects ($r_s = .372, p < .001$).

Confidence Correlations with Occurrence, Similarity and True/Fantasy Ratings

Confidence scores were also correlated with event-occurrence ratings, similarity of reports to the target events, and true versus fantasies ratings. Spearman values can be found in Table 26. For Memory 1, as well as Events 1, and 2 (during both sessions), significant correlations were found between confidence ratings and event-occurrence ratings. This suggested that subjects' opinion that an event occurred following age-regression was significantly associated with high confidence ratings in the reality of the

Table 26

Spearman Rho Intercorrelations Between Confidence Scores and Subject Ratings for Memory 1 and Events 1 and 2 During Sessions 2 and 3

Memory 1		Event 1		Event 2	
Session 2	Session 3	Session 2	Session 3	Session 2	Session 3
Confidence levels x Event ratings					
.51**	.44**	.81**	.81**	.79**	.88**
Confidence levels x Similarity to target event					
.32**	.52**	.70**	.65**	.60**	.66**
Confidence levels x Judgements as clear, vague or fantasy					
.66**	.60**	.48**	.51**	.38**	.54**

Note. * $p < .05$. ** $p < .01$

Confidence is measured from 1 (not very) to 5 (very).

Event ratings refers to “sure it happened,” “think it...,” “don’t think...” etc.

Similarity to target event refers to “same,” “related,” “unrelated,” etc.

memories. Similarly, for memory 1, as well as Events 1, and 2 (during both sessions), subjects who reported a memory that was the same as the target event (as opposed to being related) had an increased likelihood of reporting higher confidence levels in the reality of their memories. Finally, ratings of “clear and true” were associated with greater confidence ratings, compared to ratings of “vague and true,” and “fantasies.”

Analyses on the Content of Reports

In addition to being coded for “bits of information” and “new bits of information” as described earlier, transcripts were coded for (a) overall word count, (b) qualifiers (I think, I guess...), (c) sensory details (colours, sounds...), (d) changes in information, and (e) parents’ likely knowledge about the event.

The same procedure employed for verifying assumptions of normality and homogeneity of variance, for “bits of information” and “new bits of information” (i.e. hypothesis 4), was followed for the content of reports. As well, the same procedure for identifying outliers and lowering them was followed. Overall, the following outliers were found: (a) 11 outliers were

found for word count; (b) 2 for qualifiers; (c) 7 for sensory details; (d) 2 for changes in information.

Distributions were slightly skewed in the same direction. Once outlier values were reduced, skewedness and kurtosis values were nonsignificant. The homogeneity of variance assumption was verified as analyses were conducted, and violations are described along with each corresponding univariate or multivariate analysis which resulted in significance. When violations were found, significance levels were reduced to .025 to decrease the risk of Type I errors (Keppel, Saufley, Tokunaga, 1992).

Description and Rationale for Analyses on Content of Reports

Data for each variable described above, with the exception of “new bits of information,” and “change in information” were analyzed in a similar fashion. One 3 x 2 Repeated Measures Analysis of Variance (ANOVA), with Event as one factor (three levels: Memory 1, Event 1, Event 2) and Session as the second factor (two levels: Session 2 and Session 3) was conducted for each variable, along with follow-up comparisons for significant results. Each analysis determined whether, for instance, the number of words, or qualifiers, etc. contained in subjects’ reports, differed depending on

whether subjects were recalling a previously remembered event, or a new event, during sessions 2 and 3. The additional advantage of the analysis was its examination of interaction effects between Event and Session.

Two of the variables measured from session 3 reports—"new bits of information" and "changes in information"—were each analyzed through a one-way repeated-measures ANOVA. The analysis determined whether values differed between Memory 1, Event 1 and Event 2.

A factorial 2 x 3 multivariate analysis of variance (MANOVA) with demand condition as one factor (2 levels: high and low demand) and recall technique as a second factor (3 levels: focused thinking, guided imagery and hypnosis) was conducted on data from each of the six variables. Since each variable had six measures (i.e. one for every event and session), separate comparisons between the three recall technique groups and the two demand conditions would have generated 30 univariate factorial ANOVAs. This would have resulted in an excessively high Type I error rate. In contrast, the MANOVA s permit several dependent measures to be compared, without the risk of family-wise alpha inflation. Overall significance is then followed-up with univariate tests.

Because analyses were conducted on repeated data, that is, on selected cases where subjects produced the same memory in sessions 2 and 3, sample sizes for the multivariate tests were unequal. Sample sizes for low and high demand conditions, respectively, were $n = 14$ and $n = 24$. Sample sizes for recall techniques were $n = 15$ for focused thinking, $n = 13$ for guided imagery, and $n = 10$ for hypnosis.

Results for the factorial ANOVA, and MANOVA are described separately for each variable.

Word Count

A repeated measures 3 (Event) x 2 (Session) ANOVA revealed nonsignificant main effects of Event and Session, and a nonsignificant interaction. Results therefore suggest that the number of words used to describe memories was the same, whether the memories were always remembered, or were previously unremembered. In addition, the overall number of words did not differ from session 2 to session 3.

A 2 x 3 factorial MANOVA, comparing the six dependent variables of word count (i.e. one for every event and session) revealed nonsignificant main effects and interaction. This indicated that the number of words used

to describe memories did not differ across demand conditions, or recall techniques. Follow-up univariate ANOVAs were therefore not conducted.

Descriptive statistics can be found in Appendix BB.

Qualifiers

A 3 (Event) x 2 (Session) repeated measures ANOVA on the number of qualifiers or indicators of uncertainty, revealed no significant main effects or interaction effect. The results suggest, whether subjects are reporting memories for previously remembered events, or previously unrecalled events, the number of indicators of uncertainty, such as “I think,” or “I guess,” remained constant. Similarly, the total number of qualifiers did not vary across sessions.

A 2 x 3 factorial MANOVA, comparing the six dependent variables of qualifiers across the three recall techniques produced nonsignificant main effects of demand condition and recall technique. This indicated that the number of indicators of uncertainty used when describing memories did not differ across demand conditions or recall techniques. Follow-up univariate ANOVAs were therefore not conducted. Descriptive statistics can be found in Appendix CC.

Sensory Details

A 3 (Event) x 2 (Session) repeated measures ANOVA on the number of sensory details contained in memory reports revealed a significant main effect of Event, $F(1, 37) = 16.87, p < .0001$, which accounted for over 30% of the variance, $\eta^2 = .31$. Homogeneity of variance was violated, with $F_{\max} = 4.19$. However, even with the reduction in alpha to .025, results remain significant. Nonsignificant main effect of Session or interaction effect were found. Main comparisons revealed the significant main effect to be caused by differences between both Memory 1 and Event 1, and Memory 1 and Event 2. Previously remembered events (i.e. Memory 1) were therefore described using more sensory details, such as colours and sounds, compared to previously unremembered events (see Table 27).

A 2 x 3 factorial MANOVA, comparing the six dependent variables of sensory details across the three recall techniques revealed nonsignificant main effects and interaction. This indicated that the number of sensory details contained in memory reports did not differ across demand condition or recall techniques. Follow-up univariate ANOVAs were therefore not conducted. Descriptive statistics can be found in Appendix DD.

Table 27

Descriptive Statistics and Summary Table for Sensory Details

	Memory 1		Event 1		Event 2	
	S2	S3	S2	S3	S2	S3
<u>M</u>	2.07	2.07	0.78	1.07	0.58	0.95
<u>SD</u>	2.34	2.65	1.29	1.51	1.03	1.39

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>Eta²</u>
Within Subjects				
Event (A)	1	65.78	16.82**	.31
Error (A x S)	37	3.91		
Session (B)	1	2.74	1.26	
Error (B x S)	37	2.17		
A x B	1	1.29	0.57	
Error (A x B x S)	37	2.27		

Note. ** $p < .01$

Bits of Information

A 3 (Event) x 2 (Session) repeated measures ANOVA on the number of separate pieces of information reported for each event and session revealed significant main effects of Event, $F(1, 37) = 6.32, p < .025$ and Session, $F(1, 37) = 51.39, p < .0001$ (see Table 28). The main effect of Event accounted for 14% of the variance, $\eta^2 = 14.6$, whereas the main effect of Session accounted for almost 60% of the variance, $\eta^2 = 58.1$. In both cases, homogeneity of variance was violated, with $F_{\max} = 3.60$, but even with reduced significance levels ($\alpha = .025$), results remained significant.

The significant main effect of Event was followed-up with main comparisons which revealed that subjects produced significantly more bits of information for Memory 1, compared to Event 2. Although subjects produced fewer bits of information for Event 1 compared to Memory 1, the differences were not significant. Similarly, no differences were seen between Events 1 and 2.

The significant main effect of Session suggests that subjects produced more bits of information in session 2, compared to session 3. This is not at all surprising given that the bits of information from session 3 included only

Table 28

Descriptive Statistics and Summary Table for Bits of Information

	Memory 1		Event 1		Event 2	
	S2	S3	S2	S3	S2	S3
<u>M</u>	25.84	9.23	20.44	8.10	20.28	7.02
<u>SD</u>	20.25	8.37	10.87	4.41	17.99	5.30

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>Eta²</u>
Within Subjects				
Event (A)	1	572.53	6.32*	.15
Error (A x S)	37	90.64		
Session (B)	1	11284.28	51.39**	.58
Error (B x S)	37	219.55		
A x B	1	106.11	3.04	
Error (A x B x S)	37	34.87		

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

those that were repeated or previously mentioned in session 2. The results therefore suggest that the specific details or bits of information contained in session 2 reports were not entirely repeated during session 3.

A 2 x 3 factorial MANOVA, comparing the six dependent variables of bits of information across the three recall techniques revealed nonsignificant main effects and interaction. This indicated that the amount of information contained in subjects' reports did not differ across demand condition or recall techniques. Follow-up univariate ANOVAs were therefore not conducted. Descriptive statistics can be found in Appendix EE.

New Bits of Information

A one-way repeated measures ANOVA on the number of new pieces of information used to describe Memory 1, Event 1 and Event 2, during session 3, produced nonsignificant differences. This suggests that subjects provided the equal amounts of new information in session 3 when describing both previously remembered events and new events.

A 2 x 3 factorial MANOVA, comparing the three dependent variables of new pieces of information across the three recall techniques revealed nonsignificant main effects and interaction. This indicated that the

quantity of new information used when describing memories did not differ across demand conditions, or recall techniques. Follow-up univariate ANOVAs were therefore not conducted. Descriptive statistics can be found in Appendix FF.

Change in Information

A one-way repeated measures ANOVA on the number of changes in information contained in Memory 1, Event 1 and Event 2 descriptions during session 3, produced nonsignificant differences. This suggests that subjects provided the equal numbers of changes in session 3 when describing both previously remembered events and new events.

A 2 x 3 factorial MANOVA, comparing the three dependent variables of change in information across the three recall techniques was similarly nonsignificant. This indicated that the number of changes made when describing memories did not differ across recall techniques or demand condition. Follow-up univariate ANOVAs were therefore not conducted. Descriptive statistics can be found in Appendix GG.

Parents' Likely Knowledge of Events

Based on the content of subjects' memories, their parents' probable

knowledge of each event was determined and one of three ratings was assigned: (a) absolutely; (b) probably; and (c) no way of determining. “Absolutely” was assigned if one of the parents was directly mentioned as being present in the report. The rating “probably” was given if parents were not mentioned, but would probably have known about the event. This included, for instance, events such as being hospitalized for one or more nights, or being in a minor car accident where parents were not directly mentioned. A third category “no way of determining” was assigned if parents were not directly mentioned, and would not have known about the events, or if it was impossible to determine. This included, for instance, finding an injured animal (and not bringing it home), or playing doctor with other kids (and not being caught by parents).

Based on these ratings, the percentage of cases falling in “absolutely,” “probably,” and “no way of determining” categories, respectively were 87.5%, 7.50%, and 5.00% for Memory 1. This difference was significant, according to a Chi-Square goodness-of-fit, $\chi^2 (2, N = 80) = 105.77, p < .0001$. For Event 1, the percentage of cases falling in each category were 60.66%, 16.39% and 21.95% respectively. Differences were significant, $\chi^2 (2, N =$

61) = 21.88, $p < .0001$. The percentage of cases in each category for Event 2 were also significantly different from one another: 61.81%, 20%, and 18.18% respectively, $\chi^2 (2, N = 55) = 20.11, p < .0001$.

Results therefore suggest that parents would have known about the occurrence of the three events. This finding, together with subjects' initial rating indicating that they did not think the event had ever happened, and their parents' claim that the events did not happen, increases the possibility that memories reported for Events 1 and 2 were created.

Discussion

The results of the current study indicated that over fifty percent of subjects who initially rated an event as not having happened, changed their opinion to reflect the belief that it had, in fact, taken place during childhood. Subjects adopted this new opinion towards both of the events they had previously doubted. Their change in opinion occurred after they had undergone a single session involving a relaxation procedure which was described to them as a “technique,” in order to give it credibility as a memory retrieval procedure. The memories produced were self-involving, complex and emotional. As well, subjects were “pretty confident” in the reality of the memories—this represented a rating of 4 on a scale from 1 to 5. The events were ones that parents had claimed, in initial pretesting interviews, had never happened. They were also events that parents were either included in or would have known about, given the nature of the event.

When subjects were told of their parents’ repudiation of the events, most simply dismissed the information, and continued to rate the events as having happened. The few who changed their opinion already had doubts about the veracity of their memories. When told of their parents’ opinion,

they now felt sure that the event had not happened. A parent's repudiation of the events therefore appeared to matter only to subjects who were already unsure as to whether the event happened. In contrast, subjects who adopted an opinion that the event happened (either "thinking" it had, or feeling "sure" that it had) ignored their parent's opinion. This raises an interesting issue concerning the importance placed by subjects on their parents' memories of their childhood.

In Hyman's studies, subjects were initially told that their parents had reported the given event as having happened. The assumptions made by these researchers were that parents' opinions would carry some weight and increase the pressure on subjects to remember. Perhaps it did, if subjects were themselves unsure as to whether the event took place. In the current study, parents' opinions were initially kept from subjects. Had the parents' opinions been revealed at the start, perhaps fewer subjects would have altered their opinions to reflect a belief that the events took place. The results of the current study certainly support this possibility. The acceptance of parents' memories as truthful therefore seems to centre around the subject's own beliefs concerning the occurrence of a given event. Once such

a belief is formed, even if it is not strong, the weight of parents' opinions and memories greatly diminishes.

The procedure employed in the current study more closely resembles the scenario in recovered memory therapy, where parents' memories are not immediately known. As well, once memories of sexual abuse from childhood emerge and the client forms a belief that the event took place, parents' denials are often ignored. The results of the current study appears to support this observation.

When subjects were contacted, on average, 6 months following the end of the study, the vast majority maintained their opinion that the events happened, even when questioned by an assistant who was unknown to them. Similarly, confidence levels remained relatively stable over time. Although confidence in the reality of Event 1 decreased slightly from "pretty confident" to "somewhat confident" those for Event 2 did not change. It therefore appears that these newly "recalled" events became incorporated into subjects' repertoire of autobiographical memories.

A major question in the current study involved the role of subjects' motivation to recall events from childhood. In recovered memory therapy, or

other therapies aimed at retrieving childhood events, clients are encouraged to recall aspects of their childhood that they claim to have no memory for. It is unclear whether the end product—the recovery of new, previously unrecalled events—is attributable to the contextual demands to remember, to the client’s own motivations to remember, or to a combination of both.

In this study, subjects’ motivation to “possibly remember from childhood” was assumed, given their interest in participating. However, their motivation to remember previously unrecalled events was no doubt enhanced as a result of their being asked to select two such events from a long list of possibilities. As well, contextual demands were manipulated, in that one half of subjects received pressure to produce a memory. The second half were simply told that they might or might not remember anything. According to the current results, no differences were found between the high demand and low demand conditions. It therefore appeared that a priori motivations to “remember” a previously unrecalled event were sufficient to produce both a new memory and the claim that the event took place. Added pressure, in the form of demands to remember, were not necessary for subjects to produce new believed-in memories.

These results are directly applicable to the therapeutic context, given that clients are probably highly motivated to “remember” from their childhood, if they believe that it will help alleviate their current distress and symptoms. In the absence of pressure from a therapist to remember, the results of this study imply that clients’ own motivations to remember would be sufficient for them to alter their opinion regarding the occurrence of childhood events. In fact, the results of the current study may underestimate this effect, given the added motivation in the therapeutic context to relieve distress and resolve problems. The added desire to please the therapist may further increase the likelihood of producing new, believed-in memories.

The findings from the current study are also interesting in light of previous results. For instance, in previous studies, subjects were not provided with a choice of events to imagine or recall (Garry et al., 1996; Hyman & Billings, 1998; Hyman, Husband, & Billings, 1995; Hyman & Pentland, 1996; Pezdek, Finger, & Hodge, 1997). Instead, the false event was already selected by an experimenter. Subjects’ motivations to recall the selected events may therefore not have been as high as they were in the current study. Had these researchers provided their subjects with a choice of false events,

subjects' motivations to remember would likely have increased, and possibly have resulted in increased rates of memory creation. This possibility has yet to be determined.

A second main question in the current study concerned the effectiveness of different techniques to recall previously unremembered events from childhood. Hypnosis has been used extensively in therapy to recover memories of sexual abuse. However, research has shown it to be unreliable in that memories retrieved may be false, and yet remain undifferentiated from real memories. Other techniques, such as guided imagery are also employed in the hope that they will be as effective as hypnosis in helping clients remember events, without the added risk of memory creation. However, research has also shown guided imagery to be as unreliable as hypnosis in retrieving real memories. The current study sought to determine whether differences would be found between three similar methods of retrieval in their ability, not to create memories per se, but to alter subjects' opinions regarding the occurrence of previously unrecalled events. Hypnosis and guided imagery were compared to a third relaxation technique, which, as the name focused thinking implies, involved

concentrating on past events. No mention of either hypnosis or imagery was made during the focused thinking sessions. It was hypothesized that hypnosis and guided imagery would be more effective than focused thinking in altering subjects' opinions regarding the occurrence of events. However, the hypothesis was not supported: no differences were found between the three techniques. Relaxation was therefore as effective as hypnosis in both producing new memories for events that were initially judged not to have happened, and creating beliefs that the events took place during childhood. This finding is interesting because it suggests that therapeutic techniques which involve relaxation, either by itself, or within a recall technique, are just as likely as hypnosis to alter subjects' perceptions and confidence regarding the occurrence of events from childhood.

There are several common factors between the three recall techniques which may help account for the lack of differences found between them. The first was their perceived role, namely to aid subjects in recalling memories. In fact, each method was given a name, and described as a "procedure" or "technique" in order to give it credibility. Therefore, even though subjects had never heard of focused thinking, or guided imagery, they would likely

have understood both to be veritable and effective techniques to recall memories. This may have created an expectation in subjects that they would remember. After all, if subjects are motivated to remember, and are told that they will undergo a “guided imagery” or “focused thinking” procedure, they may expect that it will work. If, indeed, the 3 techniques were perceived as equally credible, this could partially account for the lack of differences among subjects’ ability to “remember.”

Support for this possibility comes from previous research findings. For instance, neither Green (1999) nor Sivec, Lynn and Malinoski, (1998, as cited in Malinoski & Lynn, 1999) assigned names or labelled their conditions as procedures or techniques. Rather, subjects were told that they would be asked to concentrate or to visualize. These researchers found hypnosis to be more effective than either “concentration” or “visualization”. In contrast, other researchers such as Spanos et al. (1999), and Lambrinos (1998) labelled their conditions as “guided mnemonic restructuring” and “guided imagery” respectively. They found no differences between groups.

A second common factor among the techniques was the element of relaxation and its effect on subjects. Perhaps in a relaxed environment,

without direct reference to hypnosis or imagery, subjects will nevertheless employ various cognitive skills, such as imagination and absorption, to form pictures or images that become mistaken for memories. Perhaps it is these skills, somewhat correlated with hypnotic responsiveness, that enabled subjects to produce reports which were labelled as memories. In the current study, equal numbers of low, medium and highly hypnotizable subjects fell in each group. It is therefore possible that the equal effectiveness of the recall techniques may be partly due to subjects' similar cognitive abilities across groups, which are elicited in an environment that encourages relaxation.

Support for this possibility was found upon a closer examination of subjects' hypnotizability scores and the types of memories they produced. Despite the equal distribution of subjects falling in the low, medium and high hypnotizability ranges, subjects' actual hypnotizability scores differed in the low demand hypnosis group, compared to other groups. This group contained a larger number of subjects who obtained a hypnotizability score which fell in the lower end of the medium range. Interestingly, this group also contained fewer subjects who produced a memory which was consistent with the target event. Rather, more subjects in this group reported imagining

the target events without labelling them as memories.

A final common element among recall technique groups was the method in which each technique was delivered. In each case, the experimenter guided subjects throughout the relaxation phase, as well as throughout the regressions. Subjects may therefore attribute the images or sensations they experienced during regression, not to their own abilities, but rather to something being done to them which is out of their control. Other studies in which subjects were not guided, but instead were left to their own devices to “relax” or “concentrate” found differences with hypnosis (Green, 1999; Sivec, Lynn and Malinoski, (1998, as cited in Malinoski & Lynn, 1999)).

From the subjects' perspective, the elements described above would yield the following picture: They enter a situation whereby they are told that they are possibly going to remember an event from childhood, using a memory-recall technique called X. They are asked to select three events from a long list of choices. Given their desire or at the very least, their curiosity to remember new events from childhood, they place their control in the hands of the experimenter, who guides them throughout the “technique.”

In the relaxed atmosphere, there are no distractions. Therefore, many subjects are able to employ their imagery and absorption skills to picture events from their past, which they identify as veracious. Overall then, the results would imply that techniques, such as “focused thinking” and “guided imagery” are really versions of hypnosis in disguise, given the common elements in each, and that by extension, there really is nothing special about hypnosis per se.

As mentioned earlier, the goal of the current study was to examine the conditions under which subjects would change their opinion regarding the occurrence of childhood events. The goal was not to examine memory creation per se. Other studies have examined this issue, by choosing specific events which are highly improbable and probably false, with respect to either the age at which they would have been experienced, or parents’ opinions.

In the current study, no assurance concerning the validity of memories can be made. Therefore, one cannot say with any degree of certainty that the memories produced for events 1 and 2 are false. However, what *can* be said is that it is probable that the memories were either entirely created, or at the very least, reconstructed based on other experiences. The

reason for this likelihood lies in subjects' and their parents' initial claims that the events probably did not occur. Each event was discussed with parents. The final list of options provided to subjects were those which were rated with a degree of certainty by parents as not having occurred. Events for which parents were unsure were eliminated from the options.

Subjects also had two initial opportunities to repudiate the events. The first was during session 1, and the second was during session 2, when they were asked to review their original ratings and make changes if needed.

In addition, once subjects chose the events to be remembered, each was discussed with them. Those which stood even a remote possibility of having happened, based on the experimenter's judgment, were omitted. This further reduced the likelihood that the events had actually taken place, but that subjects had forgotten about them.

Finally, the majority of "memories" produced by subjects either directly involved the parents, or would almost certainly have involved the parents (e.g. their being brought to an emergency ward). Therefore, even though no absolute conclusions could be made regarding the creation of memories, it is highly probable that those produced for Events 1 and 2 were false. However,

it remains possible that parents either forgot about some events, or were simply not present at the time.

It was hypothesized that subjects would add information during their second regression session. This increase in productivity was found in the current study, both for Memory 1 and Events 1 and 2. This finding was consistent with that of previous studies (McConkey & Kinoshita, 1988; Nogrady, McConkey, & Perry, 1985). Subjects added approximately 15 new pieces of information to each “memory” during their second regression. The fact that subjects also produced equal amounts of new information across events, including Memory 1, raises the possibility that this information was also subject to error. In addition, it is important to note that subjects were not made aware of the procedure for session 2. Had they been told to think about and try to remember more information over the course of the week, it is likely that the results would have differed: Subjects would likely have produced more than an average of 15 new pieces of information and this increased productivity might not have been consistent across each event.

The increase in productivity was determined by examining the content of reports, as opposed to examining the total word count. In fact, the total

amount of information reported from one regression session to the next remained the same. However, within the second regression session, some of the information was repeated from the previous session, and some information was new. Therefore, as the following examples illustrates, subjects tended to embellish their memories when given a second opportunity to “recall” them.

Week 1:

I might have been 8 years old or something like that. I think it was Lakeshore hospital that we had gone to. The only reason why I think it's Lakeshore is because I have some kind of vague memory of seeing one of my other aunts in a hospital bed and I assume it was just after she had given birth to my younger cousin and I remember much later someone had told me that she had just given birth to my cousin at Lakeshore, so I think that's why we went there. I don't remember the building, I just remember the room seems a bit dark. I can picture my aunt with a ponytail for some reason, and I think she had a big belly and that's all I remember.

Week 2

I'm walking in the parking lot of the Lakeshore hospital with my mother and then I remember walking into the room and I saw one of my aunts who was sitting up in bed which seems to be... I remember now, it was against the wall, under, I think there was a window, but I'm not sure, but I know it was on the far wall. And I know she had a ponytail, and she looked really tired, and um... I believe that she was there because she had just given birth to her second daughter and that's it. Oh, and the room seemed pretty dark... I don't think there was any light... I think they turned out the light or something.

Based on previous findings, it was hypothesized that vividness or clarity ratings would correlate with confidence ratings in the reality of memories (Hyman & Billings, 1998; Hyman & Pentland, 1996; Johnson, Foley, Suengas & Raye, 1988; Loftus & Pickrell, 1995). Such a correlation was found for Memory 1 and Event 1, but not for Event 2. When judging the reality of their memories for the two first events, subjects therefore appeared to rely on the clarity of their images. However, an additional measure was found to correlate with confidence ratings regarding Events 1 and 2, but not for Memory 1. This correlate involved the strength of subjects' perceived

emotions experienced while recalling the given event. Therefore, for Event 2, more importance may have been placed on the emotional strength experienced as opposed to image clarity as an indicator of memory accuracy, whereas for Event 1, equal importance appears to have been placed on both perceptions. Interestingly, while subjects appeared to rely on their perceived emotion during regression in order to help them judge both of their reconstructed memories (i.e. Events 1 and 2) as veridical, this was not the case when it came to judging their real memory. Since they already judged the previously remembered memory as having happened, they did not need to rely on these cues.

A previously unexamined measure in this study appeared to correlate with confidence in veracity ratings for Memory 1, as well as for Events 1 and 2 (during session 2 only). This perception involved the ease, or spontaneity with which subjects' images were formed. Interestingly, subjects who exerted no effort, but who reported that their images "popped into their heads," tended to label these images as real memories. Not surprisingly, this measure did not correlate with confidence ratings for session 3, since it is assumed that once opinions concerning veracity were formed in session 2, they

remained so in session 3 regardless of spontaneity. Overall, these results suggest that other perceptions, in addition to clarity of images, are important when assessing whether images are based on real or true memories. Further research should therefore include measures such as spontaneity of images, as well as the strength of emotions experienced during regression.

The current results highlight the importance of distinguishing between the emotion experienced during regression, and that judged to have been present at the time the event was supposedly experienced. The emotional strength said to have been experienced at the time did correlate with confidence measures, but not in a consistent manner. Also, since both measures were significantly correlated for Memory 1 as well as Events 1 and 2, it suggests that subjects judged the emotion they experienced at the time based on their current affect.

Attempts were made to determine whether subjects' event-occurrence ratings for Events 1 and 2 could be predicted by a variety of measures, including subjects' hypnotizability levels, and imagery and absorption skills, among others. No measures were found to reliably distinguish between subjects who reported an event as having happened (i.e. this included

“feeling sure” and “thinking” it happened), versus subjects who reported an event as not having happened (i.e. this included “do not think” it happened and “sure” it did not happen), when the four ratings were grouped as a dichotomous measure. The lack of a relationship between hypnotizability measures and event-occurrence ratings is especially interesting because it suggests that subjects of all hypnotizability levels reported Events 1 and 2 as having happened.

A different pattern emerged, however, when the nondichotomized, original event-occurrence ratings were correlated with hypnotizability. The significant correlation was accounted for by a larger number of highly hypnotizable subjects who tended to report feeling “sure that the event happened” compared to lower hypnotizable subjects. Therefore, although subjects of all hypnotizability levels reported altering their opinions to reflect a belief that Events 1 and 2 happened, higher hypnotizable subjects tended to feel more certain that the events happened.

When attempts were made to predict whether subjects would produce a memory for Events 1 and 2, based on questionnaire measures, only imagery skills, as measured by the IDQ, predicted the presence of a memory for

Event 1. This finding suggests that subjects who judge themselves as having good imagery skills are more likely to produce a memory for the first of two previously unrecalled events. However, for Event 2, only hypnotizable scores reliably predicted whether subjects would produce a memory, in session 2 only.

Overall, it was found that subjects of all hypnotizability levels were both able to produce a first, previously unrecalled event, and rate it as having happened. However, a different pattern emerged for the second event. Although subjects from all hypnotizability levels are equally likely to rate a second previously unrecalled event as having happened, those who are more hypnotically responsive are more prone to produce a second new memory. It therefore appears that some subjects who fell on the lower end of the hypnotizability continuum reported Event 2 as having happened despite not having produced a memory.

In the current study, both previously remembered and unremembered events were elicited. Assuming that previously recalled memories are more likely than newly recalled memories to be accurate, this raises an important question: Can the likely “true” memories be distinguished from the likely

reconstructed ones? The following memory description was provided by a subject who later claimed to have “made it up” during the follow-up phone interview. The example highlights the difficulty, if not impossibility, of distinguishing between real and reconstructed memories:

I remember I was mad at my little brother because he had played a trick on me the night before. He had put something in my bed, but I forgot what, so I took a... frozen pack of ice from the freezer and put it in his bed, so that his bed was soaking wet and cold, and when he went to bed that night, he had noticed it, and he lay down on that ice, and we got into a big fight about it, and he was all wet. So were his sheets. He said he would get me back, but I don't think he ever did.

After reporting this “memory” and during the following week, after repeating it, the subject indicated feeling “sure that this happened.” However, during the follow-up phone interview, she altered her rating to indicate that she no longer thought it happened, acknowledging that “maybe I made it up.”

It is often impossible, on a simple reading of a recounted memory, to differentiate a false from a real memory. As well, attempts to differentiate real and reconstructed events based on subjects' confidence ratings have

proven fruitless. Previous findings have revealed that subjects can be very confident in the accuracy of false memories. This finding has been found to be more pronounced in highly hypnotizable subjects (Nogrody, McConkey, & Perry, 1985; Orne, Soskis, Dinges, Orne & Tonry, 1985).

In the current study, differences across hypnotizability levels were found regarding confidence ratings as well as strength of emotions for the two reconstructed events. For Events 1 and 2, even though confidence ratings were quite high (median score was “pretty confident”), they were significantly correlated with hypnotizability scores. This finding supported the hypothesis that subjects with higher levels of hypnotizability would tend to indicate higher confidence scores in the accuracy of their memories. The finding is also consistent with previous results indicating a relationship between level of hypnotizability and confidence in false memories (Nogrody, McConkey, & Perry, 1985; Orne, Soskis, Dinges, Orne & Tonry, 1985).

For Memory 1, confidence scores were unrelated to hypnotizability scores. Virtually all subjects reported feeling very confident in their memories. Therefore, the lack of significance between confidence scores

and hypnotizability was caused by equally high confidence levels in all subjects. These findings suggest that although low hypnotizable subjects tend to be less confident in the veracity of their reconstructed memories, confidence cannot be used to differentiate real from reconstructed memories because highly hypnotizable subjects show high degrees of confidence.

A second measure differed between real and reconstructed events. It involved the emotion experienced during regression. Anecdotal evidence suggests that emotional salience in clients has been used as evidence of veridicality. Many therapists have claimed that their clients' memories must be real because they were experienced as highly emotional. In the current study, subjects' hypnotizability scores correlated with the strength of the emotions experienced during regression to Events 1 and 2 only. This finding is interesting because it implies that higher hypnotizable subjects are more easily able to generate and experience emotions in response to reconstructed images, compared to low hypnotizable subjects. The correlation between emotion experienced during regression and hypnotizability level was nonexistent for real events. Once more, for real events, subjects will experience emotions regardless of their hypnotizability levels, whereas for

reconstructed memories, low hypnotizable subjects are less likely to experience such emotions, compared to highly responsive subjects.

Therefore, the emotion experienced during regression is not an effective measure to differentiate real from reconstructed events because of the high degrees of emotion shown by subjects. This is especially the case in more highly hypnotizable subjects.

Attempts to differentiate real from imagined events based on the content of each have proven difficult. In reality-monitoring research, some differences have been found between imagined and perceived memories. Among these, an increase in sensory detail is found in perceived memories, as well as a decrease in qualifiers, or signs of uncertainty, relative to imagined memories (Johnson, Foley, Suengas & Raye, 1988; Schooler, Gerhard & Loftus, 1986).

In the current study, significantly more sensory details were found in Memory 1 reports, compared to Event 1 and 2 reports. This finding is therefore consistent with reality-monitoring theory, which posits that perceptual, or real memories will contain more external sensory information relative to imagined events (Johnson, Foley, Suengas, & Raye, 1988).

However, the paradigm of reality-monitoring research differs from that of the current study. In the former, subjects view either a slide sequence or a video depicting an event. Subjects are then divided into two conditions: an accurate condition, and a misinformation condition. In the misinformation condition, false information is suggested. Subjects in each condition are then asked to describe their memories. However, in the current study, false information was not suggested. The decrease in sensory information in Events 1 and 2 is therefore interesting, because it extends this finding to newly reconstructed complex autobiographical events.

In contrast to reality-monitoring research, no differences were found in the number of qualifiers between real and reconstructed memories. Overall, subjects expressed very few signs of uncertainty, and these signs were no more present in reconstructed memories than in previously remembered ones. This finding differs from the typically larger numbers of qualifiers in imagined memories, compared to real, or perceived ones in reality-monitoring research (Schooler, Gerhard & Loftus, 1986).

The lack of a difference in the current study may be accounted for by the different testing paradigm. In the current study, the experimenter had no

means of verifying the details reported, whereas in the reality-monitoring paradigm, the details contained in the slide or movie are known by the experimenter. If subjects are given misinformation from the experimenter, they may become uncertain regarding other details from the slide or movie. This doubt may then translate into an increase in the number of qualifiers in their reports. In the current study, because misinformation was not provided—the experimenter did not communicate any information which might lead subjects to doubt their “memories”—very little hesitation was expressed by subjects while relating their reports.

In conclusion, this study provided evidence suggesting that if subjects are motivated to remember new events, demands from the experimenter are not needed. Subjects, based on their motivation alone, are able to form images which they label as memories. Their new memories will lead them to believe that they in fact experienced a host of events, despite originally rating them as not having happened. Future studies would need to further examine this finding by manipulating subjects’ motivations to remember.

The findings from this study have strong implications for both therapeutic and legal contexts. In both situations, it is assumed that clients

are highly motivated to recall events. The results of this study therefore imply that therapists who do not necessarily advocate the beliefs of recovered-memory therapists, but who are careful not to pressure their clients into remembering, may still unwittingly aid their clients in both producing new memories and believing that they are real. Furthermore, even cautious therapists who refrain from using hypnosis and imagery-related techniques, but instead use other techniques based on relaxation, are still running a large risk of creating memories in their clients. If they do, the current study suggests subjects will continue to believe that the events happened months after having “remembered” them. Of course, the same risk is involved in memory retrieval for legal purposes. Even the cautious questioning of witnesses may be sufficient to create “new” memories which may change the witnesses’ opinion about what they experienced at the time.

It remains to be determined whether any technique for memory retrieval, including the new and popular EMDR, is immune from such problems. Given that a fictitious technique called “focused thinking” involving basic relaxation, produced results no different from hypnosis, the prospect for finding a safe technique is dim if nonexistent. As one subject

claimed while remembering an event, “it’s almost hard not to make it up, you know. As soon as you get the cue word, you can picture everything and you could just make it up, make yourself think it’s real...”

References

Baker, R. A. (1988). The aliens among us: Hypnotic regression revisited. The Skeptical Inquirer, 12, 148-162.

Barclay, C. R. (1986). Schematization of autobiographical memory. In D.C. Rubin (Ed.), Autobiographical memory (pp. 82-99). Cambridge: Cambridge University Press.

Barclay, C. R. (1993). Remembering ourselves. In G.M. Davies & R.H. Logie (Eds.), Memory in everyday life (pp. 285-309). New York: North-Holland.

Barclay, C. R., & DeCooke, P. A. (1988). Ordinary everyday memories: Some of the things of which selves are made. In U. Neisser & E. Winograd (Eds.), Remembering reconsidered: Ecological and traditional approaches to the study of memory (pp. 91-125).

Barnier, A. J. & McConkey, K. M. (1992). Reports of real and false memories: The relevance of hypnosis, hypnotizability, and test context. Journal of Abnormal Psychology, 101, 521-552.

Bartlett, F. (1932). Remembering. London: Cambridge University Press.

Bass, E., & Davis, L. (1988). The courage to heal. New York: Harper & Row.

Belli, R. F., & Loftus, E. F. (1994). Recovered memories of childhood abuse: A source monitoring perspective. In S. J. Lynn & J. W. Rhue (Eds.), Dissociation: clinical and theoretical perspectives (pp. 415-433). New York: Guilford.

Blume, E. S. (1990). Secret survivors: Uncovering incest and its aftereffects in women. New York: Wiley.

Brewin, C. R., Andrews, B., & Gotlib, I. H. (1993). Psychopathology and early experience: A reappraisal of retrospective reports. Psychological Bulletin, 113 (1), 82-98.

Bryant, R. A., & Barnier, A. J. (1999). Eliciting autobiographical pseudomemories: The relevance of hypnosis, hypnotizability and attributions. The International Journal of Clinical and Experimental Hypnosis, 47, 267-283.

Ceci, S. J., & Loftus, E. F. (1994). "Memory work": A royal road to false memories? Applied Cognitive Psychology, 8, 351-364.

Christianson, S-A. (1992). Emotional stress and eyewitness memory: A critical review. Psychological Bulletin, 112 (2), 284-309.

Conway, M. A., & Bekerian, S. A. (1988). Characteristics of vivid memories. In M. M. Gruneberg, P. E. Morris, & R. N. Sykes (Eds.), Practical aspects of memory: current research and issues: Vol. 1. Memory in everyday life (pp. 519-524). NY: John Wiley & Sons.

Courtois, C. A. (1992). The memory retrieval process in incest survivor therapy. Journal of Child Sexual Abuse, 1 (1), 15-31.

Courtois, C. A. (1996) Informed clinical practice and the delayed memory controversy. In K. Pezdek & W. P. Banks (Eds.), The recovered memory/false memory debate (pp. 355-370).

Dawes, R. M. (1995, January). Review of "Return of the furies: An investigation into recovered memory therapy" by Hollida Wakefield and Ralph Underwager. FMS Foundation Newsletter, pp. 11-13.

Demaese, L. (1991). The universality of incest. Journal of Psychohistory, 19 (2), 123-164.

Dolan, Y. M. (1991). Resolving sexual abuse. New York: Norton.

DuBreuil, S. C., Garry, M., & Loftus, E. F. (1998). Tales from the crib: Age regression and the creation of unlikely memories. In S. J. Lynn & K. M. McConkey (Eds.), Truth in memory (pp. 137-160). New York: The Guilford Press.

Fivush, R., Hamond, N. R., Harsch, N., Singer, N., & Wolf, A. (1991). Content and consistency in young children's autobiographical recall. Discourse Processes, 14, 373-388.

Fredrickson, R. (1992). Repressed memories: A journal to recovery from sexual abuse. New York: Simon & Schuster.

Garry, M., & Loftus, E. F. (1994). Pseudomemories without hypnosis. The International Journal of Clinical and Experimental Hypnosis, 42, 363-378.

Garry, M., Manning, C. G., Loftus, E. F., & Sherman, S. J. (1996). Imagination inflation: Imagining a childhood event inflates confidence that it occurred. Psychonomic Bulletin & Review, 3 (2), 208-214.

Gleaves, D. H. (1994). On "the reality of repressed memories." American Psychologist, 49 (5), 440-441.

Goff, L. M., & Roediger, H. L. (1998). Imagination inflation for action events: Repeated imaginings lead to illusory recollections. Memory & Cognition, 26, 20-33.

Goldstein, E. (1992). Confabulations: Creating false memories—destroying families. Sirs Books.

Goldstein, E., & Farmer, K. (1993). True stories of false memories. Boca Raton, FL: SIRS Books.

Green, J. P. (1999). Hypnosis, context effects, and the recall of early autobiographical memories. The International Journal of Clinical and Experimental Hypnosis, 47, 284-300.

Hilgard, E. R. (1977). Divided consciousness: Multiple controls in human thought and action. New York: Wiley Interscience.

Hilgard, J. R. (1979). Personality and hypnosis: A study of imaginative involvement. Chicago: University of Chicago Press, 2nd edition.

Hovdestad, M. A., & Kristiansen, C. M. (1996). A field study of “false memory syndrome”: construct validity and incidence. Federal Legal Publications, Inc.

Howe, M. L., & Courage, M. L. (1993). On resolving the enigma of infantile amnesia. Psychological Bulletin, *113* (2), 305-326.

Hyman, I. R., & Billings, F. J. (1998). Individual differences and the creation of false childhood memories. Memory, *6* (1), 1-20.

Hyman, I. R., Husband, T. H., & Billings, F. J. (1995). False memories of childhood experiences. Applied Cognitive Psychology, *9*, 181-197.

Hyman, I. E., & Pentland, J. (1996). The role of mental imagery in the creation of false childhood memories. Journal of Memory and Language, *35*, 101-117.

Hyman, I. E., & Rubin, D. C. (1990). Memorabilia: A naturalistic study of long-term. Memory and Cognition, *18*, 205-214.

Isaacs, P. (1982). Hypnotic responsiveness and the dimensions of imagery and thinking style. Unpublished Doctoral Dissertation, University of Waterloo, Waterloo.

Johnson, M. K. (1988). Reality monitoring: An experimental phenomenological approach. Journal of Experimental Psychology: General, *117*, 390-394.

Johnson, M. K., Foley, M. A., Suengas, A. G., & Raye, C. L. (1988). Phenomenal characteristics of memories for perceived and imagined autobiographical events. Journal of Experimental Psychology: General, 117, 371-376.

Kandyba, K. (1996). The modification and creation of memories in regression to early childhood and the uterus. Unpublished master's thesis, Concordia University, Montreal, Quebec, Canada.

Kendall-Tackett, K. A., Williams, L. M., & Finkelhor, D. (1993). Impact of sexual abuse on children: A review and synthesis of recent empirical studies. Psychological Bulletin, 113, 164-180.

Keppel, G., Saufley, Jr. W. H., & Tokunaga, H. (1992). Introduction to design and analysis: A student's handbook. New York: W. H. Freeman and Company, 2nd edition.

Kihlstrom, J. F. (1998). Exhumed memory. In S. J. Lynn & K. McConkey (Eds.), Truth in Memory (pp. 3-31). New York: Guilford.

Labelle, L., Laurence, J. R., Nadon, R., & Perry, C. (1990). Hypnotizability, preference for a magic style, and memory creation in hypnosis. Journal of Abnormal Psychology, 99, 222-228.

Lambrinos, A. (1998). The hypnotic creation of improbable memories in regression to early childhood. Unpublished honour's thesis, Concordia University, Montreal, Quebec, Canada.

Larsen, S. F. (1993). Commentary: Memory of schemata, details and selves. In G.M. Davies & R.H. Logie (Eds.), Memory in everyday life (pp. 310-315). New York: North-Holland.

Laurence, J. R., & Perry, C. (1983). Hypnotically-created memory among highly hypnotizable subjects. Science, *222*, 523-524.

Laurence, J. R., & Perry, C. (1988). Hypnosis, will, and memory: A psycho legal history. New York: Guilford Press.

Legault, E. (1996). Beliefs and practices of Quebec clinicians as predictors of recovered memory cases. Unpublished master's thesis, Concordia University, Montreal, Quebec, Canada.

Legault, E., & Laurence, J.-R. (1997). Elicited narratives of childhood sexual abuse: Social worker, psychologist and psychiatrist reports of beliefs, practices and cases. Unpublished manuscript.

Lindsay, D. S., Johnson, M. K., & Kwon, P. (1991). Developmental changes in memory source monitoring. Journal of Experimental Child Psychology, 5, 297-318.

Linton, M. (1986). Ways of searching and the contents of memory. In D.C. Rubin (Ed.), Autobiographical memory (pp.50-67). Cambridge: Cambridge University Press.

Loftus, E. F. (1975). Leading questions and the eyewitness report. Cognitive Psychology, 7, 560-572.

Loftus, E. F. (1979a). The malleability of human memory. American Scientist, 67, 312-322.

Loftus, E. F. (1979b). Reactions to blatantly contradictory information. Memory and Cognition, 7, 368-374.

Loftus, E. F. (1980). Memory: surprising new insights into how we remember and why we forget. London: Addison-Wesley Publishing Company.

Loftus, E. F. (1991). Made in memory: Distortions in recollection after misleading information. The Psychology of Learning and Motivation, 27, 187-215.

Loftus, E. F. (1993). The reality of repressed memories. American psychologist, 48 (5), 518-537.

Loftus, E. F. (1997). Creating false memories. Scientific American, 227 (3), 70-75.

Loftus, E. F., Donders, K., Hoffman, H. G. & Schooler, J. W. (1989). Creating new memories that are quickly accessed and confidently held. Memory & Cognition, 17, 607-616.

Loftus, E. F., & Hoffman, H. G. (1989). Misinformation and memory: The creation of new memories. Journal of Experimental Psychology: General, 118, 100-104.

Loftus, E. F. & Ketcham, K. (1991). Witness for the defence. New York: St. Martin's press.

Loftus, E. F. & Palmer, J. C. (1974). Reconstruction of automobile destruction: An example of the interaction between language and memory. Journal of Verbal Learning and Verbal Behavior, 13, 585-589.

Loftus, E. F. & Pickrell, J. E. (1995). The formation of false memories. Psychiatric Annals, 25, 720-725.

Loftus, E. F., & Zanni, G. (1975). Eyewitness testimony: The influence of the wording of a question. Bulletin of the Psychonomic Society, 5 (1), 86-88.

Lynn, S. J., Lock, T. G., Myers, B., & Payne, D. G. (1997). Recalling the unrecallable: Should hypnosis be used to recover memories in psychotherapy? Current Directions in Psychological Science, 6, 79-83.

Lynn, S. J., Nash, M. R., Rhue, J. W., Frauman, D. C., & Sweeney, C. A. (1984). Nonvolition, expectancies and hypnotic rapport. Journal of Abnormal Psychology, 93, 295-303.

Lynn, S. J., Weekes, J. R., & Milano, M. J. (1989). Reality versus suggestion: Pseudomemory in hypnotizable and simulating subjects. Journal of Abnormal Psychology, 98 (2), 137-144.

Macdonald, G. (1999). Making of an illness: My experience with multiple personality disorder. Ontario, Canada: Laurentian University Press.

Malinoski, P. T. & Lynn, S. J. (1999). The plasticity of early memory reports: Social pressure, hypnotizability, compliance and interrogative suggestibility. The International Journal of Clinical and Experimental Hypnosis, 47, 320-345.

- Maltz, W. (1991). The sexual abuse journey. New York: Harper/Collins.
- Marmelstein, L. R., & Lynn, S. J. (1999). Normative, group, and hypnotic influences on early autobiographical memory reports. International Journal of Clinical and Experimental Hypnosis, 47, 301-319.
- McConkey, K. M., & Kinoshita, S. (1988). The influence of hypnosis on memory after one day and one week. Journal of Abnormal Psychology, 97, 48-53.
- McConkey, K. M., Labelle, L., Bibb, B. C., & Bryant, R. A. (1990). Hypnosis and suggested pseudomemory: The relevance of test context. Australian Journal of Psychology, 42, 197-205.
- Nadon, R., & Kihlstrom, J. R. (1987). Hypnosis, psi, and the psychology of anomalous experience. Behavioral and Brain Sciences, 10, 597-599.
- Nadon, R., Laurence, J. R. & Perry, C. (1987). Multiple predictors of hypnotizability. Journal of Personality and Social Psychology, 53, 948-960.

Nash, M. (1987). What if anything, is regressed about hypnotic age-regression? A review of the empirical literature. Psychological Bulletin, 102 (1), 42-52.

Neisser, U. (1986). Nested structure in autobiographical memory. In D. C. Rubin (Ed.), Autobiographical Memory (pp. 225-252). New York: Cambridge University Press.

Neisser, U. (1994). Self-narratives: True and false. In U. Neisser & R. Fivush (Eds.), The remembering self: Construction and accuracy in the self-narrative (pp. 1-18). Cambridge, MA: Cambridge University Press.

Nogrady, H., McConkey, K. M., & Perry, C. (1985). Enhancing visual memory: Trying hypnosis, trying imagination and trying again. Journal of Abnormal Psychology, 94, 195-204.

Ofshe, R. J. (1992). Inadvertent hypnosis during interrogation: False confession due to dissociative state: Misidentified multiple personality and the satanic cult hypothesis. International Journal of Clinical and Experimental Hypnosis, 40, 125-156.

Ofshe, R., & Waters, E. (1994). Making monsters: False memories, psychotherapy and sexual hysteria. New York: Charles Scribner's Sons.

Olio, K. (1994). Truth in memory. American Psychologist, 49, 442-443.

Orne, M. T. (1951). The mechanisms of hypnotic age regression: An empirical study. Journal of Abnormal and social Psychology, 46, 213-225.

Orne, M. T. (1959). The nature of hypnosis: Artifact and essence. Journal of Abnormal and Social Psychology, 58, 277-299.

Orne, M. T. (1980). On the construct of hypnosis: How its definition affects research and its clinical application. In G. D. Burrows & L. Dennerstein (Eds.), Handbook of hypnosis and psychosomatic medicine. (pp. 29-51). Amsterdam: Elsevier.

Orne, M.T., Soskis, D. A., Dinges, D. F., Orne, E. C. & Tonry, M. H. (1985). Hypnotically refreshed testimony: Enhanced memory or tampering with evidence? In National Institute of Justice: Issues and practices in criminal justice. Washington, DC: US Government Printing Office.

Paivio, A., & Harshman, R. (1983). Factor analysis of a questionnaire on imagery and verbal habits and skills. Canadian Journal of Psychology, 37, 461-483.

Pendergrast, M. (1995). Victims of memory: Incest accusations and shattered lives. Vermont: Upper Axis, Inc.

Perry, C., Laurence, J. R., D'Eon, J., & Tallant, B. (1988). Hypnotic age regression techniques in the elicitation of memories: Applied uses and abuses. In H. M. Pettinati (Eds.), Hypnosis and memory (pp. 128-154). New York: The Guilford Press.

Pezdek, K., Finger, K., & Hodge, D. (1997). Planting false childhood memories: The role of event plausibility. Psychological Science, 8 (6), 437-441.

Pillemer, D. B., & White, S. H. (1989). Childhood events recalled by children and adults. In H. W. Reese (Ed.) Advances in child development and behavior (pp. 297-340). New York: Academic Press, Inc.

Polusny, M. A., & Follette, V. M. (1996). Remembering childhood sexual abuse: A national survey of psychologists' clinical practices, beliefs, and personal experiences. Professional Psychology: Research and Practice, 27, 41-52.

Poole, D. A., Lindsay, D. S., Memon, A., & Bull, R. (1995).
Psychotherapy and the recovery of memories of childhood sexual abuse: U.S.

and British practitioners' opinions, practices, and experiences. Journal of Consulting and Clinical Psychology, 63 (3), 426-437.

Roediger, H. L., Jacoby, J. D., McDermott, K. B. (1996).

Misinformation effects in recall: Creating false memories through repeated retrieval. Journal of Memory and Language, 35, 300-318.

Roediger, H. L., & McDermott, K. B. (1995). Creating false memories: Remembering words not presented in lists. Journal of Experimental Psychology: Learning, Memory, and Cognition, 21, 803-814.

Roland, C. B. (1993). Exploring childhood memories with adult survivors of sexual abuse: Concrete reconstruction and visualization techniques. Journal of Mental Health Counseling, 15, 363-372.

Ross, B. M., (Eds.), (1991). Remembering the personal past: Descriptions of autobiographical memory. New York: Oxford University Press.

Sarbin, T. R., & Coe, W. C. (1972). Hypnosis: A social-psychological analysis of influence communication. New York: Holt, Rinehart & Winston.

Schooler, J. W, Gerhard, D., & Loftus, E. F. (1986). Qualities of the unreal. Journal of Experimental Psychology: Learning, Memory, and cognition, 12, 171-181.

Sheingold, K., & Tenney, Y. (1982). Memory for a salient childhood event. In U. Neisser (Ed.), Memory observed (pp. 201-211). San Francisco: W. H. Freeman and Company.

Sherman, S. J., Cialdini, R. B., Schwarzman, D. F., & Reynolds, K. D. (1985). Imagining can heighten or lower the perceived likelihood of contracting a disease: The mediating effects of ease of imagery. Personality & Social Psychology Bulletin, 11, 118-127.

Shor, R. E., & Orne, E. C. (1962). Harvard group scale of hypnotic susceptibility. Palo Alto, California: Consulting Psychologists Press.

Siegel, S., & Castellan, N. J., Jr. (1988). Nonparametric statistics for the behavioural sciences (2nd ed.). New York: McGraw-Hill.

Snyder, M. (1974). Self-monitoring of expressive behavior. Journal of Personality and Social Psychology, 30, 526-537.

Snyder, M. (1986). Public appearances, private realities: The psychology of self-monitoring. NY: W. H. Freeman and Company.

Spanos, N. P. (1986). Hypnosis and the modification of hypnotic susceptibility: A social psychological perspective. In P. L. N. Nash (Ed.) What is hypnosis? Philadelphia, PA: Open University Press.

Spanos, N. P. (1996). Multiple identities & false memories: A sociocognitive perspective. Washington, DC: American Psychological Association.

Spanos, N. P., Brett, P. J., Menary, E. P., & Cross, W. (1987). A measure of attitude towards hypnosis: Relationships with absorption and hypnotic susceptibility. American Journal of Clinical Hypnosis, 30 (2), 139-150.

Spanos, N. P., Burgess, C. A., & Burgess, M. F. (1994). Past-life identities, UFO abductions, and satanic ritual abuse: The social construction of memories. The International Journal of Clinical and Experimental Hypnosis, 42, 433-446.

Spanos, N. P., Burgess, C. A., Burgess, M. F., Samuels, C., & Blois, W. O. (1999). Creating false memories of infancy with hypnotic and non-hypnotic procedures. Applied Cognitive Psychology, 13, 201-218.

Spanos, N. P., Cobb, P., & Gorassini, D. R. (1985). Failing to resist hypnotic test suggestions: A strategy for self-presenting as deeply hypnotized. Psychiatry, 48, 282-292.

Spanos, N. P., Menary, E., Gabora, N. J., DuBreuil, S. C., & Dewhirst, B. (1991). Secondary identity enactments during hypnotic past-life regression: A sociocognitive perspective. Journal of Personality and Social Psychology, 61, 308-320.

Squire, L. R. (1987). Memory and brain. New York: Oxford University Press.

Sutcliffe, J. P. (1961). "Credulous" and "sceptical" views of hypnotic phenomena: Experiments on esthesia, hallucination and delusion. Journal of Abnormal and Social Psychology, 62, 189-200.

Sutcliffe, J. P., Perry, C. W., & Sheehan, P. W. (1970). Relation of some aspects of imagery and fantasy to hypnotic susceptibility. Journal of Abnormal Psychology, 76, 279-287.

Tabachnick, B. G., & Fidell, L. S. (1996). Using multivariate statistics (3rd ed.). New York: Harper Collins College Publishers.

Tellegen, A, & Atkinson, G. (1974). Openness to absorbing and self-altering experiences ("Absorption"), a trait related to hypnotic susceptibility.

Journal of Abnormal Psychology, 83, 268-277.

Usher, J. A., & Neisser, U. (1993). Childhood amnesia and the beginnings of memory for four early life events. Journal of Experimental Psychology: General, 122 (2), 155-165.

Verny, T. (1981). The secret life of the unborn child. New York: Dell.

Wakefield, H., & Underwager, R. (1994). Return of the furies: An investigation in recovered memory therapy. Peru, Il: Open Court Press.

Weingardt, K. R., Loftus, E. F., & Lindsay, D. S. (1995). Misinformation revisited: new evidence on the suggestibility of memory. Memory & Cognition, 23, 72-82.

Weitzenhoffer, A. M., & Hilgard, E. R. (1962). Stanford Hypnotic Susceptibility Scale, Form C. Palo Alto, California: Consulting Psychologists Press.

Wilson, S. C., & Barber, T. X. (1978). The creating imagination scale as a measure of hypnotic responsiveness: Applications to experimental and clinical hypnosis. American Journal of Clinical Hypnosis, 20, 235-249.

Wilson, S. C., & Barber, T. X. (1983). The fantasy-prone personality: Implications for understanding imagery, hypnosis and parapsychological phenomena. In A. a. Sheikh (Ed.), Imagery: Current theory, research and application. New York: Wiley, 340-387.

Winograd, E., & Killinger, W. A. Jr. (1983). Relating age at encoding in early childhood to adult recall: Development of flashbulb memories. Journal of Experimental Psychology: General, 112 (3), 413-422.

Yapko, M. D. (1994a). Suggestions of abuse: True and false memories of childhood sexual trauma. New York: Simon & Shuster.

Yapko, M. D. (1994b). Suggestibility and repressed memories of abuse: A survey of psychotherapists' beliefs. American Journal of Clinical Hypnosis, 36, 163-171.

Zaragoza, M. S., & Lane, S. M. (1994). Source misattributions and the suggestibility of eyewitness memory. Journal of Experimental Psychology: Learning, Memory, & Cognition, 20, 934-945.

Appendix A

Phone Script

Hello, my name is Kristina and I'm a Ph.D. student in the psychology Laurence & Perry lab from Concordia. We are currently looking for students to participate in a study that is being conducted in our lab. I got your phone number from a list of people who signed up for my study, when I went into your classroom. Let me tell you about my study. It has to do with the possibility of remembering from childhood. It will involve a first group hypnosis session that will last about 1 ½ hours or so. The study will involve 3 additional sessions of about 45 minutes to an hour each. I will also ask you to agree to allow me to call your mother or father or the person who raised you to ask them some questions. This should take about 15 to 30 minutes. The purpose of the call will be to ask them whether or not you experienced certain events from childhood. That's all I will be asking them. Would you be interested in participating?

IF YES: would it be alright to call one of your parents?

IF YES: Ok. Let me first ask you a few questions, and then I'll tell you a little about what to expect for the first, group hypnosis session. Then we can schedule a time.

Are you currently taking medication prescribed by a doctor for controlling mood or anxiety or difficulty in focussing?

IF YES: I see. Well then I hope that you will understand that it would be unwise and in

fact irresponsible of us to sign you up given that it could put you in a bad position. But we really appreciate your interest. Thank you anyway.

IF NO: Are you currently, or have you in the past taken courses taught by Dr. Laurence?

IF YES: Unfortunately, we won't be able to keep you in the study. Dr. Laurence teaches concepts that may bias you for my study. Thank you anyway.

IF NO: Ok, then let me tell you about the first session. It will involve the administration of a standardized scale called the Harvard Group Scale of Hypnotic Susceptibility, and we'll be using a tape recorded version and testing in small groups of about 5 to 10 people. It starts with a relaxation induction which is followed by a series of suggestions, none of which is at all embarrassing— just things like holding your arm out and imagining it getting heavier and heavier, or imagining a fly in the room— that sort of thing. The scale has been used for over 30 years here at Concordia, and elsewhere all over the world. It gives you a good, pleasant introduction to the experience of hypnosis. You'll also be asked to fill out several questionnaires before the hypnosis begins.

Do you have any questions?

Appendix B
Childhood Memory Checklist

Below are a list of events that you might/might not have experienced when you were 10 years old or younger. Beside each, please rate whether:

A = I'm sure or pretty sure that this happened,

B = I don't think this happened but I could be wrong,

C = I'm sure this did not happen (if an item could not have happened (i.e. if you never had a pet), leave it blank)

For now, please ignore the other column (Interest)

	A, B or C	Interest (1 = not... 5 = very)
1) Winning a prize at school	_____	1 2 3 4 5
2) Looking for a lost pet (If you did not have a pet, leave this blank)	_____	1 2 3 4 5
3) Riding a pony for the first time	_____	1 2 3 4 5
4) Seeing a live dolphin	_____	1 2 3 4 5
5) Being lost in a shopping mall or market place	_____	1 2 3 4 5
6) Bringing a pet to the veterinarian (If you did not have a pet, leave this blank)	_____	1 2 3 4 5
7) Finding bubble gum in your hair	_____	1 2 3 4 5
8) Accidentally peeing in your pants in a public place_____	_____	1 2 3 4 5
9) Having your birthday party canceled because you were sick	_____	1 2 3 4 5
10) Visiting someone in a hospital	_____	1 2 3 4 5
11) Going to a funeral	_____	1 2 3 4 5
12) Falling down a flight of stairs	_____	1 2 3 4 5
13) Cutting a sibling's hair (If you do not have a sibling, leave this blank)	_____	1 2 3 4 5

- | | | |
|--|-------|-----------|
| 14) Being brought to emergency | _____ | 1 2 3 4 5 |
| 15) Losing money your parents gave you
and getting in trouble | _____ | 1 2 3 4 5 |
| 16) Getting in trouble with a teacher
or principal, where your parents were notified | _____ | 1 2 3 4 5 |
| 17) Showing your disappointment over a present
from your parents | _____ | 1 2 3 4 5 |
| 18) Losing your house-key and being locked-out
(If a nanny or mother was always at home, leave blank) | _____ | 1 2 3 4 5 |
| 19) Breaking something, and then getting
in trouble with your parents | _____ | 1 2 3 4 5 |
| 20) Throwing your restaurant food on the floor
and embarrassing your parents | _____ | 1 2 3 4 5 |
| 21) Being elected head or president of your class | _____ | 1 2 3 4 5 |
| 22) Ripping the pages of a book and getting in trouble | _____ | 1 2 3 4 5 |
| 23) Going by a car accident with wounded people | _____ | 1 2 3 4 5 |
| 24) Being stranded for a few hours with one or both
of your parents when their car broke down | _____ | 1 2 3 4 5 |
| 25) Stealing an item from a store and getting caught | _____ | 1 2 3 4 5 |
| 26) Coloring all over a wall or table in your home | _____ | 1 2 3 4 5 |
| 27) Getting a kitten as a present
(If you never had a cat, leave this blank) | _____ | 1 2 3 4 5 |
| 28) Singing a song in a school show | _____ | 1 2 3 4 5 |
| 29) Scoring the winning goal of a sports game | _____ | 1 2 3 4 5 |
| 30) Being hospitalized for one or more nights | _____ | 1 2 3 4 5 |
| 31) Catching a large fish with one of your parents | _____ | 1 2 3 4 5 |

- | | | |
|--|-------|-----------|
| 32) Being in a minor car accident | _____ | 1 2 3 4 5 |
| 33) Being stuck in an amusement-park ride | _____ | 1 2 3 4 5 |
| 34) Getting stitches | _____ | 1 2 3 4 5 |
| 35) Pooping somewhere other than in a toilet | _____ | 1 2 3 4 5 |
| 36) Riding a camel or elephant in a zoo | _____ | 1 2 3 4 5 |
| 37) Getting a puppy as a present
(If you never had a dog, leave this blank) | _____ | 1 2 3 4 5 |
| 38) Accidentally breaking a window at home | _____ | 1 2 3 4 5 |
| 39) Bringing an injured animal home | _____ | 1 2 3 4 5 |
| 40) Playing a nasty trick on your teacher or sibling | _____ | 1 2 3 4 5 |
| 41) Calling 911 for fun and getting in trouble | _____ | 1 2 3 4 5 |
| 42) Finding a \$10 or \$ 20 bill on the ground | _____ | 1 2 3 4 5 |
| 43) Winning a stuffed animal at a carnival game | _____ | 1 2 3 4 5 |
| 44) Having someone (like a lifeguard) pull you out
of the water | _____ | 1 2 3 4 5 |
| 45) Getting stuck in a tree, where a parent had
to help you down | _____ | 1 2 3 4 5 |
| 46) Getting grass stains all over a new outfit | _____ | 1 2 3 4 5 |
| 47) Going on a camping trip with your parents | _____ | 1 2 3 4 5 |
| 48) Seeing a live moose in the forest | _____ | 1 2 3 4 5 |
| 49) Returning home way past your curfew
and getting in trouble | _____ | 1 2 3 4 5 |
| 50) Sitting on your father's lap while he drives a car | _____ | 1 2 3 4 5 |
| 51) Lying to your parents and getting in trouble for it | _____ | 1 2 3 4 5 |

- 52) Going to see an "over 13" movie with one of both parents _____ 1 2 3 4 5
- 53) Going on an overnight school trip _____ 1 2 3 4 5
- 54) Falling and hurting yourself in the school yard, where your parents were notified _____ 1 2 3 4 5
- 55) Dropping something on a couch or carpet and staining it _____ 1 2 3 4 5
- 56) Going to a music or rock concert with one or both parents _____ 1 2 3 4 5
- 57) Playing doctor with other kids and getting caught _____ 1 2 3 4 5
- 58) Flushing a pet goldfish down the toilet where your parents found out (if you never had pet fish, leave this blank) _____ 1 2 3 4 5
- 59) Watching a live lobster drop into boiling water _____ 1 2 3 4 5
- 60) Refusing to eat a type of food in your parents' company _____ 1 2 3 4 5
- 61) Getting into a fight at school, where your parents were notified _____ 1 2 3 4 5
- 62) Getting lost in a forest _____ 1 2 3 4 5

Now, please go back through each question rated as **B** and indicate how interested you would be to remember more about this, if it were possible, on a scale from 1 to 5 (**1 = not at all interested to remember... 3= somewhat interested ... 5 = very interested**). Please circle your answer. Thank-you.

Note: Please do not try to verify any of these events with your parents until the end of the study. Thanks!

Appendix C

Memory Beliefs Questionnaire

The questions in this survey consist of **statements that express various beliefs about autobiographical memory and related issues. Please rate your agreement with each statement using the following scale:**

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
-2	-1	0	1	2

Please try to give your honest opinion and use the “Uncertain” response only when you are really not sure of your opinion. Please try to answer all the questions. Thank you.

1. **Everything one experiences is permanently recorded in one’s brain.**

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

2. **Traumatic events can be forgotten and recovered years later.**

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

3. **Memories from early infancy can be reliably recovered in adulthood.**

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

4. **Rehearsing imaginary events can eventually make them seem subjectively real.**

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

5. **Hypnosis enables people to accurately remember information they otherwise could not.**

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

6. **If I was hypnotized, I would expect to remember previously forgotten events.**

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

7. **Hypnotically obtained memories are more reliable than ordinary remembering.**

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

8. People cannot lie when in hypnosis.
- 2 -1 0 1 2
9. Hypnosis can be used in such a way as to create false memories.
- 2 -1 0 1 2
10. Hypnosis can be used to recover memories of actual events from as far back as birth.
- 2 -1 0 1 2
11. Other techniques are just as effective as hypnosis in helping people remember forgotten events.
- 2 -1 0 1 2
12. People can come to believe that they experienced something traumatic when in fact they did not.
- 2 -1 0 1 2
13. The idea of remembering events from my childhood excites me.
- 2 -1 0 1 2

Appendix D

Attitudes Towards Hypnosis Questionnaire

Appendix E

Differential Personality Questionnaire (DPQ): Scale Ab

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 were doubly real. | True | False |
| 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 powerful music, I sometimes feel as if I'm being lifted into the air. | True | False |
| 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 |

Appendix F

The Personal Experiences Questionnaire (PEQ)

Personal Experiences Questionnaire
NADON, REGISTER, & KIHLSSTROM 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 being controlled or were possessed by a spirit? **as a child: yes no**
as an adult: yes no
- 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

- 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

Appendix G

Autobiographical Memory Questionnaire (ABMQ)

Name: _____

Date: _____

Please decide whether you agree or disagree with each statement below. Indicate the extent to which you agree or disagree by circling the appropriate number on the scale.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

1. When I remember events from my past, it feels as though I can remember all the details of those experiences. 1 2 3 4 5
2. When I reminisce with friends or family about experiences we have shared in the past, I find that I can remember the details of those events much better than they can. 1 2 3 4 5
3. In general, I have difficulty remembering experiences from my past. 1 2 3 4 5
4. I feel that the memories I have about my high-school years are vivid and very accurate. 1 2 3 4 5
5. My memory for my first days of elementary school are clear and I can remember many of the thoughts and feelings that I had. 1 2 3 4 5
6. When I look at photographs taken of myself in childhood, I have difficulty remembering when and where a particular photograph was taken and the events that were happening at the time. 1 2 3 4 5
7. I have a clear memory for some of my birthdays in my childhood 1 2 3 4 5
8. I can call to mind experiences from my past very easily whenever I want. 1 2 3 4 5
9. When people tell me about something that I said or did in the past, I usually remember it well. 1 2 3 4 5
10. I tend to only remember very significant, important or meaningful events from my past (e.g., tragic events, great accomplishments or surprises, etc.). 1 2 3 4 5

11. I am sometimes quite amazed by the accuracy and clarity of memory for experiences in my life. 1 2 3 4 5
12. If I were to try, I could probably remember some of the things that happened to me before I was three years old. 1 2 3 4 5
13. My memory of my past is almost like a book that I can open and look through whenever I wish. 1 2 3 4 5
14. I find it easy to remember the things I thought about and believed when I was an adolescent. 1 2 3 4 5
15. I find it quite difficult to remember how I felt or the emotions I had when I was a child. 1 2 3 4 5
16. If I were to try, I could probably remember almost everything I have done in the past three years. 1 2 3 4 5
17. Memories from my past often enter my mind “out of the blue” without me even having to try. 1 2 3 4 5
18. I have a very good memory for most of the things I did when I was sixteen years old. 1 2 3 4 5
19. My memory for the feelings or emotions I have had during different experiences in my life are particularly vivid and clear. 1 2 3 4 5
20. I find it very easy to remember most of the things I did in my childhood. 1 2 3 4 5
21. I usually remember even the most “everyday” or neutral experiences in my life. 1 2 3 4 5

Appendix H

The Snyder Self-Monitoring Scale (SSM)

Name: _____

Date: _____

SSM Scale

The statements below concern your personal reactions to a number of different situations. No two statements are exactly alike, so consider each statement carefully before answering. If a statement is TRUE or MOSTLY TRUE as applied to you, circle T. If a statement is FALSE or NOT USUALLY TRUE as applied to you, circle F.

- | | | |
|--|---|---|
| 1. I find it hard to imitate the behaviour of other people. | T | F |
| 2. My behaviour is usually an expression of my true feelings, attitudes and beliefs. | T | F |
| 3. At parties and social gatherings, I do not attempt to do or say things that others will like. | T | F |
| 4. I can only argue for ideas which I already believe. | T | F |
| 5. I can make impromptu speeches even on topics about which I have almost no information. | T | F |
| 6. I guess I put on a show to impress or entertain people. | T | F |
| 7. When I am uncertain how to act in a social situation, I look to the behaviour of others for cues. | T | F |
| 8. I would probably make a good actor. | T | F |
| 9. I rarely seek advice of my friends to choose movies, books or music. | T | F |
| 10. I sometimes appear to others to be experiencing deeper emotions than I actually am. | T | F |
| 11. I laugh more when I watch a comedy with others than when alone. | T | F |
| 12. In a group of people I am rarely the centre of attention. | T | F |
| 13. In different situations and with different people, I often act like very different persons. | T | F |
| 14. I am not particularly good at making other people like me. | T | F |

- | | | |
|--|---|---|
| 15. Even if I am not enjoying myself, I often pretend to be having a good time. | T | F |
| 16. I'm not always the person I appear to be. | T | F |
| 17. I would not change my opinions (or the way I do things) in order to please someone else or win their favour. | T | F |
| 18. I have considered being an entertainer. | T | F |
| 19. In order to get along and be liked, I tend to be what people expect me to be rather than anything else. | T | F |
| 20. I have never been good at games like charades or improvisational acting | T | F |
| 21. I have trouble changing my behaviour to suit different people and different situations. | T | F |
| 22. At a party I let others keep the jokes and stories going. | T | F |
| 23. I feel a bit awkward in company and do not show up quite so well as I should. | T | F |
| 24. I can look anyone in the eye and tell a lie with a straight face (if for a right end). | T | F |
| 25. I may deceive people by being friendly when I really dislike them. | T | F |

Appendix I

The Individual Differences Questionnaire

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 scenes I have experienced. | -2 | -1 | 0 | +1 | +2 |
| 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 |

Appendix J

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 K

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 of 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 you to notice that the relaxation increases gradually... as 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 colour... 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...

IF EYES STILL OPEN: Read entire paragraph

(IF EYES CLOSED READ BRACKETS ONLY)

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 **(feel)** 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 tired and strained from staring... there is no longer any need to strain them anymore... 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 LEFT 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 left 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 part b.**; 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 reports 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 anymore.. 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 anymore... 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 means... 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

Continue to go deeper and deeper in hypnosis... I'm going to give you a pad and pencil... Let's see, which hand do you write with?... (GIVE A PAD AND PENCIL IN APPROPRIATE HAND). Now please write your name... and while you are at it, can you write your age and the date. That's fine... Keep the pad and pencil in your hands and listen closely to me (IF NEEDED, TELL SUBJECT TO ONCE AGAIN CLOSE EYES

AND REST HEAD ON BACK OF CHAIR)... I would like you to think about when you were in the second or third grade of school... which would you prefer? (WAIT FOR ANSWER). That's fine... In a little while, you will find yourself once again a little (BOY/ GIRL) on a nice day sitting in class in the (2nd or 3rd) grade... Writing or drawing on some paper... I shall now count to 5 and at the count of 5, you will be back in the (Appropriate 2nd or 3rd) grade... **1.** you are going back into the past... it's no longer 1999, 1998, 1997, but much earlier. ... **2.** You are becoming increasingly younger and smaller... Soon you will be back in the (2nd or 3rd) grade, on a very nice day... **3.** Getting younger and younger, smaller and smaller all the time. Soon you will be back in the (2nd or 3rd) grade, and you will feel an experience exactly as you did once before on a nice day when you were sitting in class, writing or drawing... **4.** very soon you will be there, once again a little (BOY/ GIRL) in the (2nd or 3rd) grade. You are nearly there now... in a few moments you will be right back there... **5.** you are now a small (BOY/GIRL) in a classroom in school...

PAUSE

(write down following answers in booklet)

1. What is your name?
2. How old are you?
3. Where are you?
4. What are you doing?
5. Who is your teacher?

6. You have a pad and pencil... I would like you to write your name on the pad with the pencil... Open your eyes now just enough to see the pad, (Pause until name is written)...

That's fine...

7. Now please write down your age... and now the date... and if you can, the day of the week...

(Regardless of responses)

That's fine... and now you can grow up again and come right back to 1999 in the memory lab at Concordia University. You are no longer a little (BOY/GIRL) but a grown up person of (STATED AGE) sitting in a chair, deeply hypnotized.

How old are you?

And what is the date?

Where are you?

That's right... today's date is _____ and you are _____ and this is the memory lab at Concordia.

Fine. everything is back as it was. Now I'll take the pad and pencil.

Duality question:

Could you tell me what it felt like, just now, being age (regressed age). DON'T PROBE FOR DETAILS- KEEP QUESTION OPEN ENDED.

That's fine, now let's go on to something else.

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 anymore. Just relax... relax all over.

9. HALLUCINATED VOICE

I forgot to mention to you a while ago that there is someone in the lab 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

In a little while, I am going to ask you to open your eyes and look to your left, remaining as hypnotized as you are now. I have placed two boxes next to you, on your left side. In fact, that is all there is: 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 colours)

That's right, they are (name colours). By the way, is the (colour of one box) on the right or on the left of the (colour 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 colour 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 yo feel? (if drowsy)... The feelings will go away soon. Now you feel wide awake... (PAUSE)

*****STAND UP and turn on light*****

(IF SUBJECT DOES NOT STAND UP)

Just stand up now, and restore your circulation. That's fine. Now please be seated. 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 L

Induction and Age-Regression Scripts for Focused Thinking (FT), Guided Imagery (GI) and Hypnosis, for both Low-Demand (LD) and High-Demand (HD) Conditions.

INDUCTION FOR FOCUSED THINKING

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 your experience...

You can close your eyes...and just relax.

I'm going to give you some simple instructions that will help you relax even more and experience what we mean by focused thinking.

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... 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...

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 you feel a deep feeling of overall relaxation... of contentment... and of well being... permeating the whole of your body...

With your eyes closed...and being very relaxed, you will be able to experience focused thinking.... but you'll find that no matter how deeply relaxed 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 able to focus while concentrating on events from your past.

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

While your body continues to relax, your mind will also relax, quiet down. In fact, you may notice thoughts flowing through your mind. Just allow your mind to concentrate on them.

Focused thinking (HD)

Continue to relax while listening closely...

Focused thinking is based on a very simple process. First, you choose a memory that will become your anchor point. It may be a memory of about the same age as the ones we'll explore in a few moments. Your anchor point could be a place, like your primary school, or your home, it could be a or even a pleasant event, like a birthday. Just let your mind focus on the thoughts that will soon come to your mind. Once you find an anchor point and focus on it, you begin to remember experiences that were, in one way or another linked to this point. Just take a moment now, just for practice, and think about your own anchor point..... (wait a few moments) What are you thinking about? How old

are you?

Good, you understand how focused thinking works. Now let's now see if you can remember an event (event rated as A)

I would now like you to think about when you were younger... In a moment I will begin to count backwards from 5 to 1 and at the count of 1 you will find yourself more able to think and concentrate on _____ as if you were completely absorbed in that event.

(Pause briefly, then begin counting)

5... you are thinking about the past... Much earlier than 1999... in fact, you're beginning to remember when you were a little boy/girl 4... you gradually begin thinking about yourself when you were younger and smaller. Maybe you think back at the time **that you were in school, or you can think of the house you grew up in, or something else** (depending on memory chosen)... 3... concentrating on the past when you were smaller... 2... very soon you will be able to focus while thinking on the past, becoming completely absorbed in the past, letting this event come back to mind now.. 1... when you think you may be remembering some or all of the events, let me know by lifting a finger on your right hand.

Pause (wait for subject to tell you)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

3. Could you tell me how old you are in your thoughts?

4. Can you describe what is happening?

5. Can you describe what you are thinking about?

(regardless of what the responses have been)

Good, you see how easy it was for you to remember having experienced _____

EVENT 1 (Rated as B)

Now, as I said earlier, when we're not sure whether we experienced an event, this usually means that the event really happened but that we forgot so much of it that we can't bring it to mind. However focused thinking can help us bring these forgotten parts back to mind. Let's now see if you can recall an event that you originally weren't sure you experienced. As I did before, I am going to count backwards from 5 to 1 and as I count back, you will let this event come back to mind... When I reach 1 you will be able to focus on and concentrate your thoughts on the memory of _____.

5... 4... 3... 2... 1 .

If you remember something, let me know by lifting a finger on your left hand.

Pause (wait for subject to be there)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

1. How old are you?

2. What are you remembering?
3. Can you describe what you are **thinking** about?

EVENT 2 (rated as B)

That's fine... now I'm going to ask you to think about and focus on another event to see if it comes back to you. So, as I did before, I am going to count back again from 5 to 1 and when I reach 1 you will be able to concentrate and focus in on the memory of _____ (pause briefly).

5... 4... 3... 2... 1 If you can remember anything, let me know by lifting a finger on your left hand.

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

1. Could you tell me how old you are?
2. Are you starting to remember something?
3. Can you describe what is happening?
5. Can you describe what you're thinking?

Focused thinking (LD)

Continue to relax while listening closely..... I would now like you to think about when you were younger...In a little while you may be able to focus on yourself as a little **boy/girl** _____. You may or may not remember anything. That is fine.

In a moment I will begin to count backwards from 5 to 1 and at the count of 1 you may find yourself more able to think and concentrate on (MEM 1) as if you completely

absorbed in that event. (Pause briefly, then begin counting)

5... you are thinking about the past... Much earlier than 1999... in fact, you're remembering when you were a little boy/girl 4... you gradually begin thinking about yourself when you were younger and smaller. Maybe you think about **your primary school or the house you lived in...** (depending on memory A). 3... concentrating on the past when you were smaller... 2... very soon you will be able to focus while thinking on the past, becoming completely absorbed in the past, letting those events come back to mind now.. 1...you may be letting this event come back to mind.

if you can remember something, let me know by lifting a finger on your left hand.

Pause (wait for subject to tell you)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

3. Could you tell me how old you are?
4. Can you describe what is happening?
5. Can you describe what you're thinking?

(regardless of what the responses have been)

EVENT 1

(regardless of what the responses have been)

That's fine... now I'm going to ask you to try to concentrate on a second experience, one

that you weren't sure you experienced. If you cannot remember any of it, that's fine. In a moment, I am going to count back again from 5 to 1 and when I reach 1 you may be able to focus and concentrate your thoughts on the memory of **_EVENT 1_**.

5... 4... 3... 2... 1

Pause (wait for subject)

2. your name?
 3. Could you tell me how old you are?
 4. Can you describe what is happening?
 5. Can you describe what you're thinking?
- (regardless of what the responses have been)

EVENT 2

That's fine... I'm now going to ask you to try to concentrate on another event. If you cannot remember anything, that is fine.

So, as I did before, I'm going to count back again from 5 to 1 and when I reach 1 you may be able to focus and concentrate your thoughts on the memory of **__EVENT 2__**.

5... 4... 3... 2... 1...

3. Could you tell me how old you are?
4. Can you describe what is happening?
5. Can you describe what you're thinking?

(regardless of what the responses have been)

INDUCTION FOR GUIDED IMAGERY

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 guided imagery...

You can close your eyes... and just relax.

I'm going to give you some simple instructions that will help you relax even more and experience what we mean by guided imagery.

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... 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 spread to your back... your shoulders... and your neck... and your arms... and your legs...

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 you feel a deep feeling of overall relaxation... of contentment... and of well being... permeating the whole of your body...

With your eyes closed... and being very relaxed, you will be able to experience guided imagery.... but you'll find that no matter how deeply relaxed 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 able to visualize and imagine events from your past. Indeed you will probably find that you will be able to visualize these things with great vividness... with great intensity...

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

While your body continues to relax, your mind will also relax, quiet down. In fact, you may notice thoughts and images flowing through your mind. That's fine. Just observe them as if you were looking at a screen or a T.V. set. You are now ready to experience guided imagery.

Begin by imagining 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 5 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... you'll find as you imagine yourself going down, that you continue to relax while the picture becomes clearer and clearer. 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 left 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 5 to 1...

(Wait for finger to lift)

You are now deeply relaxed... and able to experience guided imagery.

Guided imagery (HD)

Continue to relax while listening closely...

Guided imagery is based on a very simple process. First you choose a memory that will become your 'anchor point'. It may be a memory of about the same age as the ones we'll explore in a few moments. Your anchor point could be a place, like your primary school, or your home, or it can be a pleasant event, like a birthday. Just let your mind focus on the images that will soon come to your mind. Once you find an anchor point and imagine it, you begin to remember experiences that were, in one way or another, linked to this point. Just take a moment now, to choose and then visualize your own anchor point...(Wait a few moments). What are you imagining? How old are you?

Good, now understand how guided imagery works... Let's now see if you can remember _____ (event rated as A).

I would now like to begin by asking you to imagine yourself when you were younger. In a little while, you will be able to imagine yourself as a little **B/G**. In a moment, I will begin to count backwards from 5 to 1 and at the count of 1 you will be able to visualize yourself _____ (pause briefly, then begin counting)

5... you are imagining yourself going back into the past. It's no longer 1999 but much earlier. In fact, you're beginning to visualize when you were a little **B/G** 4... you can see

yourself becoming increasingly younger and smaller... soon you will be able to imagine yourself as a little **B/G** . Maybe you can visualize you're your **school, or the house you grew up in, or something else**(depending on memory). 3... Zooming in and seeing yourself getting younger and younger, smaller and smaller all the time 2... very soon the picture will be very clear... imagining yourself as a little **B/G**, zooming in the memory and remembering the sensations you had at the time... letting this event come back to mind 1... When you remember something, let me know by lifting a finger on your left hand.

Pause (wait for subject to tell you)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

- 2. your name?
- 3. Could you tell me how old you are?
- 4. Can you describe what is happening?
- 5. Can you describe what you see?

(regardless of what the responses have been)

Good, you see how easy it was for you to remember having experienced _____.

EVENT 1 (RATED AS B)

Now, as I said earlier, when we're not sure whether we experienced an event, this usually means that the event really happened but that we forgot so much of it that we can't bring

it to mind. However, guided imagery can help us bring these forgotten parts back to mind.

Let's now see if you can recall an event that you originally weren't sure you experienced. As I did before, I will begin to count backwards from 5 to 1 and as I count back, you will let this event come back to mind... you will be able to visualize yourself there. At the count of 1 you will be able to remember _____ (pause briefly, then begin counting)

5... 4... 3... 2... 1...

If you see yourself or remember something, let me know by lifting a finger on your left hand.

Pause (wait for subject to tell you)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

2. your name?
3. Could you tell me how old you are?
4. Can you describe what is happening?
5. Can you describe what you see?

(regardless of what the responses have been)

EVENT 2 (rated as B)

That's fine... now I'm going to ask you to imagine yourself in another event to see if it

comes back to you. So, as I did before, I am going to count back again from 5 to 1 and when I reach 1 you will be able to see yourself while zooming in the memory of

_____ (Pause briefly)

5... 4.. 3... 2. 1... If you can see yourself or remember something, let me know by lifting a finger on your left hand.

Pause (wait for subject to be there)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

2. your name?
3. Could you tell me how old you are?
4. Can you describe what is happening?
5. Can you describe what you see?

(regardless of what the responses have been)

Guided imagery (LD)

Continue to relax while listening closely..... I would now like you to think about and imagine when you were younger... In a little while, you may be able to see yourself as a little (B/G) _____. You may or may not remember anything. That is fine. In a moment, I will begin to count backwards from 5 to 1 and at the count of 1 you may be able to visualize yourself MEMORY 1 (pause briefly, then begin counting)

5... you are imagining yourself going back into the past. It's no longer 1999 but much earlier. In fact, you're beginning to visualize when you were a little **B/G** 4... you can see yourself becoming increasingly younger and smaller... soon you will be able to imagine yourself as a little **B/G** . Maybe you can visualize **your primary school, or the house you lived in, or something else.** (Depending on memory A) 3... Zooming in and seeing yourself getting younger and younger, smaller and smaller all the time 2... very soon the picture may be very clear... imagining yourself as a little **B/G**, zooming in the memory and remembering the sensations you had at the time... 1... letting this event come back to mind

If you can see yourself or remember something, let me know by lifting a finger on your left hand.

Pause (wait for subject to tell you)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

1. your name?
2. Could you tell me how old you are?
3. Can you describe what is happening?
4. Can you describe what you see?

EVENT 1

That's fine... now I'm going to ask you to try and imagine a second event , one that you

weren't sure you experienced. If you cannot remember any of it, that's fine. In a moment, I am going to count back again from 5 to 1 and when I reach 1 you may be able to visualize yourself while zooming in the memory of _____ (Pause briefly)

5... 4... 3... 2... 1...

Pause (wait for subject to be there)

1. Is there anything happening?
2. How old are you?
3. Are you remembering something?
4. Can you describe what you see?

EVENT 2

That's fine... I'm now going to ask you to try to visualize another event. If you cannot remember anything, 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 may be able to see yourself while zooming in the memory of _____ (Pause briefly).

5... 4.. 3... 2 1...

1. Is there anything happening?
1. How old are you?
2. Are you remembering something?
4. Can you describe what you see?

COMING BACK TO THE PRESENT

That's fine, now you can imagine yourself as an adult, in 1999. I'm going to count from 1 to 5 and as I count, you will imagine yourself as an adult .1... 2... 3... 4.. 5...

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

INDUCTION FOR HYPNOSIS

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... as 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 colour... 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 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 tired

and strained from staring... there is no longer any need to strain them anymore... 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... 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 imaging 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 5 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 left 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 5 to 1...

(Wait for finger to lift)

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

Hypnosis: HD

Continue to go deeper and deeper in hypnosis while listening closely...

Hypnosis is based on a very simple process. In hypnosis, you can access your subconscious mind, where every experience is registered. You can go back to previous experiences and feel as though you are there again. You can do this by choosing a memory that will become your 'anchor point'. It may be a memory of about the same age as the ones we'll explore in a few moments. Your anchor point may be a place, like your primary school or your home, or it can be a pleasant event, like a birthday. Just let your mind go back to the images that will soon come to your mind. Once you find an anchor point and go back to it, you begin to remember events that were, in one way or another, linked to this point. Just take a few moments now to choose your own anchor point and go back to it. (Wait a few moments). Tell me about your anchor point? How old are you?

Good, now you understand how it works. Let's now see if you can remember
 _____ (choose an event rated as A).

I would now like you to think about when you were younger... In a little while, you will find yourself once again a little (**boy/girl**) _____. In a moment, I will begin to count backwards from 5 to 1 and at the count of 1 you will be back _____
 (pause briefly, then begin counting)

5... You are going back into the past. It's no longer 1999, but much earlier. In fact,

you're beginning to remember when you were a little **boy/girl** 4.. You are becoming increasingly younger and smaller... soon you will be a little (**boy/girl**) again. Maybe you can remember your **primary school, or the house you grew up in, or something else.**

3... Getting younger and younger, smaller and smaller all the time. 2... You're letting this event come back to mind...very soon you will be there... once again a little (**boy/girl**) feeling the things you felt at the time 1... When you remember something, let me know by lifting a finger on your left hand.

Pause (wait for subject to tell you)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

2. your name?
3. Could you tell me how old you are?
4. Are you there now?
5. Can you describe what is happening?
6. Can you describe what you see?

(regardless of what the responses have been)

Good, you see how easy it was for you to go back to an event that you remembered having experienced.

EVENT 1 (RATED AS B)

Now, as I said earlier, when we're not sure whether we experienced an event, this usually

means that the event really happened but that we forgot so much of it that we can't bring it to mind. However, hypnosis can help us bring these forgotten parts back to mind.

Let's now see if you can remember an event that you originally weren't sure you experienced. As I did before, I will begin to count backwards from 5 to 1 and as I count back, you will let this event come back to mind... and you will gradually be there... a little (boy/girl) feeling the things you felt at the time. At the count of 1 you will be back _____ (pause briefly, then begin counting).

5... 4... 3... 2... 1.

If you remember something, let me know by lifting a finger on your left hand.

Pause (wait for subject to tell you)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

2. your name?
3. Could you tell me how old you are?
4. Are you there now?
5. Can you describe what is happening?
6. Can you describe what you see?

(regardless of what the responses have been)

EVENT 2, (RATED AS B)

That's fine... now I'm going to ask you to go back to another event to see if it comes back

to you. 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 _____ (Pause briefly).

5... 4.. 3... 2. 1... When you remember some, or all of the event, let me know by lifting a finger on your left hand.

Pause (wait for subject to be there)

IF FINGER DOESN'T LIFT, say "Can you tell me what's happening?"

IF NOTHING, SAY That's fine, don't worry about it. Sometimes it may take a little while before it comes back. In the meantime, could you tell me

2. your name?
3. Could you tell me how old you are?
4. Are you there now?
5. Can you describe what is happening?
6. Can you describe what you see?

Hypnosis(LD)

Continue to go deeper and deeper in hypnosis while listening closely..... I would now like you to think about when you were younger... In a little while, you might find yourself once again a little (**boy/girl**) _____. You may or may not remember anything. That is fine. In a moment, I will begin to count backwards from 5 to 1 and at the count of 1 you may be back **memory 1** (pause briefly, then begin counting)

5...you are going back into the past. It's no longer 1999, but much earlier. 4. You are becoming increasingly younger and smaller..soon you will be a little **boy/girl** again 3.. Getting younger and younger, smaller and smaller all the time. 2... very soon you may be

there... once again a little (boy/girl) feeling the things you felt at the time. 1...you may be letting this event come back to mind.

If you remember something, let me know by lifting a finger on your left hand.

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?
- 5. Can you describe what you see?

(regardless of what the responses have been)

EVENT 1

That's fine... now I'm going to ask you to try to go back to a second event, one that you weren't sure you experienced. If you cannot remember any of it, that's fine. In a moment, I am going to count back again from 5 to 1 and when I reach 1 you may find yourself _____ (Pause briefly)

5... 4.. 3... 2. 1...

Pause (wait for subject to be there)

- 1. Is there anything happening?
- 1. Are you there now?

2. How old are you?
3. What is happening?
4. Can you describe what you see?

EVENT 2

That's fine... I'm now going to ask you see if you can remember another event. If you cannot remember anything, 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 may find yourself _____ (Pause briefly).

5... 4.. 3...2 .. 1...

1. Is there anything happening?
2. Are you there now?
3. How old are you?
4. Can you describe what you see?

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) 1999, and you are (correct age) and this is the memory lab at Concordia.

Fine, everything is back as it was.

Appendix N

Harvard Pre-Session Protocol

Put check mark beside names as people arrive

Give out questionnaires and tell them to stop when they reach "Harvard Booklet". Leave the booklet open on the cover "Harvard" page.

While they're filling out Q'aies, mention "you'll have your eyes closed for about 45 minutes. If anyone should want to remove their contact lenses, please feel free to do so".

Be friendly, use your natural charm and social skills to help people feel relaxed and welcome. The goal is to set the mood as friendly and light, not serious and apprehensive.

If people ask questions before everyone has arrived, say something like "that's a question a lot of people might appreciate hearing, so if we could just wait until everyone arrives, I'll be able to answer it.

Wait 10 minutes MAX, then close the door (Make sure "do not knock sign" and "please be quiet sign" are up).

Make sure all lab doors are locked.

Ok. My name is (full name), I'm a (research assistant) (graduate student) here in the Laurence & Perry lab. Thanks for coming.

what we'll be doing today (this evening) is a tape recorded version of the Harvard Group Scale of Hypnotic susceptibility, which was designed at Harvard University in 1962. It remains a standard assessment of hypnotizability to this day.

It begins with a relaxation induction, followed by a series of suggestions ranging from easy to somewhat more difficult. Some people have been found to respond to all or almost all of the suggestions, while others have been found to respond to few or none. These are not the most common patterns of response. Most of you will probably respond somewhere in between.

I'd like to mention an important distinction between an "instruction" and a "suggestion". An instruction would be something like "Hold your arm out in front of you". You should all do this. A suggestion, on the other hand, would be "Now think of your arm getting heavier and heavier". Some of you will respond to this while others won't. So, when you're given an instruction, just follow it voluntarily to "set up" the suggestion that will follow.

Hypnosis has to do with the process of how, just by thinking about an action can lead to the tendency to perform that action. During the session, if you find that you respond to a couple of suggestions in a row and then not to the next 1 or 2 or 3, don't worry. Don't assume that you've

stopped responding. You may respond to others later on.

If by any chance during the session you find that you're not responding, just try to enjoy the relaxation. It's important not to open your eyes and look around. I'm sure none of us would really relax if we thought we were being watched, right?

Any questions?

Ok, space out. Take enough room so that if you put your arm out it won't bump into the table. Turn sideways or any way you feel comfortable, but don't sit on the floor. I'll be turning most of the lights off so you can feel more comfortable.

If you need to cough, sneeze, scratch, or adjust your position during the session, please do so. This won't disturb your hypnosis. In fact, if you don't scratch or adjust your position, this is more likely to disturb your hypnosis.

If you hear noises from the room or if you hear noises from outside, you can either ignore them or use them as a cue to become even more relaxed. This really works for some people.

Appendix O

Telephone Interview with Parents

Hello, my name is Kristina Kandyba, and I'm a Ph.D. student from psychology department at Concordia University. Your son/daughter _____ gave me permission to call you to ask you a few questions about him/her. _____ is participating in a study for my thesis, which involves remembering certain events from childhood. It's important for me to know whether you are aware of whether _____ experienced certain events before age 10. I have already given this questionnaire to _____, but I don't have his/her responses with me, so I won't be comparing them just yet. The purpose of this questionnaire is simply to ask you questions, and not to find out if you are right or wrong. Would it be alright, if I went through a list of events and asked you if you remember whether _____ experienced each? This will take about 15 minutes. Proceed to go through memories.

Thank parent for his/her time. I would ask you not to discuss this phone call with _____ for the next three weeks or so, because it could affect the results of the study. So, if _____ asks you whether or not you remember he/she ever went to a funeral, for instance, please just tell him/her that you were asked not to discuss your memory for these events because it could affect the results of the study. Please don't tell _____ whether or not he/she experienced a certain event because this could affect their memory for that event. Thanks very much for your time. If you should want to contact me, you can do so at 848-2213.

Appendix P

Consent Forms Given to Hypnosis, Guided Imagery and Focused Thinking
Groups

Consent form to participate in research (Given to Hypnosis group)

Today I am volunteering to participate in a research study which involves 3 sessions. The first session will involve my being hypnotized to earlier times in my life, prior to age 10, to see what I remember. I will also be asked questions concerning my experiences, in an interview. This session should last approximately 45 minutes to 1 hour. I will be asked to return for a second session, where I will be once again hypnotized and asked to remember events from my childhood, before age 10. I will again be asked questions following hypnosis. A third session will be scheduled. This session will be similar to the group hypnosis session, but will be done on an individual basis. My hypnotizability level will be tested on a combination of hypnotic items, similar but not identical to those in the group session. This should take about 1 hour.

My participation in this study requires that one of my parents be contacted by telephone by the researcher, Kristina Kandyba. My parent will be asked whether or not they recall my having experienced a given number of events in childhood. This call should take about 15 minutes. I will be asked not to discuss childhood events with my parents until after the end of the study.

I understand that the research will take place at Concordia University, in the Laurence & Perry Lab., room 531-81, and that I may communicate with the researcher (Kristina Kandyba; Ph.D. student), or the supervisor (Dr. Jean-Roch Laurence) at any time to ask questions or discuss any concerns that I may have either before, during, or following the sessions (Tel: 848-2213).

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 sessions will be audiotaped 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 tape. Only the researcher and the supervisor will know, but will not disclose my identity. Only those individuals who are involved in this research will have access to the tape. Finally, I understand that the data from this study may be published, but that my identity will remain confidential.

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 _____

Consent form to participate in research (Given to Guided Imagery group)

Today I am volunteering to participate in a research study which involves 3 sessions. The first session will involve guided imagery. Using a guided imagery technique, I will be asked to recall events from my childhood, prior to age 10. I will also be asked questions concerning my experiences, in an interview. This session should last approximately 45 minutes to 1 hour. I will be asked to return for a second session, where I will be once again asked to remember events from my childhood, before age 10. I will then be questioned about my experiences. A third session will be scheduled. This session will be similar to the group hypnosis session but will be done on an individual basis. My hypnotizability level will be tested on a combination of hypnotic items, similar but not identical to those in the group session. This should take about 1 hour.

My participation in this study requires that one of my parents be contacted by telephone by the researcher, Kristina Kandyba. My parent will be asked whether or not they recall my having experienced a given number of events in childhood. This should take about 15 minutes. I will be asked not to discuss childhood events with my parents until after the end of the study.

I understand that the research will take place at Concordia University, in the Laurence & Perry Lab., room 531-81, and that I may communicate with the researcher (Kristina Kandyba: Ph.D. student), or the supervisor (Dr. Jean-Roch Laurence) at any time to ask questions or discuss any concerns that I may have either before, during, or following the sessions (tel: 848-2213).

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 sessions will be audiotaped 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 tape. Only the researcher and the supervisor will know, but will not disclose my identity. Only those individuals who are involved in this research will have access to the tape. Finally, I understand that the data from this study may be published, but that my identity will remain confidential.

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 _____

Consent form to participate in research (Given to Focused Thinking group)

Today I am volunteering to participate in a research study which involves 3 sessions. The first session will involve my I being asked to think about events from my childhood, prior to age 10. I will also be asked brief questions concerning my experiences, in an interview. This session should last approximately 45 minutes to 1 hour. I will be asked to return for a second session, where I will be once again asked to remember events from my childhood, before age 10. I will then be questioned about my experiences. A third session will be scheduled. This session will be similar to the group hypnosis session, but will be done on an individual basis. My hypnotizability level will be tested on a combination of hypnotic items, similar but not identical to those in the group session. This should take about 1 hour.

My participation in this study requires that one of my parents be contacted by telephone by the researcher, Kristina Kandyba. My parent will be asked whether or not they recall my having experienced a given number of events in childhood. This should take about 15 minutes. I will be asked not to discuss childhood events with my parents until after the end of the study.

I understand that the research will take place at Concordia University, in the Laurence & Perry Lab., room 531-81, and that I may communicate with the researcher (Kristina Kandyba; Ph.D. student), or the supervisor (Dr. Jean-Roch Laurence) at any time to ask questions or discuss any concerns that I may have either before, during, or following the sessions (848-2213).

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 sessions will be audiotaped 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 tape. Only the researcher and the supervisor will know, but will not disclose my identity. Only those individuals who are involved in this research will have access to the tape. Finally, I understand that the data from this study may be published, but that my identity will remain confidential.

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 Q

Subject # _____

For each, please answer the following questions:

for 1st event:

Would you now rate this memory as

A = I'm now quite sure that this happened

B = I now think that this might have happened

C = I don't think this happened but I could be wrong

D = I'm sure this did not happen

1) How confident are you that this is a real memory, on a scale from 1 to 5 (circle answer)

1 (not at all confident) 2 (a little) 3 (somewhat) 4 (pretty) 5 (very confident)

for 2nd event:

Would you now rate this memory as

A = I'm now quite sure that this happened

B = I now think that this might have happened

C = I don't think this happened but I could be wrong

D = I'm sure this did not happen

1) How confident are you that this is a real memory, on a scale from 1 to 5 (circle answer)

1 (not at all confident) 2 (a little) 3 (somewhat) 4 (pretty) 5 (very confident)

for 3rd event.

Would you now rate this memory as

A = I'm now quite sure that this happened

B = I now think that this might have happened

C = I don't think this happened but I could be wrong

D = I'm sure this did not happen

1) How confident are you that this is a real memory, on a scale from 1 to 5 (circle answer)

1 (not at all confident) 2 (a little) 3 (somewhat) 4 (pretty) 5 (very confident)

Appendix R

Post-Regression Questions during Session 2 and 3

SESSION 2/ 3

Subject # _____

Regression to Memory 1:

can you tell me in as much detail as possible what is happening?
How old are you?
Anything else?

Regression to Event 1:

can you tell me in as much detail as possible what is happening?
How old are you?
Anything else?

Regression to Event 2:

can you tell me in as much detail as possible what is happening?
How old are you?
Anything else?

Post-regression questions:

HAVE HIM/HER RE-RATE EACH AS EITHER A, NOW B, C OR D

FOR Memory 1 ask the following:

1. Can you tell me in your own words, how confident you are of this memory.
2. Would you rate your memory as a) a true memory, b) a vague true memory or c) a fantasy or d) as a non memory?
3. On what basis are you making this decision?
4. How vivid (how clear was the picture) was this memory on a scale from 1 to 5
5. How easy was it for you to imagine (or picture) this event from 1 to 5
6. Did you feel any emotions while remembering it today? From 1 to 5 what was the emotion?

How emotional would this event have been at the time, from 1 to 5?
What would the emotion have been?

7. What was the direction of emotion now 1 = unpleasant or negative...5 = pleasant or positive

At the time 1 = unpleasant or negative...5 = pleasant or positive

Event 1: ask the following

1. Can you tell me in your own words, how confident you are of this memory.
2. Would you rate your memory as a) a true memory, b) a vague true memory or c) a fantasy or d) as a non memory?
3. On what basis are you making this decision?
4. How vivid (how clear was the picture) was this memory on a scale from 1 to 5
5. How easy was it for you to imagine (or picture) this event from 1 to 5

6. Did you feel any emotions while remembering it today? From 1 to 5 what was the emotion?

How emotional would this event have been at the time, from 1 to 5?
What would the emotion have been?

7. What was the direction of emotion now 1 = unpleasant or negative...5 = pleasant or positive

At the time 1 = unpleasant or negative...5 = pleasant or positive

Event 2, ask the following:

1. Can you tell me in your own words, how confident you are of this memory.

2. Would you rate your memory as a) a true memory, b) a vague true memory or c) a fantasy or d) as a non memory?

3. On what basis are you making this decision?

4. How vivid (how clear was the picture) was this memory on a scale from 1 to 5

5. How easy was it for you to imagine (or picture) this event from 1 to 5

6. Did you feel any emotions while remembering it today? From 1 to 5 what was the emotion?

How emotional would this event have been at the time, from 1 to 5?
What would the emotion have been?

7. What was the direction of emotion now 1 = unpleasant or negative...5 = pleasant or positive

At the time 1 = unpleasant or negative...5 = pleasant or positive

8. Were you surprised by your experience today? If so, why?

9. Did you feel like both an adult and a child, or did you feel like a child OR an adult?

Appendix S

Additional Questions Asked during Session 3

For session 3 (last regression session only) add the following questions

10. Did you sense that I had an opinion as to whether you could remember or not?

If so, did it matter to you?

11. What were your expectations from the study

what were your expectations before this session?

Did they change over time?

12. What do you think I expected of you?

13. What were the goals of the study?

14. How would you rate FT/ GI/ Hypnosis, as a technique to remember events from childhood?

1) not at all useful 2) a little useful 3) somewhat 4) pretty good

5) excellent

Appendix T
Stanford Protocol

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.
 - b) there is a regression, where I will ask you to go back to a nice day at school in grade 2 or 3 (take the opportunity to ask subject which grade they would prefer). Again, I will ask you to tell me about your experience in hypnosis.

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 concerns (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).

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....

After the Stanford, proceed with post-hypnotic questions.

Remind subject that the audio recording made in the study is kept confidential. Only Kristina listens to it and only the subject number appears on it. Information obtained from them is used for research purposes only. Only their subject number appears on information sheets collected. Only individuals directly involved with the project will have access to them. Any use of material implicating their participation will ONLY be made after written permission is obtained.

Finally, remind subjects that someone will call them in a few months to give them the goals and some findings from the study. In the meantime, they should feel free to contact the primary experimenter or her supervisor at any time.

Thanks subjects for their time.

Appendix U

Post-Hypnotic Questions for SHSS:C

1. How did you find this session?

How did your experience compare to the group hypnosis session?

2. Tell me about your experience when I suggested the mosquito?

How about the suggestion about your arm becoming rigid?

3. In your own words, how did the experience of being asked to go back to the (2nd or 3rd) grade feel like?

4. Did you really feel like you were the younger age? (allow subject sufficient time to elaborate. If he/she appears uncertain of the response, probe for more details in an indirect manner, while avoiding asking leading questions. For example, you could say “could you tell me more about that?”. Don’t cue for specific answers:

5. Did you have ANY sense of being an adult at any moment during your experience of the suggestion? (Probe for details as needed):

6. (ONLY if subject answered YES to question #4).

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 really there?

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

Score + if duality experienced

Appendix V

Additional Questions Asked During Session 4

Session 4 (before Stanford)

Subject # _____

1. GIVE SUBJECT MEMORY LIST (with 3 memories only) and have him/her re-rate each as A, B, C, or D, and rate confidence.

2. ASK SUBJECT IF ANY CHANGES OVER WEEK. ANYTHING HE/SHE WANTS TO TELL ME.

3. "I know Kristina asked you not to discuss these events with your parents, but I realize that it might have been unavoidable. If so, I'd just like to know what you discussed".

For Memory 1 ask:

1. How confident are you that this memory and the event are real? (Describe in own words)

2. Do you feel as confident about it as you did last week?

for Event 1 ask:

1. How confident are you that this memory and the event are real? (Describe in own words)

2. Do you feel as confident about it as you did last week?

for Event 2 ask:

1. How confident do you now feel about this memory? (Describe in own words)

2. Do you feel as confident about it as you did last week?

READ DEBRIEFING:

"Now, your mother/father didn't appear to remember either of the last two events as having happened. When I asked them if you had ever experienced either, they felt sure that you had not. Now, it's possible that she/he was not aware of them/it, or that she/he forgot about them/it.

THEN SAY...

1. "I wonder, how does it make you feel about your memories to know that your mother/father had no memory of them having happened?"

LOOK AT RE-RATING SHEET AND SAY...**2. FOR Event 1:**

A) You rated the second memory (XX) as a (descriptor of rating A, B, C, or D): How do you feel about that rating now?

B) “ for this memory you reported feeling “(descriptor of confidence)”, which was a “(name confidence rating from 1 to 5). Do you still agree with it?”

3.FOR Event 2:

A) You rated the third memory (XX) as a (descriptor of rating A, B, C, or D): How do you feel about that rating now?

B) “ for the third memory (XX), you reported feeling “(descriptor of confidence)”, which was a “(name confidence rating from 1 to 5). Do you still agree with it?”

4. Did you feel any pressure from Kristina to remember events? In other words, did you feel that she would be disappointed if you didn't remember anything?

Appendix W

Follow-up Telephone Interview Questions

Hi, my name is _____, and I'm calling regarding the study on childhood memories you did last term with Kristina. Actually, I'm calling on behalf of her supervisor, Dr. Laurence from the psychology department. He has asked me to call everyone who participated in Kristina's study, in order to get additional information, and also to give you the goals and results she has found so far. This should take about 10 minutes. Would this be all right?

1) Do you remember the 3 events that you were asked to remember? YES NO

2) Can you tell me what they were? (If can't remember, remind the subject).

3) Ok, now that some time has gone by, could you tell me on the following scale, how you feel about these memories today? Let's start with the first one (name the event) _____

How would you rate it today?

A = I'm still quite sure that this happened

B = I think that this happened, but I'm not 100% sure

C = I don't think that this happened, but I could be wrong

D = I'm sure this did not happen

4) Do you think your rating about this memory has changed since you last saw Kristina?

5) how would you rate your confidence that the memory you now have is real?

(If Subjects had no memory:

"How confident are you that the EVENT actually took place, even if you had no memory for it?")

6) Do you think your confidence in this memory has changed since you last saw Kristina?

7) did you talk to your mother/father about this memory after study finished?

If so, what did she/he have to say about it?

8) Let's now move over to the next event (name the event)_____

How would you rate it today?

A = I'm still quite sure that this happened

B = I think that this happened, but I'm not 100% sure

C = I don't think that this happened, but I could be wrong

D = I'm sure this did not happen

9) Do you think your rating about this memory has changed since you last saw Kristina?

10) how would you rate your confidence that the memory you now have is real?

(If Subjects had no memory:

"How confident are you that the EVENT actually took place, even if you had no memory for it?")

11) Do you think your confidence in this memory has changed since you last saw Kristina?

12) did you talk to your mother/father about this memory after study finished?

If so, what did she/he have to say about it?

13) Let's now move over to the next event (name the event)_____

How would you rate it today?

A = I'm still quite sure that this happened

B = I think that this happened, but I'm not 100% sure

C = I don't think that this happened, but I could be wrong

D = I'm sure this did not happen

14) Do you think your rating about this memory has changed since you last saw Kristina?

15) how would you rate your confidence that the memory you now have is real?

(If Subjects had no memory:

Appendix X

Descriptive Statistics and Frequencies for Events 1 and 2 Event-Occurrence

Ratings During Sessions 2 and 3, Across Groups

Descriptive Statistics and Frequencies for Event Occurrence Ratings for
Event 1, during Session 2, Across Groups.

	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>M</u>	2.60	2.40	2.20	2.40	2.01	2.40
<u>SD</u>	0.63	1.06	1.08	1.24	0.96	0.99
<u>Mdn</u>	3	3	2	2	2	2
Frequencies						
“sure it happened”	1	4	5	5	5	3
“think it happened”	4	3	4	3	5	5
“don’t think ...”	10	6	4	3	4	5
“sure it didn’t happen	0	2	2	4	1	2

Note. FT, GI and H refer to focused thinking, guided imagery and hypnosis respectively. LD, HD refer to low and high demand conditions. Mdn refers to Median values. 1 = “I’m sure it happened”, 2 = “I think it happened”, 3 = “I don’t think it happened, but I could be wrong”, and 4 = “I’m sure it didn’t happen”

Descriptive Statistics and Frequencies for Event Occurrence Ratings for
Event 1, during Session 3, Across Groups.

	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>M</u>	2.60	2.27	2.13	2.27	1.80	2.20
<u>SD</u>	0.91	1.16	1.19	1.28	0.94	1.15
<u>Mdn</u>	3	3	2	2	2	2

Frequencies

“sure it happened”	2	6	6	6	7	6
“think it happened”	4	1	4	3	5	2
“don’t think ...”	7	6	2	2	2	5
“sure it didn’t happen	2	2	3	4	1	2

Note. FT, GI and H refer to focused thinking, guided imagery and hypnosis respectively. LD, HD refer to low and high demand conditions. Mdn refers to Median values. 1 = “I’m sure it happened”, 2 = “I think it happened”, 3 = “I don’t think it happened, but I could be wrong”, and 4 = “I’m sure it didn’t happen”

Descriptive Statistics and Frequencies for Event Occurrence Ratings for
Event 2 during Session 2, Across Groups.

	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>M</u>	2.40	2.06	2.53	1.86	1.93	2.20
<u>SD</u>	0.91	1.16	0.99	0.92	1.03	1.08
<u>Mdn</u>	3	2	3	2	2	2
Frequencies						
“sure it happened”	3	7	3	6	7	5
“think it happened”	4	2	3	6	3	4
“don’t think ...”	7	4	7	2	4	4
“sure it didn’t happen	1	2	2	1	1	2

Note. FT, GI and H refer to focused thinking, guided imagery and hypnosis respectively. LD, HD refer to low and high demand conditions. Mdn refers to Median values. 1 = “I’m sure it happened”, 2 = “I think it happened”, 3 = “I don’t think it happened, but I could be wrong”, and 4 = “I’m sure it didn’t happen”

Descriptive Statistics and Frequencies for Event Occurrence Ratings for
Event 2 during Session 3 Across Groups.

	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>M</u>	2.60	2.07	2.40	1.60	1.87	2.27
<u>SD</u>	1.06	1.10	1.24	0.83	1.06	1.33
<u>Mdn</u>	3	2	2	1	1	2

Frequencies

“sure it happened”	3	7	5	9	8	6
“think it happened”	3	1	3	3	2	4
“don’t think ...”	6	6	3	3	4	0
“sure it didn’t happen	3	1	4	0	1	5

Note. FT, GI and H refer to focused thinking, guided imagery and hypnosis respectively. LD, HD refer to low and high demand conditions. Mdn refers to Median values. 1 = “I’m sure it happened”, 2 = “I think it happened”, 3 = “I don’t think it happened, but I could be wrong”, and 4 = “I’m sure it didn’t happen”

Appendix Y

Descriptive Statistics for Memory Measures, Memory 1, Events 1 and 2,
During Sessions 2 and 3

Descriptive Statistics for Memory Measures, Memory 1, Session 2

measure	HLD	FTLD	GILD	HHD	FTHD	GILD
N	13	15	15	15	15	13
Emotion at the time						
<u>M</u>	4.27	4.17	4.20	3.77	4.13	3.85
<u>SD</u>	1.17	1.16	1.08	1.43	1.13	1.63
emotion now						
<u>M</u>	2.46	3.10	3.27	3.37	3.10	3.31
<u>SD</u>	1.45	1.54	1.39	1.54	1.39	1.60
clarity						
<u>M</u>	3.92	4.63	4.17	4.00	4.43	4.42
<u>SD</u>	0.76	0.52	0.92	0.63	0.68	0.49
ease of recall						
<u>M</u>	4.27	4.53	4.33	3.13	4.67	3.46
<u>SD</u>	0.88	0.92	0.98	1.06	0.49	0.97

Note. Values range from 1 = “not at all” to 5 = “very” for each measure.

Descriptive Statistics for Memory Measures, Memory 1, Session 3

measure	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>n</u>	13	15	15	15	15	13
Emotion then						
<u>M</u>	4.27	4.00	4.07	3.93	4.27	4.27
<u>SD</u>	1.17	1.09	1.10	1.39	0.80	1.27
Emotion now						
<u>M</u>	2.12	1.83	2.30	2.67	2.73	2.15
<u>SD</u>	1.42	1.13	1.44	1.50	1.27	1.46
Clarity						
<u>M</u>	4.00	4.60	4.10	4.20	4.47	4.69
<u>SD</u>	1.08	0.71	1.00	0.94	0.58	0.48
Ease of recall						
<u>M</u>	4.46	4.70	4.47	4.10	4.47	4.85
<u>SD</u>	0.66	0.53	0.83	0.97	0.68	0.68

Note. Values range from 1 = "not at all" to 5 = "very" for each measure.

Descriptive Statistics for Memory Measures, Event 1, Session 2

measure	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>n</u>	9	13	12	11	13	11
Emotion at the time						
<u>M</u>	3.66	3.95	3.26	3.45	3.61	4.45
<u>SD</u>	1.44	1.25	1.50	1.44	1.40	0.69
Emotion now						
<u>M</u>	2.78	2.83	2.92	3.09	2.07	2.45
<u>SD</u>	1.79	1.53	1.55	1.52	1.04	1.44
Carity						
<u>M</u>	4.17	3.92	3.65	3.95	3.88	4.04
<u>SD</u>	0.79	0.90	1.54	1.19	0.82	0.72
Ease of recall						
<u>M</u>	4.22	3.83	3.77	3.90	4.00	3.54
<u>SD</u>	1.39	1.11	1.09	1.14	1.02	1.36

Note. Values range from 1 = “not at all” to 5 = “very” for each measure.

Descriptive Statistics for Memory Measures, Event 1, Session 3

measure	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>n</u>	8	13	13	13	12	11
Emotion at the time						
<u>M</u>	3.62	2.92	3.84	3.77	3.87	3.54
<u>SD</u>	1.30	1.71	1.40	1.48	0.95	1.69
Emotion now						
<u>M</u>	2.25	1.76	2.46	2.15	2.75	1.90
<u>SD</u>	1.48	1.21	1.33	1.34	1.36	1.44
Clarity						
<u>M</u>	4.06	3.88	4.30	4.19	4.08	4.27
<u>SD</u>	0.86	0.82	0.86	0.75	1.16	1.19
Ease of recall						
<u>M</u>	4.25	4.15	4.03	4.76	4.12	4.54
<u>SD</u>	1.38	0.89	1.36	0.60	0.95	1.21

Note. Values range from 1 = “not at all” to 5 = “very” for each measure.

Descriptive Statistics for Memory Measures, Event 2, Session 2

measure	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>n</u>	9	12	13	13	15	13
Emotion at the time						
<u>M</u>	2.94	3.62	3.00	3.46	3.66	4.15
<u>SD</u>	1.38	1.46	1.52	1.56	1.54	1.06
Emotion now						
<u>M</u>	2.11	2.33	2.07	2.84	2.20	2.31
<u>SD</u>	1.54	1.49	1.32	1.34	1.47	1.44
Clarity						
<u>M</u>	3.66	4.04	3.92	4.15	3.86	3.92
<u>SD</u>	1.08	0.86	0.86	0.80	0.95	0.94
Ease of recall						
<u>M</u>	4.00	3.45	3.38	3.96	4.20	3.53
<u>SD</u>	1.50	1.07	1.44	1.05	1.06	0.96

Note. Values range from 1 = “not at all” to 5 = “very” for each measure.

Descriptive Statistics for Memory Measures, Event 2, Session 3

measure	HLD	FTLD	GILD	HHD	FTHD	GILD
<u>n</u>	7	11	13	12	14	11
Emotion then						
<u>M</u>	2.71	4.09	2.69	3.58	3.75	3.56
<u>SD</u>	1.80	1.28	1.44	1.38	1.40	1.04
Emotion now						
<u>M</u>	1.86	1.82	2.08	2.75	3.04	1.91
<u>SD</u>	1.57	1.15	1.50	1.48	1.79	1.30
Clarity						
<u>M</u>	4.00	3.64	3.88	4.33	4.14	4.02
<u>SD</u>	1.29	0.92	1.33	0.78	0.77	0.73
Ease of recall						
<u>M</u>	3.50	3.82	4.23	4.25	4.18	4.18
<u>SD</u>	1.26	1.25	1.01	1.14	0.89	1.33

Note. Values range from 1 = “not at all” to 5 = “very” for each measure.

Appendix Z

Frequency of Subjects Reporting Types of Emotion Experienced During
Regression and in Childhood Across Demand Condition and Recall
Technique for Memory 1, Event 1 and Event 2

Frequency of Subjects Reporting Types of Emotion Experienced During
Regression and in Childhood Across Low and High Demand Conditions for
Memory 1

	Negative	Positive	Both	Neutral	<u>n</u>
Emotion during regression					
Low Demand	13	21	0	10	89
High Demand	16	17	4	8	
Emotion during childhood					
Low Demand	18	24	1	1	89
High Demand	25	13	5	2	

Frequency of Subjects Reporting Types of Emotion Experienced During
Regression and in Childhood Across Low and High Demand Conditions for
Event 1

	Negative	Positive	Both	Neutral	<u>n</u>
Emotion during regression					
Low Demand	10	11	2	11	70
High Demand	12	11	4	9	
Emotion during childhood					
Low Demand	20	9	3	2	70
High Demand	20	13	2	1	

Frequency of Subjects Reporting Types of Emotion Experienced During
Regression and in Childhood Across Low and High Demand Conditions for
Event 2

	Negative	Positive	Both	Neutral	<u>n</u>
Emotion during regression					
Low Demand	8	10	0	16	76
High Demand	12	14	2	14	
Emotion during childhood					
Low Demand	18	7	3	6	76
High Demand	25	10	3	4	

Frequency of Subjects Reporting Types of Emotion Experienced During
Regression and in Childhood Across Recall Techniques, for Memory 1

	Negative	Positive	Both	Neutral	<u>n</u>
Emotion during regression					
Focused thinking	11	12	2	5	89
Guided imagery	9	15	0	6	
Hypnosis	9	11	2	7	
Emotion during childhood					
Focused thinking	14	12	3	1	89
Guided imagery	13	13	3	1	
Hypnosis	16	12	0	1	

Frequency of Subjects Reporting Types of Emotion Experienced During
Regression and in Childhood Across Recall Techniques, for Event 1

	Negative	Positive	Both	Neutral	<u>n</u>
Emotion during regression					
Focused thinking	13	7	1	5	70
Guided imagery	5	8	3	8	
Hypnosis	4	7	2	7	
Emotion during childhood					
Focused thinking	17	7	1	1	70
Guided imagery	11	8	4	1	
Hypnosis	12	7	0	1	

Frequency of Subjects Reporting Types of Emotion Experienced During
Regression and in Childhood Across Recall Techniques, for Event 2

	Negative	Positive	Both	Neutral	<u>n</u>
Emotion during regression					
Focused thinking	8	8	0	11	76
Guided imagery	4	10	1	11	
Hypnosis	8	6	1	8	
Emotion during childhood					
Focused thinking	18	5	2	2	76
Guided imagery	13	7	3	3	
Hypnosis	12	5	1	5	

Appendix AA

Number of Subjects Who Produced a Memory versus No Memory Across
Recall Techniques

Recall Technique	Event 1		Event 2	
	Session 2	Session 3	Session 2	Session 3
Focused thinking				
memory	26	26	27	25
no memory	4	4	3	5
Guided Imagery				
memory	24	25	26	24
no memory	6	5	4	6
Hypnosis				
memory	20	22	23	21
no memory	10	8	7	9

Note. "memory" refers to subjects who produced a memory.

"no memory" refers to subjects who did not produce a memory.

Appendix BB

Descriptive Statistics for Word Count on Memory 1 (M), Events (E) 2 and 3

		Demand Condition		Recall Technique			
		Low	High	FT	GI	H	Total
M1S2	<u>M</u>	138.50	201.25	204.13	131.46	199.80	178.13
	<u>SD</u>	78.82	147.06	159.05	71.75	131.67	128.29
M1S3	<u>M</u>	143.14	194.54	173.06	157.69	202.70	175.60
	<u>SD</u>	120.29	139.23	118.53	122.58	172.79	133.29
E2S2	<u>M</u>	137.21	191.87	222.13	129.69	150.80	171.74
	<u>SD</u>	116.87	129.77	154.88	56.80	129.68	126.42
E2S3	<u>M</u>	177.28	211.20	212.33	73.92	210.50	198.71
	<u>SD</u>	126.79	134.01	136.50	105.35	158.46	130.72
E3S2	<u>M</u>	97.71	181.96	153.06	105.31	207.00	150.92
	<u>SD</u>	68.86	143.02	138.56	66.29	154.47	126.79
E3S3	<u>M</u>	121.71	206.62	160.13	155.00	224.60	175.34
	<u>SD</u>	93.97	123.51	97.64	91.49	170.73	119.61

Note. S2 = Session 2, S3 = Session 3. Factorial ANOVA conducted on Total scores. MANOVAs conducted on Demand and Recall scores.

Appendix CC

Descriptive Statistics for Qualifiers in Memory 1 (M), Events (E) 2 and 3

		Demand Condition		Recall Technique			Total
		Low	High	FT	GI	H	
M1S2	<u>M</u>	2.35	3.79	3.80	3.15	2.60	3.26
	<u>SD</u>	2.49	3.02	3.18	2.93	2.45	2.89
M1S3	<u>M</u>	2.07	3.25	3.60	2.00	2.70	2.81
	<u>SD</u>	2.16	3.08	3.60	2.00	2.16	2.80
E2S2	<u>M</u>	3.07	3.33	4.60	2.76	1.80	3.23
	<u>SD</u>	3.89	3.38	4.54	2.65	1.98	3.52
E2S3	<u>M</u>	2.57	3.04	2.66	3.69	2.90	2.86
	<u>SD</u>	3.10	3.12	3.06	3.12	3.38	3.08
E3S2	<u>M</u>	2.21	3.66	2.80	3.69	2.90	3.13
	<u>SD</u>	2.19	3.22	2.93	3.49	2.28	2.94
E3S3	<u>M</u>	1.78	2.66	2.20	2.46	2.40	2.34
	<u>SD</u>	1.71	3.01	2.85	2.69	2.41	2.62

Note. S2 = Session 2, S3 = Session 3. Factorial ANOVA conducted on Total scores. MANOVAs conducted on Demand and Recall scores.

Appendix DD

Descriptive Statistics for Sensory Details

		Demand Condition		Recall Technique		
		Low	High	FT	GI	H
M1S2	<u>M</u>	2.28	1.95	2.53	1.46	2.20
	<u>SD</u>	1.93	2.57	3.20	1.45	1.68
M1S3	<u>M</u>	2.28	1.95	2.26	2.30	1.50
	<u>SD</u>	3.47	2.11	2.43	3.30	2.17
E2S2	<u>M</u>	0.78	0.79	1.33	0.46	0.40
	<u>SD</u>	1.18	1.38	1.58	1.12	0.69
E2S3	<u>M</u>	0.93	1.16	1.53	0.76	0.80
	<u>SD</u>	1.07	1.73	2.09	1.01	0.78
E3S2	<u>M</u>	0.28	0.75	0.80	0.31	0.60
	<u>SD</u>	0.82	1.11	1.32	0.63	0.96
E3S3	<u>M</u>	0.64	1.12	1.26	0.54	1.00
	<u>SD</u>	0.92	1.59	1.75	0.96	1.24

Note. M1, E2, E3 refer to Memory 1, Event 1 and Event 2 respectively. S2 and S3 = Session 2 and Session 3, respectively.

Appendix EE

Descriptive Statistics for Bits of Information

		Demand Condition		Recall Technique		
		Low	High	FT	GI	H
M1S2	<u>M</u>	20.78	28.79	26.26	19.69	33.20
	<u>SD</u>	10.73	23.88	23.01	11.62	23.82
M1S3	<u>M</u>	7.71	10.12	7.80	8.53	12.30
	<u>SD</u>	7.08	9.07	6.10	7.74	11.66
E2S2	<u>M</u>	18.00	21.87	23.40	17.76	19.50
	<u>SD</u>	10.63	10.98	12.02	6.95	13.09
E2S3	<u>M</u>	6.85	8.83	7.53	8.53	8.40
	<u>SD</u>	3.61	4.73	4.35	3.75	5.54
E3S2	<u>M</u>	11.78	25.25	18.20	14.07	31.50
	<u>SD</u>	6.56	20.65	16.80	8.71	24.24
E3S3	<u>M</u>	5.14	8.12	6.66	5.15	10.00
	<u>SD</u>	4.03	5.72	3.43	4.18	7.69

Note. M1, E2, E3 refer to Memory 1, Event 1 and Event 2 respectively. S2 and S3 = Session 2 and Session 3, respectively.

Appendix FF

Descriptive Statistics for New Bits of Information

		Demand Condition		Recall Technique			Total
		Low	High	FT	GI	H	
M1S3	<u>M</u>	14.43	17.38	14.73	14.92	20.40	16.28
	<u>SD</u>	10.33	12.76	6.84	10.91	17.94	11.86
E2S3	<u>M</u>	15.57	16.87	16.67	15.23	17.50	16.39
	<u>SD</u>	12.73	11.87	12.21	11.80	13.23	12.04
E3S3	<u>M</u>	10.93	17.75	12.13	14.61	20.70	15.23
	<u>SD</u>	9.39	11.12	7.97	8.60	15.54	10.90

Note. S3 = Session 3. Factorial ANOVA conducted on Total scores.

MANOVAs conducted on Demand and Recall scores.

Appendix GG

Descriptive Statistics for Changes in Information

		Demand Condition		Recall Technique			Total
		Low	High	FT	GI	H	
M1S3	<u>M</u>	0.29	0.29	0.20	0.31	0.40	0.29
	<u>SD</u>	0.61	0.46	0.41	0.48	0.69	0.51
E2S3	<u>M</u>	0.57	0.37	0.13	0.77	0.50	0.45
	<u>SD</u>	1.34	0.92	0.35	1.69	0.71	1.08
E3S3	<u>M</u>	0.50	0.75	0.33	0.62	1.20	0.66
	<u>SD</u>	0.94	1.15	0.48	1.04	1.54	1.07

Note. S3 = Session 3. Factorial ANOVA conducted on Total scores.

MANOVAs conducted on Demand and Recall scores.